

**REDEFINING A TRADITIONAL CRAFT: PRACTICES OF BLACKSMITHING IN THE
ARTWORK OF TOM JOYCE**

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A dissertation submitted to the Faculty of Humanities and Social Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Masters of Fine Arts by Dissertation.

DECLARATION

I declare that this dissertation is my own unaided work. It is submitted in partial fulfilment for the degree of Master of Arts in Fine Arts at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other university.

(Paola Warrender)

Date

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ABSTRACT

In this study I focus on the creative practice of American artist Tom Joyce and examine how his work can be seen to redefine the traditional craft of blacksmithing. Joyce uses traditional and contemporary blacksmithing techniques to form contemporary sculptures as well as functional items such as custom made architectural and lighting fixtures, vessels, and furniture. He thus brings together fine arts and traditional craft practices in bridging the categories of fine art, craft and design. Through appropriate design, the recycling of selected metal materials and community involvement he creates social awareness around environmental issues as well as highlighting cultural craft practices. The imparting of metalsmithing skills that Joyce has been involved in through teaching groups and individuals by way of apprenticeships and workshops is of particular interest to my own artistic blacksmithing practice. As a maker of forged sculptural works, I have over the last ten years used my work and experience of blacksmithing in facilitating life skills training for South African children and youth, recognizing the value in passing on such skills and experience. The primary aim of my research is to examine how the adoption of a traditional craft practice such as blacksmithing into the realm of fine art may be shown to provide a tool to invigorate sculpture within social and educational contexts. In my research, I draw mainly on writings in the fields of anthropology and craft theory. Texts by anthropologists Tim Ingold, Alfred Gell, Mircea Eliade and Charles M. Keller and Janet Dixon Keller are consulted in my examination of the craft of blacksmithing as an “essential alchemy of art” (Gell in Adamson (ed.), 2010: 464) in which materials and the ideas associated with such materials are used and transformed. Looking at the craft and mythological significance of metalsmithing in relation to Joyce’s creative practice, I go on to consider the potentially transformative experience that the development of metalsmithing craft skills can entail. Writings on contemporary craft by Glenn Adamson, Howard Risatti, Bruce Metcalf and others are brought into my discussion to further elucidate on the value of craft-based work. I finally outline my own creative work produced for this degree in relation to the above.

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Introduction: Tom Joyce: artist-blacksmith

The work of Tom Joyce encompasses a broad and yet specific assemblage of ideas, practices and materials. Joyce is an American artist blacksmith, practicing both traditional and contemporary blacksmith forging techniques. Known for his forged sculptural works, he also specializes in making custom architectural work as well as unique vessel forms, lighting fixtures and furniture. In this sense, his work can be seen to bring together fine arts and traditional craft practices and bridges the categories of fine art, fine craft and design.¹ While Joyce uses traditional skills of metalsmithing, his designs have an affinity with the past but also speak to a contemporary aesthetic. In adopting this age-old craft he can thus be seen to transfer such processes to contemporary expressions and concerns. What distinguishes his creative work is that it reaches beyond the requirements defined by aesthetic appeal and/or functionality. For example, he adds a new dimension to the statement made by his creation through the recycling and forging of found metal objects which carry a historical reference. His pieces often incorporate “parts of his personal history; he has also taken the collective ‘memories’ of entire communities to fabricate gates and other large-scale public installations that remember events that have altered and illuminated their times” and he uses his medium with a strong awareness of the history of its uses and symbolic associations (n.a., 2006: 1).

Joyce also frequently uses his work as an opportunity to educate and involve the community, building awareness around environmental issues and craft cultural practices. He engages students for hands-on learning experience in his studio/blacksmithing shop and offers individual full-time apprenticeships. He says the following about his own work: “Much of my design work carries with it some form of historical reference that may not be apparent at first glance, but offers additional depth with which to read meaning into a piece. These designs result from a need to satisfy functional requirements in a seamless way, so that aesthetic concerns are quietly addressed within the same functional detail and are not merely embellishments on the usefulness of the piece” (Smith, 2001: 44). Joyce’s comment above on design, functional detail and aesthetic concerns points to what craft theoretician Howard Risatti refers to as “the confluence of factors that bring [a fine craft object] into being, including the interaction of material, form, and technique in relation to function” (2007: 129).

¹ The question of what craft is and how it is different from fine art or design has preoccupied many theoreticians. ‘Studio crafts’ (i.e. “the making of crafts as individualistic works of art” (Kenji in Greenhalgh, 2002: 28) started with the Arts and Crafts Movement, and developed throughout the twentieth century. As Sandra Alföldy (2005: 3) notes: “Contemporary professional craft is the child of late modernism. Semantics surrounding the word craft developed in the post-war period when a system of labels based on the legacy of North American modern art were developed and applied to distinguish a new entity, professional North American craft, from its predecessor, traditional craft.” I will address the phenomenon of contemporary studio craft more fully in the following chapters.

The integrity and clarity of purpose expressed in Joyce's comment above comes across clearly in works such as the commission for the *Rio Grande Gate* (1995) which saw him together with community members collect waste material from the banks of the Rio Grande River, New Mexico. He forged the found fragments into large slabs which he then cut and used in the design of the gate for the museum to the Native American School in Santa Fe. The material included 55 gallon drums, metal signs, car bodies, nails and fencing. Such an entrance gate was clearly commissioned to be an architectural element that would enhance the building and have symbolic relevance to the school. The gate consists of a metal mainframe to which square components of rusted steel have been bolted to form a grid pattern. Smaller square sections of the metal forged from the collected fragments were mounted onto each of the rusted plates (they are framed by and protrude slightly off each of the larger squares). The resulting surface makes up a pattern of rusted and shiny squares that resembles a patchwork quilt. Talking about the gate and its incorporation of fragments, Joyce himself comments on "[] my mother being a quilt maker and my father being an amateur archaeologist and thinking about the fragments of things and their use with the culture. [sic] It has taught me of course about the value of the smallest pieces that are generated in the shop" (Stewart M, Dube-Scherr L, Walck K, 2007: 5). Incorporating metal scraps to be recycled in his work, including remnants from his own metalwork, Joyce engages very consciously with the notion of fragments and materials that evoke memory and history.²



Figure 1: Joyce, K. (1997) Assembling the Rio Grande Gates. [electronic print] Available at: <http://www.craftinamerica.org/artists/tom-joyce/> From Craftinamerica.org. From Craftinamerica.org [Accessed 9 Jan 2015]

The craft of quilting is in itself a form of recycling of salvaged fragments and such practices of 'traditional recycling' have always played a significant role in American craft. As Imogen Racz (2009: 6) notes in her book *Contemporary Crafts*: "For the pioneers, the ability to make quilts, furniture and

² Jessica Hemmings mentions bell hooks who comments that quilting can be likened to a spiritual process of renewal: "It involves 'fragmented memories' through the 're-used fabrics in a crazy quilt [which are] contained and kept for the right moment'" (hooks in Hemmings, 2007: 326).

other necessities of life was crucial for survival. In addition, for those settlers who had come for religious reasons, these crafts were considered more important than painting or sculpture, as they were part of the everyday experience of everyone.” The materials and processes of quilting are thus culturally freighted. Joyce’s reference to quilting speaks of an approach to making that incorporates a concern for what Gareth Williams refers to as “recycling, appropriation, sustainability and longevity, to create lasting value in objects” (Williams in Greenhalgh, 2002: 61). In his essay titled *Creating Lasting Values*, Williams goes on to comment that:

In various ways [] the crafts exist to promote lasting value, increasing the meaning and physical quality of objects. The term ‘lasting value’ is open to several interpretations. It can mean the use of high quality materials and techniques to ensure the longevity of an object. It can mean finding an afterlife for materials or components that would otherwise be discarded, because they no longer fulfil their original function or have become obsolete. But it can also mean the perpetuation of traditions and conventions valued in the past, now threatened by social, economic or other changes. Similarly, the phrase can pertain to the spiritual or symbolic meanings inherent in objects, such as their emotional associations or individual characteristics. For a discussion of craft, it must also mean the added value in a handmade object that we preserve and respect above mass-produced commodities (ibid).

In light of the above, Joyce’s relationship to material and technique with reference to fragments in the context of quilting and archaeology points to his striving to make work that will be relevant to the needs of society and that will also engage with environmental issues. In her article titled *Fabrication and Encounter*, Paula Owen underscores this aspect about Joyce’s work by saying: "the process of making and the material from which it is made is crucial to the meaning of the work as he elects materials and methods that are replete with associations [] Joyce creates sculptures from cast-off iron - junk and decommissioned weapons - using ancient blacksmithing techniques in order to intensify his global, socio-political, and environmental concerns" (Owen in Buszek, 2011: 89).

Halper and Douglas (2003: 295) point out how Joyce, in speaking about his own awareness of the historical context from which materials come to us, comments on the “affiliation of his chosen medium with the history of conquest and war and the negative impact of extracting iron ore. His attentiveness to the ethical consequences of smithing infuses his work and life with moral authority.” Joyce is quoted as saying:

Understanding this historical connection provided the first inkling as to how great a responsibility blacksmiths share in using these materials that come charged, through their extraction and manufacture, with so much prior political, environmental, and economic effects. The design of my work is tempered, while living in New Mexico, with full knowledge of how and why iron ultimately arrived here during the fifteenth century when the Spanish first came. Thinking of the later colonial conquests directed from the east is what brought other settlers – my ancestors into the regions of the Midwest and eventually here [] This thinking continues to be one of the most important parts of my work – I think about the responsibility and try to let the work speak to important issues

that surround its manufacture and its use and its recycling. I must recognize the tremendous toll, not only on the environment, but also on human resources to extract and manufacture these bars [of iron] that we kind of take for granted because it's cheap material. It's a partially subsidized industry through tax, land, and utility incentives and so iron comes to us artificially inexpensive (Halper, V and Douglas, D, 2003: 295-296).

Ellen Berkovitch writes of Joyce, in an article titled *Swords into Plowshares*, as being devoted to tracing iron's archaeological histories and she quotes him as saying: "Iron is used over and over and over [] In the same way that there is a good chance that iron I'm using has parts of my granddad's old car in it, there's an equally good chance that there exists in its molecular makeup a Scythian sword or a Hittite axe still poised, waiting for the next battle" (2005: 5). In 1995 Joyce forged and assembled small pieces of dismantled nuclear weapons from the US and former Soviet Union to create a lectern for a commission for the United Nations World Trade Centre in San Francisco. Helmut Hillenkamp, in his interview with Joyce in 1995, describes the fabrication process of the lectern and says of Joyce that he "[] tries to use materials that can already tell a story when they come to him and then he works these materials in such a way that he imposes his forms without depriving them of their ability to recount their history" (1995: 3). It is the combination of social awareness and respect for his materials and their histories and related traditions that give Joyce's work a unique identity.

The style of the *Rio Grande Gate* is a big step away from the classical forms traditionally created with blacksmithing techniques. Combining the architectural project with a project for the students of the school, Joyce involved the learners by giving lectures and facilitating site visits to his workshop for hands-on experience. The production of the gate thus created social awareness around waste and blacksmithing. For Joyce such large-scale work for public spaces provides "a more intense and protracted focus and more opportunity for artistic experiment" and means that he "[] now works in a less rigidly planned manner than in the past. He now intentionally leaves room for the unintentional, the chaotic and the spontaneous" (1995: 4).

Clearly such projects demand a sophisticated technical knowledge of materials and their properties and a high degree of technical manual skill to work the material into its requisite form.³ It is a skill

³ Apart from the skills of craftsmanship and design, the artist blacksmith is required to be competent to handle a public commission. American modernist sculptor Albert Paley considers the complexities of large-scale site-specific projects in his essay *Site-specific Metalwork: An Architectural Dialogue*. Public space commissions come with an agenda linked to the client and community. In the case of a gate, the work is intended to enhance the profile of the complex. The client may include a diverse committee of individuals driving the project. Paley's experience in public commissions is invaluable in understanding the parameter of skill needed to practice at this level of production:

To compete in this process an individual or team must be able to deal with a multiplicity of issues. It is necessary to have the skills to be able to engage within the architectural process and develop a scope of services, detailed budget

acquired through extensive practice and action based on repetition over many years of smithing. The ‘hands-on’ nature of manually forming material into the desired object speaks of a kind of learning that comes through diligent practice and is also best imparted through practical demonstrations to learners.⁴ Howard Risatti (2007: 102) points to where such mastery of skill may eventually lead:

Once technical skill is mastered in an area, the making of an object, like the playing of a piece of music, may offer a transcendent experience to the maker as mastery of motor control allows the maker to work in harmony with material substance to give form to mere shape – something of this Zen-like experience is what M. C. Richards hints at in the title of her book *Centering, In Pottery, Poetry, and the Person*. It is a kind of experience in which conscious mind itself seems drawn through the hands to the tips of the fingers, the farthest outposts of reach and touch. Stretched to the very limits of the body, mind seeps into the object of its intention, giving coherent form to otherwise resistant, inchoate matter.

Craft practices such as smithing which involve physically centred repetitive actions as the basis of manual technique demand a form of “hand-material” coordination, “a coming together of hand, material, and form” (ibid). As Risatti further puts it: “Craft making is centered in material and its transformation through the hand as sensing agent” (ibid: 103). It is in the “process of the hand carrying out technique that the craft object is formed and comes into being. In other words, the craft object’s manifestation as a physical form is directly in and through the hand of the maker; it is through technique that the hand actually *informs* the craft object” (ibid: 108). Joyce epitomizes the materials-based craft-artist who asserts the made properties of art and intensively engages with material.

information, structural analysis and interface systems for shipping and installation. Also included would be legal issues and contract development, liability issues, insurance matters, concerns for handling the work, time lines and related scheduling issues. The individual or team must be able to communicate with the various professions associated with the venture” (Greenhalgh, P (ed.), 2002: 100).

Interestingly, Paley comments that due to the fact that committees handling public commissions are quite sensitive to and even fearful of public response, the crafter is required to “engage in an educational process of consensus building via the community. This educational process, which can be lengthy, may include presenting lectures, articles or displays prior to and/or throughout the presentation of the proposed work” (ibid).

⁴ Howard Risatti is professor emeritus of art history at Virginia Commonwealth University and chair of the department of Craft/Material Studies (2001-2005). He points out that “in terms of technical manual skill, the kind required of the fine artist beginning in the late nineteenth century is [] very different from that of the craftsman, so much so that the two fields have evolved different educational and training methods. George Kubler points out these differences, noting that traditional craft education “requires only repetitious actions” while the work of artistic invention “depends upon departures from all routine. Craft education is the activity of groups of learners performing identical actions, but artistic invention requires the solitary efforts of individual persons. The distinction is worth retaining because artists working in different crafts cannot communicate with one another in technical matters but only in matters of design. A weaver learns nothing about his loom and threads from study of the potter’s wheel and kiln; his education in a craft must be upon the instruments of that craft. Only when he possesses technical control of his instruments can the qualities and effects of design in other crafts stimulate him to new solutions in his own” (ibid:104-105).

Writing on skill and the “involvement of the craftsman, with his tools and raw materials, in an environment,” British anthropologist Tim Ingold⁵ (2011: 352) describes a total field of relations in which the technical skill of the crafter is not simply reduced to the mechanical. In a chapter titled *Of string bags and birds’ nests: skill and the construction of artefacts*, Ingold says that the study of skill demands an ecological approach which he addresses as follows:

To understand the true nature of skill we must [] restore the human organism to the original context of its active engagement with the constituents of its surroundings. As Gregory Bateson argued, by way of his example of the skilled woodsman notching with an axe the trunk of a tree he is felling, to explain what is going on we need to consider the dynamics of the entire man-axe-tree system (1973: 433). The system is, indeed, as much mental as physical or physiological, for these are, in truth, but alternative descriptions of one and the same thing. Skill, in short, is a property not of the individual human body as a biophysical entity, a thing-in-itself, but of the total field of relations constituted by the presence of the organism-person, indissolubly body and mind, in a richly structured environment. That is why the study of skill, in my view, not only benefits from, but *demand*s an ecological approach (ibid: 352-353).

Ingold goes on to point out that:

Granted that the foundations of skill lie in the irreducible condition of the practitioner’s embeddedness in an environment, it follows [] that skilled practice is not just the application of mechanical force to exterior objects, but entails qualities of care, judgement and dexterity (Pye, 1968: 22). Critically, this implies that whatever practitioners do *to* things is grounded in an attentive, perceptual involvement *with* them, or in other words, that they watch and feel as they work. As the Russian neuroscientist Nicholai Bernstein argued some fifty years ago, the essence of dexterity lies not in bodily movements themselves, but in the responsiveness of these movements to surrounding conditions that are never the same from one moment to the next (Bernstein 1996) (ibid: 353).

Ingold mentions Bernstein’s close study of the movements of a skilled blacksmith, striking the iron on the anvil over and over again with a hammer, finding that “while the trajectory of the tip of the hammer was highly reproducible, the trajectories of individual arm joints varies from stroke to stroke” (ibid). Based on this Bernstein concluded that “[] the secret of control lies in ‘sensory correction,’ that is in the continual adjustment or ‘tuning’ of movement in response to an ongoing perceptual monitoring of the emergent task” (ibid). As Ingold notes, these observations are important in that they have implications for the way skills are learnt. If skilled practice can’t be

⁵ In his anthropological writings Tim Ingold offers serious reflection on handwork in art, building, and the making of tools and illustrates thinking through making and learning by doing. Jane Webb observes that for Ingold, “craft practice has provided a model for what he terms ‘sentient ecology’, i.e. the fluid relationship that people have to their environment. The author contrasts this approach to most material culture studies, which he suggests focus on objects “[] almost entirely... [as] meaning and form,” giving them a status closer to that of a two-dimensional sign. In contrast he studies a particular making practice, to emphasize the materiality, rather than the symbolic quality of the form of the object” (2013: 7).

reduced to a formula, then skills are also not passed from generation to generation through the transmission of formulae (ibid).

Learning the skill of blacksmithing is about an education of attention in which the making of things arises in the process of what Ingold terms ‘use,’ or “environmentally situated and perceptually engaged activity” (ibid: 354). The novice’s observation of the skilled practitioner “[] is not detached from, but grounded in, perceptual engagement with his surroundings. [] the key to imitation lies in the intimate coordination of the movement of the novice’s attention to others with his own bodily movement in the world. Through repeated practical trials, and guided by his observations, he gradually gets the ‘feel’ of things for himself – that is, he learns to fine-tune his own movements so as to achieve the rhythmic fluency of the accomplished practitioner” (ibid: 353) The things made are not simply the result of the crafter’s intention. The crafter does not simply reproduce the design according to a preliminary set plan. Rather, the crafter responds to the material within the moment of making (‘use’) which in turn changes the original design and plan. As a result the attentive engagement with material carries its own intrinsic intentionality beyond the crafter’s design, plan and concept.⁶ Ingold’s understanding of how things are made is particularly relevant to Joyce who engages his material, environment and others with attentiveness; his work is an indicator, a point in time expressing the total field of relations engaged to create it. As Helmut Hillenkamp writes in his article for *Art Metal* magazine in 1995 after a visit to Joyce’s studio: “You just know that the person who works in this space is a contrarian of sorts, pursuing a path of attentiveness and reflection in an era of haste and superficiality” (1995: 1).

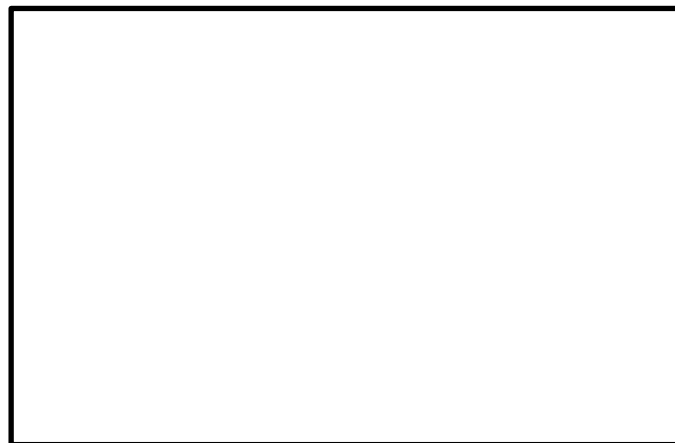


Figure 2: Swansen, E. (2014). Tom Joyce studio outside of Santa Fe. [electronic print] Available at: <https://touchingtheshutter.files.wordpress.com/2014/02/joyce-50.jpg> From Eric Swansen’s touching the shutter [Accessed 9 Jan 2015]

⁶ Ingold’s notion of design is itself not understood as being preliminary to production but rather as something that is developed, much like spiral shells are created by gastropods. Design is in this sense not dictated, but rather developed and the artisan is seen as directly embedded within it or woven into it (ibid: 344).

I first came to know about Tom Joyce's work in conversation with one of my Fine Arts lecturers, Karel Nel, Associate Professor at Wits University and internationally recognized collector and specialist on African art. Nel suggested that I could consider researching the work of Tom Joyce alongside my own interest in blacksmithing towards the MA Fine Arts degree. Joyce is himself an avid collector of African art, and Nel had an opportunity to meet him in America while visiting the exhibition *Life Force at the Anvil: The Blacksmith's Art from Africa* that Joyce had organised and curated in 1998 at the University of North Carolina. Nel showed me a copy of Joyce's exhibition catalogue, which displayed a large part of Joyce's African Art collection. I began to search for information about the artist on the internet and found several short articles on his work and his related interests. Researching Joyce has helped me expand my thinking around the key issues I am concerned with in my own creative work, namely using blacksmithing craft techniques and materials as a means of exploring sculptural forms and engaging in educational craft projects with a focus on the social and educational scope of craft. Joyce integrates traditional craft practices into sculpture and is thereby able to assert tradition and culture, providing him with a rich opportunity for influencing social contexts through creative practice and a culture of teaching. Joyce is actively involved in educational programs focused on blacksmithing. He conducts studio visits to his workshop for students from all over the country, including the Art Institute of Chicago and the Institute of American Indian Arts in Santa Fe. He also assists the Belgian and Estonian blacksmithing residencies for students and is considering a residency for artists at Qnuru⁷ and offers full-time apprenticeships in his shop. His workshop has a number of workstations, in the 1990's accommodating four apprentices and himself.

Joyce designed and built his workshop/studio in Santa Fe, New Mexico, with the help of his wife Julie. Hillenkamp writes that Joyce built an adobe building⁸ "providing a house for his family, a workshop with four work stations and an 'office' that is better described as a museum and library of the blacksmith's craft" (1995: 1) The adobe architectural style is common to Santa Fe, which seems to be a supportive town to live in as an artist blacksmith. Joyce is affiliated to a number of influential art and craft institutions and associations. This network in which he operates, it would seem, affects

⁷ Joyce founded the Santa Fe based solar lighting company named "Qnuru" in 2008. The company develops and produces sustainable design solar light fixtures that promote renewable energy. "With Qnuru, Joyce is able to combine his talents as a sculptor who truly understands how art can uplift public spaces, with his long-held passion for the environment and nature. To create a family of solar landscape fixtures, he marries honed granite, forged or cast iron and aluminium with cutting-edge solar technology, integrating energy collection, power storage, and microprocessor-based control systems" (Green by Design, 2009: 1).

⁸ The artist, his family, and friends built his 2,200-square-foot mud-brick adobe studio in 1987. Using the soil from his land, this organic build requires annual maintenance. It is a lifelong commitment. (Wilson Powel, 2009: 4).

how he is able to create awareness of environmental and craft cultural practices through his art works.

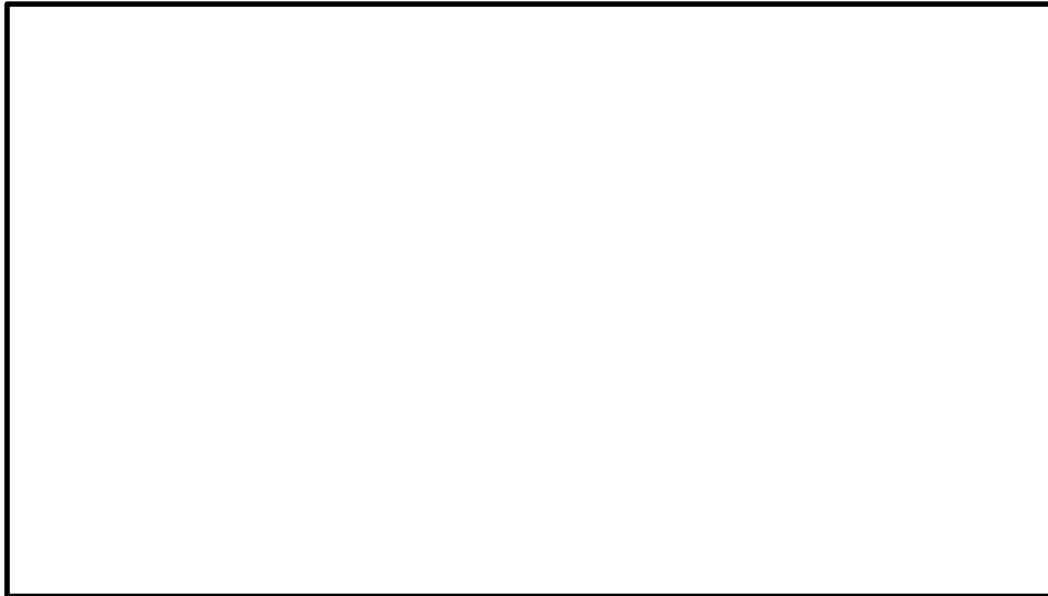


Figure 3: Long, M. (2003). View of forging area in Tom Joyce's workshop. [electronic print] Available at: (<http://www.ganoksin.com/borisat/nenam/tom-joyce.htm> From Ganoksin.com [Accessed 12 March 2014])

Kathleen Whitney, in her article *Tom Joyce - The Iron Iceberg*, describes some of his most powerful artworks with reference to his role as an environmentally conscious and community involved artist blacksmith, concluding that:

Joyce's place within his community derives from his practice as a blacksmith. His trade has given him access to an involvement that would be difficult if not impossible for artists in other disciplines. For the past 30 years, Joyce has shared his knowledge and experience of ironworking with students through high school and college level internships, and currently [2008], free classes for New Mexico Youth. He has completed several commissions that involved community participation through donations of iron [] Joyce's work is distinguished from much contemporary sculpture because the craft necessary to make it is a major presence that acts as an embodying force of meaning and material. The residue of intense physical labour, what the work is and what it says are inseparable (2008: 61).

By attempting to understand Joyce's work and practice for the purpose of this research paper, with the support and guidance of my supervisor Walter Oltmann, acclaimed South African artist and Associate Professor of Art at Wits University, I have been fortunate to be mentored by an inspirational and highly accomplished role model. Like Joyce, Oltmann works with metal. Both Joyce and Oltmann are an example of a successful continuation of traditional craft practices, which are considered by most as possibly irrelevant and unsustainable within current highly technological economies. I tend to agree with Paul J. Smith's following comment on the contribution of the handmade in the 21st century:

Making objects by hand could be considered an obsolete activity in our time, given our seemingly endless supply of quality manufactured merchandise. Today there exists every conceivable product to aid us in aspects of life, at affordable prices. Mail-order catalogues have expanded to home-shopping TV networks, and the relatively new internet resource enables us to buy anything from underwear to a Picasso painting with the click of a button. Why, then, does the urge persist to make, and to own, something crafted by hand? Obviously, the vast array of mass merchandise available to us motivates our desire to possess something personal and unique [] What attracts us to these objects is their essential humanity. A handmade object has a soul, reflecting the spirit and personal pride that went into its creation. When it becomes someone's treasured possession, this intrinsic living quality is transferred from maker to owner; the spirit of the object becomes an unspoken exchange of energy that is shared with subsequent owners, endowing the object with immortality (2001: 14).

Engaging with the information about Joyce and working closely with Oltmann in developing my research project and practical work, has led to positive critical self-reflection regarding my own art practice and involvement in craft education in South Africa.

The craft projects that I have been engaged with during the past 10 years have been focused on life skills training for South African youth and children. The blacksmithing craft training provides the youth with skills to design, manufacture and install artist blacksmith architectural wrought iron work, including gates, railings, burglar bars and domestic hardware for clients and places of need. We have designed and manufactured wrought iron gates, burglar bars and fencing for Norah's Educare Centre in Daveyton, Oasis Haven Orphanage in Randburg, Setloana Primary School and Mayibuye Primary School in Tembisa and for St Vincent School for the Deaf in Melrose, Gauteng. Children are trained to make small-scale wrought iron jewellery, wall hooks, bells and other items. This has formed the basis of the life skill imparted to the learners. My primary role has been to facilitate this process with the help of full time blacksmiths.⁹

⁹ In 2004, in partnership with St Vincent School for the Deaf and the Department of Labour, I began implementing craft skills learnership training programs for vocational deaf learners and youth from the Gauteng area, to improve employment access and income generating capacity of these learners. My introduction to blacksmithing was through a visiting master goldsmith from Sweden who started a Forge at the Waldorf School that I attended in Bryanston, Johannesburg. The goldsmith invited me in 1996 to complete a craft teacher training at the Kristofferskolan Handverkshuset, Stockholm. I spent two and a half years working with Master goldsmith Hasse Scherlund, blacksmith Turid and Master book-binder Wolfgang Bremer. In 2006 I briefly worked with blacksmith Gustav Winkler at the therapeutic Folkshogskolan in Jarna, Sweden. The workshops in Sweden were based on the Waldorf School education system and the crafts, including blacksmithing, were taught as a life skill with an emphasis on learning a skill for its therapeutic value. Engaging in craft activities was understood to benefit the learner's personal development, which has been the focus of the craft training company I started in 2004, Vuka Design, and am still running. On returning from Sweden, I attended art therapy training with Hayley Berman from 1999 to 2003. In comparison with other training providers learner attrition rate, Vuka Design had a very low attrition rate and an 80% pass rate. By asserting the traditional blacksmithing craft practices in the training program, learners developed a better work ethic and self-confidence, which indirectly improved their ability to find and maintain a job and earn an income. The blacksmith craft practice when learnt comes with a set of limits that forces the learner to change their behaviour and attitude. These limits include the management of the fire, the nature of the iron, the procedures of working with the tools and equipment, the safety regulations of a metal workshop and the necessity



Figure 4: Warrender, P. 2012, Vuka Design burglar bars at Norah's Educare Centre, Daveyton, JHB.[Photograph]



Figure 5: Warrender,P. 2009, Vuka Design Gate at St Vincent School for the Deaf, Melrose, JHB.[Photograph]

of working as a team to produce a product. Please see the case study of our most recent project included below, looking at the South African educational context specific to this project and how these challenges can be addressed through craft skills training. Vuka Design's donor and primary support, multinational engineering company, Multotec, has conducted an impact assessment of what the training program offers within an impoverished community in Tembisa, JHB.



Figure 6: Warrender,P. 2013, Vuka Design forge demonstration and learner work, Mayibuye Primary School, Tembisa, JHB.[photographs]



Figure 7: Warrender, P. 2014, Vuka Design 2014 Learners work.[photographs]

Joyce's example of integrating the traditional craft practice of blacksmithing in sculptural forms has been an inspiration for my own art practice. Unlike Joyce, I am not a master blacksmith. I use fire, metal, anvil and hammer to create metal objects of personal meaning that I sew and imbed into leather coats, which are made from safety welding aprons and jackets. The blacksmith trainers and some of the learners' I work with have collaborated in making the forged objects for the coats. I am inspired by Joyce's work and identify with his approach to making within a broader community. With his creative practice as artist blacksmith ranging from sculptor, researcher, community project director and educator, his work and he himself are received and critically appreciated in two areas of cultural practice, namely fine art and craft.

In his recent books *Thinking Through Craft* (2007) and *The Invention of Craft* (2013), Glenn Adamson¹⁰ addresses the studio craft versus art divide and notes that the adoption of craft techniques in the production of fine art is increasingly common and has a complex history. According to Adamson, craft is perceived to be inferior to art as it is often defined as that which is utilitarian and has a specific function or use. This distinction is, arguably, seen to separate it from art. He discusses five characteristics of craft that generate this second class status. Craft is supplementary, sensual, skilled, pastoral and amateur in relation to art. However, it seems that it is as a result of being marginalised that craft is an important, vital and interesting point of access to understanding and valuing contemporary art. This is of particular interest to my own artistic blacksmithing practice and to approaching an understanding of Joyce's work and practice and will be examined more closely later on in my research. Adamson asks the question "[...] to what extent does craft constitute an opportunity for real creative freedom, in which critique, perspective and individualism can flourish?" (2007: 105-06). I hope to be able to shed some light on how Joyce's craft practice can be seen to enact this opportunity.

Joyce's creative work is significant for the way in which it shifts boundaries between fine art and what is generally perceived as studio craft.¹¹ His work asserts the importance of the hand-made but he employs his craft manufacturing technique and skill to create artwork that carries a conceptual content linked to the choices he makes. The emergence of a conceptual craft mode in studio craft practice is discussed by Gerald W Ward in the following passage:

While studio craft developed in the postwar era out of the Arts and Crafts tradition, it has consciously moved beyond it toward more nonfunctional objects based in

¹⁰ Dr. Glenn Adamson is deputy head of research and head of graduate studies at the Victoria and Albert Museum, London (V&A). He graduated from Yale University with a doctorate in art history; his studies focused on the history of post-World War II craft. He leads a graduate program in the history of design, collaboratively offered by the V&A and the Royal College of Art and is a frequent contributor to museum catalogues and journals such as *Crafts* and *American Crafts*. Adamson has insisted "that we define craft solely as a general process of making, and rejects the idea that craft is "a movement or field," as Risatti (2007) has, for example, defined it (Shiner, 2012:5).

¹¹ Peter Korn (2013: 92-93) traces the development of studio crafts as follows: "The origin of the American studio craft movement is generally credited to a small number of post-World War II trail blazers [] These include Peter Voukos (1924-2002) in ceramics, Harvey Littleton (1922-) in glass, and Leonore Tawney (1907-2007) in fiber, among others. People with similar motivations had creatively explored craft media prior to World War II, but [] Voukos et al. were positioned at the historical moment when craft began to benefit from a long demographic surge. It grew slowly through the fifties, a bit faster in the sixties, and then took off in the seventies with the influx of [] participants in the hippie counterculture who were searching for fulfilment through alternative lifestyles. Unlike proponents of the Arts and Crafts Movement, who had been drawn to a formal ideology, most practitioners of studio craft stumbled into the party. For a long time, there was no concept of "studio-craft" as an actual movement. There was only a groundswell: hundreds and then thousands of people made similar life choices, often in relative isolation, each working within mental horizons common to the era. As the pool of craftspeople increased, it provided a fertile environment for the progenitors to influence; it also became a community large enough to embody a shared narrative in which their achievements mattered."

conceptualism, a theoretically driven movement that has affected the practice of artists across media. Conceptual craft artists differ from their Arts and Craft counterparts on several key levels. First, their work has progressively become more sculptural and less functional [] studio craft utilizes traditional media and techniques in new conceptual ways. Conceptual art initially developed in the mid-1960s as artists sought to disengage from visual aesthetics in favor of creating art about ideas [] The emergence of glass, wood, fiber, and ceramics as vehicles for conceptually based art is a new development attributable to the studio craft movement. This conceptualization of studio art has allowed for personal expression by artists of traditional media (Ward and Muniz, 2007: 22-24).

“Conceptual craft” refers in this sense to craft objects that are informed by ideas, i.e. “objects whose fullest interpretation depends on a conceptual context and a knowing audience, willing to “unpack” them” (Dahn, 2011: 158).¹²

When considering that the processes and techniques that Joyce employs can be traced back to the Iron Age, when iron ore was smelted in clay furnaces and forged into iron arrow and spear heads, the impact of the work is that much more powerful in its respectful acknowledgement of such traditions of making and creatively revisiting and reinterpreting them to current needs and conditions. Bruce Metcalf,¹³ who is himself a practicing metalsmith, comments on his feeling of a particular identity as metalsmith in relation to the history of the craft. In an essay titled *Crafts: Second Class Citizen?* He writes:

[] when I say, “I am a metalsmith,” what do I include that doesn’t have to do with other artistic disciplines? First of all, craftsmen have a different history. The history of crafts goes back to the beginnings of culture, and it contains an incredibly rich and varied body of work and ideas. Each group within the crafts contains its own sub history – the story of how each culture used the material and techniques of that discipline. And this history is of great importance to all of us, because it can give us an identity – a historical context – that is not shared by painting and sculpture. The more that you know about the history of crafts and the history of your own discipline, the more connected you feel with the ongoing process of the human condition – at least, I’m beginning to feel that way. I take pleasure in associating my work with the metalsmithing of past civilizations, for it gives me a sense of belonging to a process that is much larger, and vastly more important, than I am (1980: 6).

Expressing a similar sentiment, Joyce concludes during an interview for the *Memory* Episode for *Craft in America* in 2007, that “[] being a blacksmith has exposed me to a long history of making that

¹² Dahn further points out: “When it was first used, however, in relation to developments in art of the 1960s, “conceptual” referred exclusively to practices where the art object had been “dematerialized.” In other words, ideas occupied center stage and its material character, its “objecthood,” had become little more than a sign of the intellectual process from which it arose” (ibid).

¹³ Bruce Metcalf is a studio jeweller and writer from the Philadelphia area who has written extensively about issues in contemporary craft. He has taught at Kent State University, the University of the Arts, Philadelphia, and several other schools.

provides a kind of a fuel for any other work that I make” (<https://www.youtube.com/watch?v=oQMejulzPcg>).

Joyce’s work is very evidently technically refined, of a high quality and carries a conceptual content that elevates it beyond the notion of craft in the sense of the hand-made, aesthetic, functional object. He can be seen to be engaged in a process of inquiry, an exploration of ideas, predicated on and exploiting the characteristics of metal. The transformation of the material is a central concern and significance unfolds with the making. Manipulation of material remains a central consideration and figures large in the construction of meaning in his work together with the associative power of his materials.¹⁴ Whether it is his *Baptismal Font* produced for the *Santa Maria de la Paz Catholic Church*, Santa Fe, or his *Two-to-One* benches produced for the *Museum of Art and Design*, New York, these works have an aesthetic, material and historical content which has relevance both for the space the sculptures inhabit and for the people who view and/or use them. The Baptismal font he forged in 1995 is described by Rob Edwards in his Interview with Joyce (1999) as follows:

The wide, circular ledge surrounding the bronze font was forged from objects donated by parishioners of the Santa Maria de la Paz Catholic community in Santa Fe. Each object represents an important memory from the individual’s past: garden fencing from a deceased grandmother’s garden plot, an old key found by a nun on pilgrimage in Nazareth, Israel, 25 years ago when she was deciding whether to enter the convent, hardware which was the only remaining evidence of a family home destroyed in a fire, a Nash Metropolitan car jack from the last car the parish priest owned before entering the seminary. These, along with many other fragments of donated iron, were combined to illustrate a multi-layered historical matrix. The children are baptized in the living memory of their ancestral roots, as they are welcomed into the church. The sound of water resonates throughout the church as it runs continuously out of the font and over the granite boulder that holds it. Oxidation from the font and minerals in the water mark the passage of time on the stone surface. No synthetic finish was used on the piece, so parishioners share in the maintenance of it through daily oiling. This activity further engages each person, reminding them of the sacrament central to this vessel and the life-giving importance of the water it contains (Edwards, 1999: 3)

¹⁴ Paula Owen, artist, author and President of the Southwest School of Art since 1996, shows how a fetishism of technical virtuosity alone often engulfs the craft field. The technical expertise invested in a work becomes an end in itself and negates conceptual content or intent. Owen shows how work such as Joyce’s, however, is rather understood as an investigation of intercreativity, sensuality, material, culture and practice, “[] content and meaning emerge during use, as well as from the materials themselves and the traditional methods of fabrication that are rich in social and cultural history” (Owen in Buszek, 2011: 90).

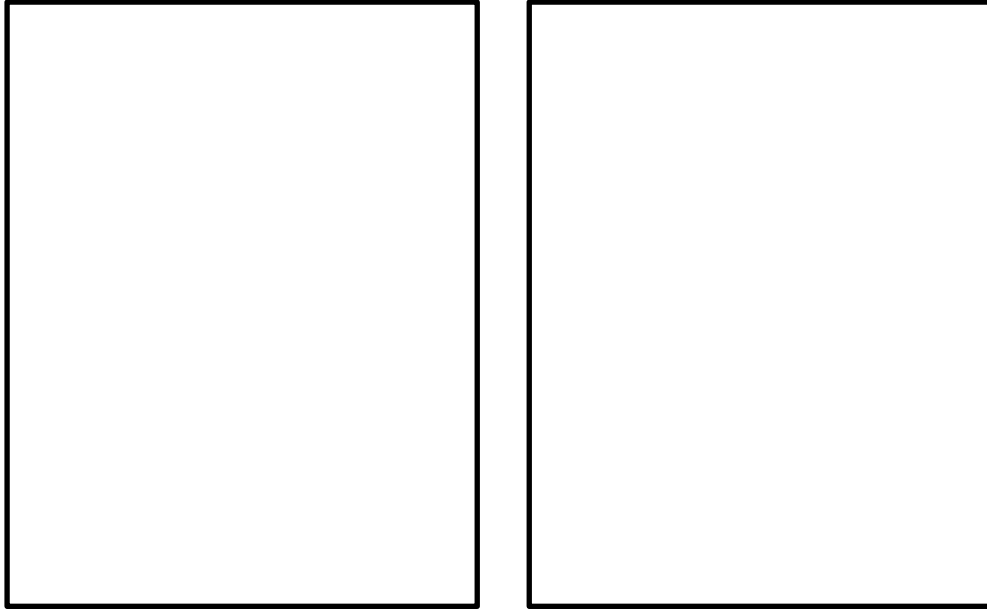


Figure 8: Merrick, N. (1999). Tom Joyce Baptismal font with detail, Santa Maria de la Paz Catholic Community, Santa Fe, New Mexico [electronic print] Available at: <http://www.anvilmag.com/smith/910d4.htm>. From Anvilmag.com [Accessed 9 Jan 2015]

It is the context of the work that it is created for and used in and it is the skilled engagement with material that seem to imbue the work with heightened significance, injecting conceptual practice with craft sensibility (Dahn in Buszek, 2011: 169). Gareth Williams, in his chapter *Creating Lasting Value*, writes, “lasting value is created if products and individual objects are fitted to the specific of their local environment” (Williams in Greenhalgh, 1991: 70).

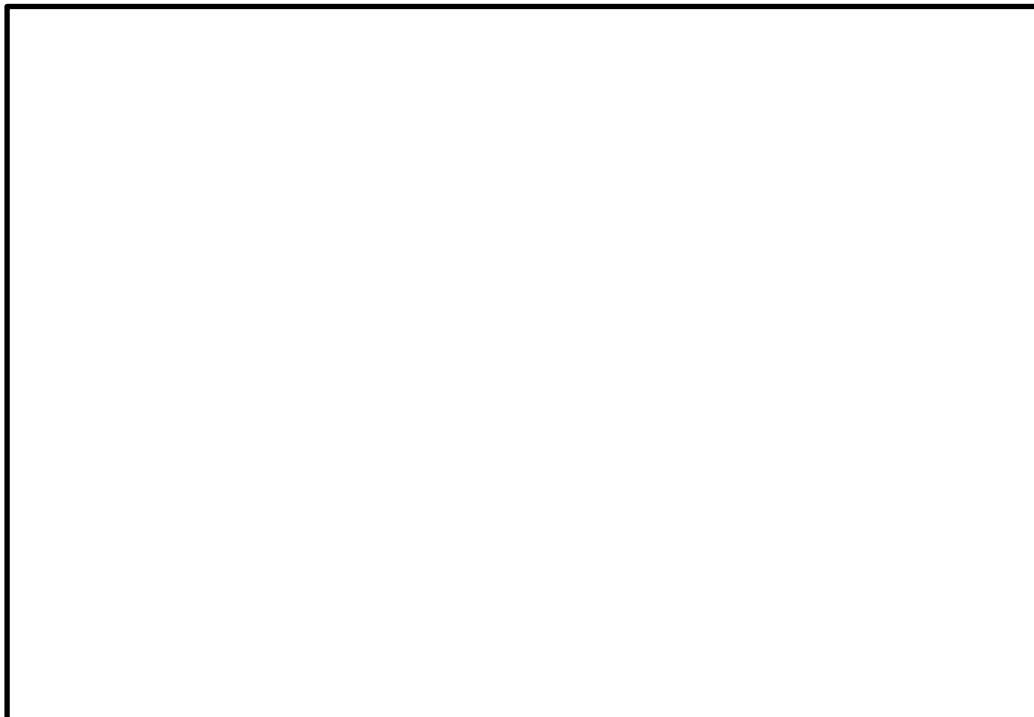


Figure 9: TL Magazine. (2010) Tom Joyce, Installation of seven two-to-one benches outside of the Museum of Art and Design, New York. [electronic print] Available at: <http://blog.tlmagazine.be/wp-content/uploads/2015/02/16.jpg> From TlMagazine.be [Accessed 4 March 2015]

The *Two to One* benches installed at the Museum of Art and Design, New York, were created by Joyce at an industrial forge that manufactures industrial weaponry from steel. Joyce was able to re-work reject metal into sculptures, using industrial size presses, furnaces and steel. The benches sit like solid weights in the landscape, the stainless steel cubes of varying dimensions have been pressed together, creating a seemingly off balance whole. Without embellishment, the material is all present with its contradiction of being rock solid, cold in winter and hot in summer, and at the same time evident of softness in its squeezed and squashed state.¹⁵ Approaching these benches, I imagine, is an experience of approaching the material directly. In its transformed state the material manipulated becomes a catalyst for a number of associations, allowing Joyce to communicate content. On 4 March 2015, the benches were dedicated and Joyce participated in a live debate in which he, together with Glen Adamson and L Leitmann, “traced [his] singular [] unique approach to the manipulation of material” (n.a., 2015: 1). The benches are described in the same article as follows:

Playing on the visual illusion of its own weight, the objects – composed of soft clay-like qualities – invite pedestrians to rest while at the same time providing a metaphorical platform to illustrate the conceptual responsibility of sharing with a profession that continues to facilitate indispensable solutions on an unprecedented scale for industries operating throughout the world.

This invitational aspect also comes across in an interview conducted by Barry Fields in 2007 in which Joyce is quoted as saying the following about his work: “A lot of times the work is conceived without asking why, all generous art - art that invites other’s participation - leaves room for others to bring personal meaning to it, further interpreting the artist’s process and possible intention” (Fields, 2007: 2).

Joyce employs various technical processes for specific purposes. He uses both basic and highly sophisticated technical equipment (including the industrial forging equipment at Scot Forge, Illinois) to forge his work, and he has not limited the choice of his processes to basic forging techniques. He has expanded the processes to include other materials, for instance wood, which he imprints with hot metal; he uses found objects which he forges into a base mass of steel, and he casts found materials together with steel. He thus employs wide, eclectic means to manufacture his art work. This research paper will closely explore his blacksmithing practice, how he employs his skills as a

¹⁵ Ingold comments on this malleability of forged iron as follows: “Red-hot iron at the forge has the consistency of beeswax, but if the smith seeks to bring out its softness and elasticity, then the result, once the iron has cooled, will express precisely those properties that the material, now hard and rigid, no longer possess” (2011a: 29).

contemporary artist, how he explores the creative potential in these traditions, and how he uses them as a vehicle for social transformation, awareness and development.

In an essay titled *Accommodating Modernism: Mid-century Silversmithing and Enameling* (2012), Metcalf points out that the barrier to successful entry into the field of metalsmithing is very high in that the metalsmith has to practice for years before achieving a high degree of control. It also usually requires a substantial capital expenditure and a significant investment of planning and time to produce such work. The substantial investment in technique and tools, and the limited volume of work that a single smith can produce has generally made metalsmiths conservative and less willing to experiment. Joyce has managed to do this through sheer commitment. He has addressed the demands of training in his chosen craft, he has established a studio with the necessary equipment, and he has persevered and maintained openness to exploring ideas. As Kathleen Whitney puts it:

Joyce is a significant figure in part because of his social and political convictions. His commitment to working at a scale that encompasses both local and planet-wide community makes him unusual. Because his work is grounded in process and labour, it has retained a kind of innocence and deep purpose, which allows it to occupy a space that is more than aesthetic – it's generous, intelligent, and deeply committed to the present (2008: 61).

Joyce is a highly skilled blacksmith yet he had no direct formal blacksmith or Fine Arts training. Born in Tulsa, Oklahoma in 1956, it was during the 1970's that he first learnt traditional blacksmith craft skills. He made and repaired printing press machine parts with blacksmith Peter Wells. Dropping out of school at 16 to pursue his work as a blacksmith, Joyce rented Wells' workshop to continue working as a blacksmith in making and repairing tools and domestic hardware within his community in El Rito, New Mexico.¹⁶ He broadened his craft and design skills by visiting American museums and copying Spanish colonial iron blacksmith pieces on display.¹⁷ By the mid 1980's Joyce was working as

¹⁶ Joyce's beginnings as a blacksmith in the 1970's saw him working in a farm community in El Rito, repairing and making tools for the community. Rob Edwards quotes Joyce in his article published in *Anvil Magazine*, January 1999, *Interview with Tom Joyce Part 1 of 2*.

During my summers in El Rito, I worked in the shop of a printer, helping him set type and doing other odd jobs for him. His machinery was constantly in need of repair and he had set up a forge just to keep on top of those repairs and to provide agricultural tools for the village farmers. I was included in all that work, as well. When I was 16, he decided to move the printing shop to Albuquerque, about 125 miles south of El Rito. He didn't want to let go of his place in El Rito, his home and blacksmith shop, so he offered me the place, including the forging shop, for \$27 a month rent. I was 16 then (Edwards, 1999: 1).

¹⁷ Helmut Hillenkamp, in his 1995 article *A Wellspring of ideas on the Prairie, A visit with Tom Joyce*, recounts Joyce's process of becoming a blacksmith:

His creative impulse led him to drop out of school at age 16 and devote himself entirely to the craft of smithing. He visited countless museums—especially those with archives in the cellar—and then went home to make his own copies of historical pieces in forged iron. With this approach, over the years he established for himself a standard of quality and expertise that has brought him international recognition. His manner is very modest and it was only after six years of experience in metalwork that he began to bill himself as an “artist blacksmith”. It should be said in this regard, that in the USA there is effectively no functioning, formal system of training for handcrafts. It's generally left up to the individual how he'll go about accumulating the necessary experience and expertise. Currently [1995], Tom has another man in the shop who works with him so that he can learn the craft. Three others have recently completed several years of apprenticeship

an artist blacksmith, as well as making and repairing tools, furniture and domestic hardware. He built his own home and studio in Santa Fe, New Mexico and from 1989 worked mainly as an architectural blacksmith, his production ranging from hand-held bowls to large-scale gates and railings. Joyce became known for his expertise as an artist blacksmith and began receiving commissions for public works and sculptures for exhibition.

Joyce has since received prestigious awards of excellence for his practice as craftsman and as an artist. He has received honouree recognition by long standing blacksmith associations, notably the *Addy Taylor Silver Chalice* awarded to him in 1989. This is considered the highest honorary fellowship award into *The Worshipful Company of Blacksmiths* which has been in existence in England for 700 years. This and other such awards by similar associations represents a standard of excellence with relevance to craft, recognition of which is bestowed on individuals that achieve this level of excellence in their work. Tom Joyce is considered a Master Blacksmith.¹⁸

While Joyce is internationally acknowledged as a master smith, he has also been acknowledge as a valued contemporary artist by receiving grants and residencies, such as the *Mac Arthur Foundation Fellowship* award¹⁹ which he received over a period from 2003-08 and the *John Michael Kohler*

and collaboration with him and are now pursuing their own careers as smiths. While Tom believes in the value of European training in the craft, he tries to pursue alternative methods as well. Catchwords like ecology, sensitivity to the natural landscape, recycling, eliminating hierarchy and holistic thinking aren't just empty slogans for him. They are concepts to the realisation of which he devotes considerable time and energy (Hillenkamp, 1995: 2).

¹⁸ According to the *The Worshipful Company of Blacksmiths* website, historically, before a blacksmith could be considered a competent smith and able to teach apprentices of his own, he had to come before the Wardens and demonstrate his skills by making his 'master piece'. When candidates are assessed for awards, many different aspects of blacksmithing are taken into account. All ironwork should start with a vision of the finished article. This will normally be in the form of a drawing, which may be produced by the smith or by a third party such as an architect, or specialist designer for blacksmiths. Where the smith has produced the design it should be appropriate for its location and use and show an understanding of aesthetics and form. It is important that the smith is able to read and interpret a drawing and reproduce precisely what is on the drawing. If any aspect of an architect's design is impractical to manufacture or "won't work" the smith should be able to recognize this and inform the designer accordingly. The appropriate materials must be selected for the piece and correct techniques used to produce the required results. All processes, regardless of the methods and tools employed, should display a high standard of workmanship and finish. The strength and safety of structural or public pieces must be given high priority and appropriate insurance cover maintained. The finished article should be appropriately priced, fit for purpose and of a much higher quality than merely "merchantable". Candidates for awards will be expected to demonstrate that they employ good working practices with regard to health and safety in the workplace and that their businesses are run in a competent manner. The examination for any award will always be carried out by a blacksmith who has, at a minimum, attained the award that he is assessing (http://blacksmithscompany.org/activities/the_craft).

¹⁹ Wilson-Powell comments: "As the MacArthur Foundation fellowship comes to an end this year (2009), their no-strings-attached funding has increased Joyce's appetite for inquiry, innovation, and action. Although he never did manage the five-month sojourn to Africa he originally planned, during his spring 2008 visit to that continent, he cultivated new connections and renewed longstanding ones. Most significantly, in his work with metal, the MacArthur support meant Joyce successfully explored a dramatic scaling up of his sculpture and challenged himself to find ways of using his expertise within the environment of a large industrial forge" (Wilson-Powell, 2009: 26).

*Art/Industry Residency*²⁰ awarded in 2002 and 2005 (<http://jameskelly.com/bios/JoyceTom.pdf>). Joyce's sculptures can be found in public collections across America and in England in museum collections of art, craft and design. He has exhibited his work in galleries, museums, universities, institutions, conferences and at festivals since 1981. He has had 148 solo and group shows in America and his work is written about in books concerning art and craft, in American newspaper and journal publications, craft and art magazines and art catalogues.²¹ Joyce has been interviewed on American T.V., Radio and some of his work and processes are recorded on video. Due to his range of interests and technical expertise, Joyce has significantly contributed to the securing of African blacksmithing art collections for American museums and for his own personal collection. In 2008 he re-visited blacksmiths in Central and West Africa, researching their work and practices and building personal relationships. He will be co-curating an exhibition in 2015 of historic forged artefacts from all over the world, including Africa, for UCLA's Fowler Museum. Joyce has assembled collections of African metalwork for four museums (Wilson-Powell, 2009: 27).

Joyce has achieved the high degree of technical control that Metcalf writes about with regard to practicing as an artist blacksmith. Over the past 30 years he has successfully set-up and maintained a fully equipped forge/studio that enables his production. Through his ever increasing success as an artist blacksmith he has managed to secure industry partnerships, as in the case of Scot Forge, Illinois, which have enabled him to produce both small-scale and extremely large-scale public sculptures. Similarly, when he was awarded the *John Michael Kohler Art/Industry Residency* in 2002 and 2005, he had access to the foundry at which he was able to do steel castings and expand his range of technique beyond traditional forging processes. Joyce has managed to transcend the challenges that Metcalf describes. He has mastered the technical challenges of becoming a blacksmith and the investment challenges of setting up and maintaining a forge. Despite the intense planning and slow production process of blacksmithing, Joyce remains innovative in his practice. His work is socio-politically relevant and conceptually powerful as a result of his deep engagement in research and its direct application in his making process. This is clearly evident in his work, for

²⁰ The John Michael Kohler Arts Center has an arts/industry program, the primary component of which is a residency program at Kohler Company. Artists have the opportunity to spend two to six months creating works of art utilizing industrial materials and equipment. (http://en.wikipedia.org/wiki/John_Michael_Kohler_Arts_Center).

²¹ In 1984 Joyce was invited by A Habermann, master blacksmith, sculptor, and chief restorer of historic ironwork in then Prague, Czechoslovakia, to assist him on a major government restoration project for the town of Jindrichove Hradci, near Prague. Berkovitch explains that "a scarcity of materials even in the midst of enormous industrial output, which was diverted to military use in the Soviet Union, meant that Habermann's scrap bucket consisted of only a handful of pieces, yet even the smallest of these would be forged into rivets. This experience cemented Joyce's commitment to creative re-use" (Berkovitch, 1999: 28).

example with his cast steel and found material series, about which Kathleen Whitney comments as follows:

[] while on a John Michael Kohler Art/Industry Residency in Wisconsin, Joyce blended a vial of ash collected from the 9/11 Twin Tower site into a cast iron alloy that included sand from a mandala made by Tibetan monks in Santa Fe and blessed soil from a shrine in Chimayo, New Mexico. Using this symbolic fusion of tragedy and faith, Joyce designed and cast a vesica piscis, a 3,000-year-old fish-shaped symbol. Common to both Christians and Muslims, the vesica piscis also represents the mystical Pythagorean union of the divine with the world of matter and creation. Its shape is made by the intersection of two circles of the same radius, joined so that the center of each circle lies on the circumference of the other. Joyce adapted a three-dimensional tetrahedron from the fish symbol and concealed it within the geometry of the form. His 9/11 Memorial is small enough to be held between open palms, the human warmth condensing moisture as it meets the coolness of the metal. The sand becomes meaningful here: Tibetan Buddhists believe that when mandala sand comes into contact with moisture it releases a prayer (Whitney, 2008: 1).



Figure 10: John Michael Kohler Arts Center Arts/Industry Program, (2002). Skewed Visica: Ash to Ash, 2002 .Cast iron, ash, sand, soil. Largest: 203 mm x 230 mm/ 50 mm x 203 mm [electronic print] Available at: <http://www.ganoskin.com/borisat/nenam/tom-joyce.htm>. From Ganoskin.com. [Accessed 9 Jan 2015].

Works such as the one described above demonstrate Joyce's sensitive and inventive approach to adapting material and technique and developing form in arriving at sculptural objects that can powerfully convey meaning. I will investigate further examples of his work in the chapters to follow.

In Chapter 1 I discuss the craft and mythological significance of metalsmithing with reference to general smithing practices and how these have relevance to Joyce's work. His interest and involvement with African metalsmiths and African art is examined and leads me to a discussion of relevant metal smith practices in Africa. I briefly address the shamanistic aspects of smithing with relevance to his work. Joyce's engagement with the alchemical process of transforming matter from one state to another through smithing reveals his fascination with the associative power of materials, including its mystical, social and political histories. Processes of forging and their origins

are briefly examined in elaborating on the art of blacksmithing and in sketching the parameters within which Joyce can be seen to achieve his level of metalworking skill. His 'transubstantiation' of materials to re-form, recycle and re-purpose them into artworks is further examined.

In Chapter 2 I consider Joyce's involvement in craft education through his apprenticeships and courses that he has offered throughout his career as an artist-blacksmith. I introduce observations on his imparting of metalsmithing skills and also bring in observations from anthropologists Charles M. Keller and Janet Dixon Keller who have published a comprehensive study of artist-blacksmith practices and their value as an educational tool. My own observations in working with learners are also brought in alongside the above.

Chapter 3 leads to a more in-depth look at craft education and the benefits of engaging in craft practice, which has particular relevance to my own practice and engagement in teaching blacksmithing skills to young learners. Much critical contemporary writing on craft makes a strong case for the value of craft in education. Learning through making, specifically in the case of blacksmith practice and training, develops all round abilities and competence and offers a vehicle for individuals to realise their full potential. I draw largely on observations made by Bruce Metcalf who has written extensively on the importance of offering opportunities for learning through making in schools and colleges.

In Chapter 4 I discuss my own artistic practice and how it has evolved alongside my research on the work of Tom Joyce. I explore the concerns that have emerged through my metalsmithing processes and how I have arrived at producing a group of coat sculptures and related drawings. Using craft-based processes of metalsmithing together with stitching and sewing to arrive at wearable coats that can also be performed, I have also focused my attention on artists who have similarly constructed garment-like sculptures and examine their concerns in relation to my own. These artists include Joseph Beuys, Marina Abakanowicz, Harmony Hammond, Nick Cave, and my supervisor Walter Oltmann.

In my conclusion I draw together my observations in summarising how the adoption of traditional craft practice such as metalsmithing into the realm of fine art may be seen to provide a tool to invigorate sculpture within social and educational contexts.

Chapter 1: The craft and mythological significance of metalsmithing

In an article to an exhibition catalogue titled *Different Tempers: Jewellery & Blacksmithing*, curator and editor of Metalsmith Magazine, Suzanne Ramlyak²² notes that all metalsmiths share an essential tool, namely the hammer:

Indeed, the “smith” in blacksmith and goldsmith comes from *smite*, to hit or strike. All smiths are strikers, and while they employ other tools and procedures, hammering remains a central activity. Blacksmithing is the art of shaping the so-called “black” metals, iron and steel. Fire is crucial to the blacksmith’s practice, allowing metal to be heated to a pliable softness (2012: 5-6).²³

And on the characteristics of metals she continues:

Not all metal is equal, however, and each has its own temperament and demands. In addition to these physical traits, each metal carries a symbolic charge: from the preciousness of gold, to the industry of steel. Even before a hammer is struck, the material begins to speak. Such variations notwithstanding, all metals share some basic traits. As a raw substance, metal can boast remarkable properties: it is malleable; ductile; conducts heat and electricity; has a high melting point; and can be combined with other elements to form alloys. Not to mention its Herculean strength, which allows it to endure for centuries. This winning blend of features has proven irresistible to [] artists (ibid: 5).

Black metals are known for their endurance and fortitude and as contemporary blacksmith Marc Maiorana says: “Used for its strength, and formed extensively because of its malleability, steel serves communally as it has for ages in the field, the kitchen, and architecture” (ibid). A primary defining feature of the discipline of all blacksmiths is tool making. British sculptor Edward Allington observes that: “Tools are a mediating mechanism between an aim, both literally and conceptually, a material and an action. Most of the tools we make things with now are very complex, but to make complex tools, you have to use other tools. Somewhere you have to start at the beginning” (Allington, 2010: 340). Metalsmithing epitomizes this ordinary process of making tools for subsequent working. As blacksmith Lu Heintz says: “Blacksmithing is an art form that has a unique relationship between the product and the tooling [] The medium allows you to make the tools that manipulate the medium [] beginning a self-generating system.” The ability to produce tools that in

²³ In an article titled *Maxwell’s Silver Hammer*, Edward Allington looks at tools and focuses on some varieties of hammers. He points to the vast range of metalworking hammers and that the range is in relation to the different properties of the metals being worked: “Some metals, such as iron and steel, are difficult to work cold and only become malleable at red heat and need to be forged against an anvil. Others, such as copper and aluminum, can be formed cold, but working hardens them and they need to be annealed in heat to return malleability. Others, like lead, are easily worked cold.” He introduces a variety of metalworking hammers ranging from the most common ball-pein hammer to planishing, or metal-forming hammers, shrinking hammers and forging hammers that come in many forms (2010: 346-347). I have a collection of hand-made copper hollowing and repousse hammers that I am attached to.

turn create other objects is what “distinguishes blacksmithing and, for some, even signals its superiority” (ibid: 8).

The process of articulating metal and of ‘making it speak’ requires an understanding of how the medium behaves and relies on precise workmanship and considerable discipline. Metalsmithing has a long tradition of craftsmanship that involves great precision and control and, as already indicated in the previous chapter, it is a difficult skill that takes time to acquire.

On the categorization of the craft field according to material working methods and techniques, Risatti comments:

A term such as “smithing” (whether it be gold, silver or blacksmithing) links together materials (metal) and specific processes involving heating and hammering so that process and material are given relatively equal importance [] Clearly, materials and technique go to the very heart of craft. In fact, the requirements demanded of a craft practitioner lie at the very root of the word “craft.” According to the *Oxford English Dictionary*, the word “craft” is of Teutonic origin, where its original meaning had to do with strength, force, power, virtue. In Old English it additionally came to mean skill or skilled occupation, an ability in planning or performing, ingenuity in construction, or dexterity. In this usage the word “craft” emphasizes the kind of technical knowledge and technical skill required to make an actual object come into being. Skill of this kind was so useful and so extraordinary that in the Middle Ages the word “craft” also became associated with magic and the occult, as in the word “witchcraft,” a vestige of which remains in our use of “crafty” for a shrewd or even underhanded person (2007: 16-17).

The association of craft with magic “suggests that skilled work is a form of secret knowledge” and finds particularly potent expression in the myths and rituals related to the forge and practices of smithing (Metcalf, 1999: 1). As Mark C Taylor points out: “In countless traditions throughout the world, the smith and the shaman are the ones whose power comes from their mastery of fire” (2012: 76). In the following section I examine the processes of smithing and the mythological significance thereof in relation to Joyce’s sculptural practice.

Metalsmith processes and techniques can be traced back to the Iron Age when iron ore was smelted in clay furnaces and forged into utilitarian and ritual objects. The craft of metalsmithing has a long history and features within different cultures across the globe, resulting in a wide and varied field of practice. According to Joyce, “scholars still debate precisely where the knowledge to make iron originated, but most agree the dawn of metals – copper, silver, gold, lead and iron – radiated out from Western Asia 10 000 years ago” (Joyce, 1998: 7). The fundamental principles of forging metals, however, remain the same, and as author and anthropologist Mircea Eliade (1962: 79) encapsulates in his book *The Forge and the Crucible: The Origins and Structures of Alchemy*: “The work of the smith is the transformation of matter (iron) through fire (heat)” (1962, book cover).

Elaborating on Eliade's text, Donald Kuspit (2006: 35) points out that "to master fire – the most dangerous of the four elements – is to master spirit." He quotes Eliade as saying, for "primitive peoples are universally known to have conceived the magico-religious power as something 'burning' and express it in terms signifying 'heat', 'very hot', 'burns', etc." (ibid: 80)." Fire is sacred and to know and be able to master the properties of fire is to be god-like. Metal smelting was considered a very mysterious operation in the past and the role of the smith even extended beyond that of the shaman:

Like the shamans, the smiths were reputed to be 'masters of fire'. And so in certain cultures, the smith is considered equal, if not superior, to the shaman. 'Smiths and shamans come from the same nest', says a Yakut proverb. 'The wife of a shaman is worthy of respect, the wife of a smith is worthy of veneration', says another. And a third: 'The first smith, the first shaman and the first potter were blood brothers. This explains why the 'shaman cannot bring about the death of a smith' (Eliade, 1962: 81).

Eliade traces the myths and legends surrounding the craft of metalsmithing and estimates the place of origin to have begun on an industrial scale around 1200-1000 BCE in Armenia. In the following centuries the secret of smelting spread throughout the Near East, the Mediterranean, and central Europe (Eliade in Taylor, 2012: 77). Mark C. Taylor extends on Eliade's observations:

Derived either from the heavens (in meteorites), associated with male gods, or from the depths of the earth, associated with female goddesses, iron was regarded as a sacred substance and frequently was used to create religious objects. As the intermediary between these two realms, the smith was an ambiguous figure, whose activities involve a new notion of creation and thus of creativity. Rather than creation *ex nihilo*, the myths associated with metallurgy interpret creation as a process of forging form from formlessness. Inasmuch as the emergence of form involves a process of birth, anthropogenesis is a (ritual) repetition of Cosmogogenesis (Taylor, 2012:77)

In 1998 Joyce curated an exhibition of forged metalwork from sub-Saharan Africa titled *Life Force at the Anvil, The Blacksmith's Art from Africa*.²⁴ His slide presentation that accompanied the exhibition (first presented by him at the ABANA conference at the University of North Carolina, Asheville) unpacks this mysterious aspect of smithing that Eliade refers to with reference to the African smith. Joyce states that the "origin myths [in Africa] place the blacksmith and the transformative process of working iron at the centre of their ancestral cosmology" (Joyce, 1998: 8). He goes on to present images of African earthen furnaces that were used to smelt iron ore and explains that "the smelting

²⁴ Joyce's interest in African Metal forging practices and his focus on research is again made visible through his support of the ABANA International Membership Scholarship which is explained in the catalogue of the exhibition as follows: "All revenue generated through the sale of the exhibition catalogues is designated for a new ABANA endowment called the International Membership Scholarship for research in the metal arts. This endowment is intended to further education and foster communication between metal smiths around the world. The primary focus of funding support will encourage study of metal smithing traditions in parts of the world where little or no research has been done. By presenting an invitation to document observations in the field and to share it with others, it is hoped that this fund will broaden understanding of indigenous metal smithing systems and culture" (Joyce, 1998: 3).

of iron is a procreative process whereby the union of primal elements – earth, air, fire, and water conceives iron as its offspring [and] like midwives, the master smelters attended the birth” (ibid).

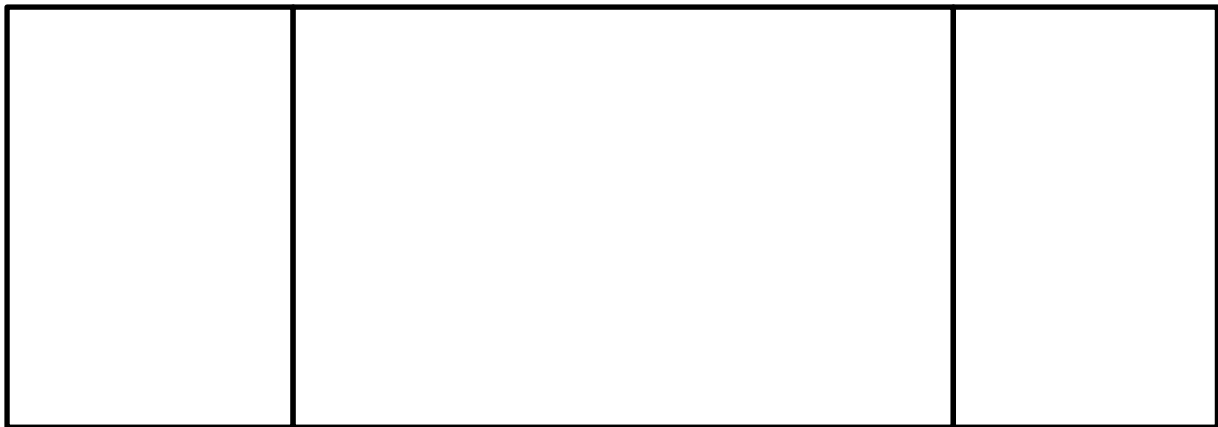


Figure 11: Joyce, T. (1998) Tom Joyce's slide lecture "Life Force at the Anvil: The Blacksmiths Art from Africa" Iron smelting furnaces from Africa with wooden bellows. [Online] ArtMetal & Tom Joyce. Available at: <http://www.artmetal.com/project/Features/Africa/page1.htm> [Accessed 9 Dec 2013]

Joyce shows how working iron celebrates the life process, “just as the birth of a child ensures the continuation of family blood lines, iron and the implements made from it offer its practitioners the potential to prosper” (ibid). In the following passage, he beautifully describes this birthing of iron and the role of the smith and presents slides of an earthen furnace and the traditional bellows that fuel the fire in visually supporting his description:

Bellows carved in phallic forms rhythmically pumped air into the charge. The two bowl-like chambers were once covered with a bag of animal skin. The skin envelops a volume of air that, when compressed, is forced out through a tubular passage to fan the fire. The ore and charcoal were heated until a near-molten bloom of iron, called a fetus by the smelters, formed inside the furnace chamber. When the ‘gestation’ period was complete, the bloom was delivered as if a child. The slag believed to be the placenta was gathered as a foundation material for a new furnace. Water poured on the glowing sponge-like mass of the exposed bloom produced steam which was inhaled by the attendees. The vapour is *Nyama*, a Mande word for the life force of the ancestral world. *Nyama* is the emanation of basic energy that animates the universe. In turn it provides the necessary power source behind every action (ibid: 8).

While sophisticated industrial processes replaced this ancient process of extracting iron from ore, it is perhaps not surprising that enthusiasts and specialists today are rarely able to replicate the original earthen furnace smelting process to extract iron from ore, despite having all the necessary information to repeat the process. In a recent BBC documentary, “BBC Presents *Mastercrafts of Blacksmithing*”, a specialist in iron ore smelting processes, Dr Jerry Mc Donald, reconstructs a Roman clay smelting furnace and successfully extracts iron from the iron ore rock placed in the furnace. Of the 20 attempts, Mc Donald has only twice been able to successfully extract iron using a traditional earthen furnace. The presenter of the documentary likens the process to Alchemy, turning stone

into metal²⁵ (http://www.youtube.com/watch?v=ozCdC_dGoliE). Expert knowledge and understanding as well as perhaps a way of being in relation to these processes have arguably changed. Within a largely secularised contemporary culture, the concept of *Nyama* – the Life Force behind every action that relates back to the ancestral world – is simply a concept, rather than a force which mythologically is understood to be a key ingredient to the smelt. Mythologically, as Eliade has shown, the smith is considered to be a powerful figure in cultures around the world as he creates form (iron) from formlessness (iron ore, the earth) by mastering fire. The smith harnesses *Nyama* and uses it to create. Kuspit elaborates:

The “divine smith” is a “civilizing hero,” as Eliade notes, for he successfully uses nature’s fire for a human purpose, thus taming and transcending nature without denying it. Fire remains raw, but it is put to sophisticated use. “It is with fire he controls the passage of matter from one state to another. The first potter who, with the aid of live embers, was successful in hardening those shapes which he had given to his clay, must have felt the intoxication of the demiurge: he had discovered a transmuting agent. That which natural heat – from the sun or the bowels of earth – took so long to ripen, was transformed by fire at a speed hitherto undreamed of. This demiurge enthusiasm springs from the obscure presentiment that the great secret lays in discovering how to ‘perform’ faster than nature, in other words (since it is always necessary to talk in terms of the spiritual experience of primitive man) how, without peril, to interfere in the processes of the cosmic forces. Fire turned out to be the means by which man could ‘execute’ faster, but it could do something other than what already existed in Nature. It was therefore the manifestation of a magico-religious power which could modify the world and which, consequently, did not belong to this world. This is why the most primitive cultures look upon the specialist in the sacred – the shaman, the medicine-man, the magician – as a ‘master of fire’ (2006: 79).

The magico-religious mythology extends to the metalsmith’s primary tool, the hammer, as Allington illustrates in the following passage:

Mjölfnir the “Murder Greedy” is the metal-forming hammer that inhabits the magic world of myth, as an image of creation, fertility and sexual potency as well as destruction. The Gaulish god Succellus is depicted with a hammer and was the consort of the Earth goddess. In Greek mythology, Hephaestus is the smith god, entrusted with the thunderbolts of Zeus. He is also the husband of Venus. Vulcan is his Roman equivalent and the study of volcanoes, vulcanology, is named after his forges. But perhaps the most celebrated of hammers is Mjölfnir, the “crusher,” the “grinder,” and the “murder greedy”; the hammer of the Nordic god Thor. The hammer contained most of his power and could shrink or grow according to his will. It always returned to his hand and the Nordic poems known as the Eddas tell how he used it to slay the giants. It is the most magic of tools, mythic yet hidden, and the tool that lies behind all others. It

²⁵ Vuka Design conducted field trips to the Melville Koppie, Johannesburg, with their learners between 2004 and 2007. Professor of Archaeology, Reval Mason, conducted some of the tours. He explained at the time that he tried to reconstruct exact replicas of the clay iron smelting furnaces on Melville Koppies and attempted to produce an iron bloom from iron ore found on the kopi. Every attempt was unsuccessful and he explained that the smelting process is a specialist art that very few modern smiths, historians or archaeologists can successfully achieve today.

is also the most basic and practical of tools. A tool that is beautiful and terrible at the same time, and which we have used to make the world we live in and to destroy it (2010: 348).

Joyce writes that “religions and mythologies evolved to interpret the metallurgical process the people witnessed when iron was made and forged,” in an attempt, as Kuspit has shown, to bring order and understanding to a transformative process that is alchemical in nature, and in which the smith is seen to be controlling the forces of nature to alter one substance into another (1998: 7). The smith not only manufactured tools and weapons, the smith also produced iron currency and as such was at the heart of what potentially made a community powerful.

Joyce explains the significance of the African smith’s hammer²⁶, which mythologically and historically, embodied *Nyama* and reinforces the role of the smith as civilising hero:

When the blacksmith forges items from iron, each hammer blow imparts additional life force into the piece. The smith's hammer was often made by his predecessor who, as traditional custom instructed, incorporated a small piece of his own hammer, which was made in the same manner from a piece of his teacher's hammer. This physical connection unites the present smith with the original ancestor who gave his hammer and fire to man. All metal objects forged with this tool emerge as a second generation of offspring, embodying mythic events, characters, and ideas (ibid: 9).

Anthropologist, Patrick McNaughton, in his book *The Mande Blacksmiths: Knowledge, Power and Art in West Africa* (1988), describes the skill of the West African Mande smiths who “employ distinctive rhythms with their hammers and bellows that reflect their own particular technique, and that these rhythms can be varied, in a sort of musical conversation [] showing how metal wares such as guns, knives and even farm tools are invested with efficacy and admirableness through craft articulation” (McNaughton in Adamson, 2010b: 372). Unlike an electrically driven forge blower, the hand bellows require a skilled second person at the forge to fuel the fire with air. Too much air wastes the charcoal and too little air produces insufficient heat. McNaughton describes a two beat rhythm produced by pumping the skins of the two bellow chambers alternatively. This rhythm, he says, can be heard far and wide:

Gradually the apprentice learns to gauge how much vigour to apply to his work, and in the process he begins to vary his basic two-beat rhythm. The result is patterns of rhythms that resemble drum beats, except that the percussive thrust of drumming is replaced by fluid gusts of air. As a young smith grows competent, he develops a sharp,

²⁶ Joyce’s discussion of African metalsmith practices is based on his collection of African artifacts and his visits to metalsmiths in Africa alongside his own research. My discussion is based on his understanding of general and specific African blacksmith practices.

crisp precision in his rhythms, which often become astonishingly complex. Each smith has one or several favourites (ibid: 374)²⁷



Figure 12: Warrender, P. (2008). Forge with bellows, Botswana. [Photograph]

Amadou Hâmpaté Bâ, in his essay *African Art: Where the Hand Has Ears*, considers the process of how objects are spiritually “loaded” by the West African Bambara people of Mali that he is kin to. His account of the iron smith is fascinating and supports Joyce’s observations of the ambivalent power the smith occupies. Hâmpaté Bâ describes a universe in which physical form is a shadow of a higher world, “the souls and the thoughts of men were linked to this pool. In it they perceived shapes or impressions which then matured in their minds and found expression in their words or the works of their hands. Hence the importance of the human hand, considered a tool which reproduced on our material plane (the “plane of shadows”) what had been perceived in another dimension” (Hâmpaté Bâ in Adamson, 2010b: 380). In his account, human beings are responsible for maintaining the balance of forces in the universe, which potentially are perceived as destructive if imbalanced (ibid: 381). Action generates force, in his understanding, and as such the iron smith who understands the mystery of fire and transforms matter is powerful. This power is also manifest in the physical forge, as expressed in the following passage:

The forge of the traditional ironsmith, who had been initiated into both general and secret knowledge handed down to him by his ancestors, was no ordinary workshop, but a sanctuary which one entered only after performing specific rites of purification. Every tool and instrument in the forge was a symbol of one of the active or passive life forces at work in the universe, and could be manipulated only in a certain way and to the

²⁷ In 2008 I accompanied a friend, Niall Cambell, to Botswana (Gaborone) and to Venda. He is a trained Sangoma and has a traditional forge set-up with hand bellows in Botswana where he makes hand forged iron objects. We made a spear and knife blade together. It was very difficult for me to learn to ‘play’ the bellows and while I managed to produce enough air to fuel the fire, I was not able to sustain this for a long time.

accompaniment of ritual words [] African ironsmith was thus conscious not only of performing a task of making an object, but of reproducing, by a mysterious analogy, the initial act of creation, thus participating in the central mystery of life (ibid: 380).

The smith is understood as a “mediator between the invisible world and everyday life” and his “objects as repositories of power” (ibid: 382). Art, Hâmpaté Bâ concludes, is a “porthole through which one can contemplate the infinite horizon of the cosmos [] depending on one’s own degree of development.” Secular art, he writes, is a consequence of the colonial era (ibid). Sacred objects are now hardly found anymore and Hâmpaté Bâ laments the loss of these skills which are “instruction not so much in a technique as in a way of ‘tuning in’ to the world” (ibid: 383).²⁸

Joyce describes the ambivalent role of the smith in producing both objects for peace and war, for growth and death, which again indicates the power of the smith and the necessity for cultural taboos and rituals surrounding the practice of the smith:

The Dogon origin myth and the first ancestral blacksmith in Dogon mythology (Mali, West Africa) brought with him to earth a piece of the sun in the form of incandescent iron, along with the tools and knowledge necessary to forge it. Out of this white hot piece of celestial iron he made a hoe and a knife. These tools are indispensable even now and facilitate survival within this culture. They each provide meaningful symbols for the nature of opposites and represent the dual function of most objects the blacksmith makes. As surely as the hoe can cultivate the land, it can with equal efficiency lead to the depletion of it. As surely as the knife can harvest the crops, it can be used to maim or kill. Both the blacksmith and the material he works mediate power between life and death (ibid: 9).

Joyce asserts that the smith is “an intermediary between opposing life forces [and] assists others to navigate these forces by supplying the necessary tools and devotional objects. The tools attempt to harness the unpredictable wildness of nature. Objects of devotion provide representations of specific deities who govern over human concerns such as fertility, health, warfare, and prosperity” (ibid).

Joyce concludes his slide presentation about African forged metal objects and the role of the smith in sub-Saharan cultures as follows:

The blacksmith is as essential to the well-being of his community as are the societal and religious leaders who govern by law. Because the smith is master of the near-mystical transformative process involved in making iron from earth, he is asked to perform other tasks that require similar abilities. Rain-making, divination, circumcision, healing, and

²⁸ During our trip to Venda we visited a number of traditional healers that Niall Cambell has connections to. Both being interested in metalsmithing, we asked some of the healers about metalworking traditions and about past practices. We were told some wonderful stories of past practice, however, the only forge that we were able to visit in the vicinity of Tshipise did not seem to be in use. It was made up of a hard wood fire pit and piece of railway line as anvil with no products available.

encouragement of fertility are all performed by the blacksmith. He also transforms wood into masks, figurative sculpture, architectural elements, divination implements, royal staffs, and emblems of power. In the same manner as his hammer imparts nyama into a piece of iron, his axe, adze, and chisel unleash ancestral energy needed to empower these carved objects. Add to this the variety of tools, weapons, jewellery, musical instruments, metal currency, and the many objects specific to ritual and ceremonial use we have just seen, and one begins to understand how the blacksmith in Africa activates the nucleus of a dynamic microcosm. The extraordinary proportions of his activities support belief systems which seek to balance the benevolent and malevolent forces that weave through people's lives. The diverse cultures, whose metal works are presented here, share in the belief that if iron is blood, then the blacksmith is truly the heartbeat at the source of an expansive circulatory system (ibid).

Historically and mythologically, in Africa and around the world, it would then seem that the smith is a powerful figure of importance, mastering both fire and iron, working the metal which has been the foundation upon which an industrial age was built²⁹. But how is this relevant today and what significance does this have when considering Joyce's work? Does the blacksmith even feature in today's society when, as Paul J. Smith comments, that "making objects by hand could be considered an obsolete activity in our time, given our seemingly endless supply of quality manufactured merchandise?" (2001: 14).³⁰

It would seem that it has significance when considering Joyce's practice and work. Eliade explains that we have a 'memory' of this past practice through our heritage of myths, legends, folk-tales and stories, which today, despite our secular lifestyle in which the sacred has been removed from all activity, still holds a romantic lure and pull. The alchemy of transforming ore into iron and shaping hard cold metal by fire and hammer into recognisable objects of meaning, resonates with us still

²⁹ According to Eliade, not all myths about metallurgy support the notion of the smith being divine and civilising. However, it seems that regardless of the status of the smith, the smith's power is unmistakable, "dangerous" and subject to death as a result. "In contrast, in the pastoral Hamitic civilisations and that of the steppe hunters, the smiths are despised and form a caste apart. The iron and tools forged by him do not have the civilising role accorded to them in palaeo-nigritian cultures. This applies, among others, to the Abyssinians, the Somalis (where the Toumal smiths constitute a caste of untouchables), and the Teda (north of the Tchad, mainly in central Sahara), among whom the smiths were disdained and form a caste of endogamous pariahs (Bauman, pp, 283, 431). The Wa-Ndorobos (Hamitic inhabitants of the Nile Valley, hunters) likewise hold the smith in disdain; he has no legal rights in the community and may be put to death by his superiors (Eliade, 1962: 90 – 92).

³⁰ I visited blacksmith Bekani Mhlaba in Hlabisa, Northern KwaZulu-Natal, in 2008. He had set-up a small hard-wood fire with railway track anvil to produce spears and knives for his community. I observed his practice for 5 days and bought a number of beautiful old and new spears and blades from him. He does not speak English and my business partner D Khumalo also being Zulu interpreted for me. Our visit was uncomfortable as we were women in a clearly male workshop. We were also strangers introduced through a mutual friend. We were told histories and uses of blades and were instructed in how to make a spear, its handle and embellishments. I was permitted to hammer at his forge and to decorate my own knobkerrie with plant twine. It seems that he manages to survive as a blacksmith and that he has a community of clients that require repairs or new spears and knives.

today. Eliade does not interpret the alchemical process of transforming matter from one state to another as a scientific process. He argues that the alchemists were less interested in the chemistry of their work than the transformative power of the process; the search for inner transformation and ultimately immortality:

For our purpose, it is well to bear in mind that the mythical images of the smith and blacksmith have for long retained their hold on the popular imagination and that these stories continue to have significance. (Certainly the obvious or consciously accessible significance can be a matter for discussion, but to limit the problem in this way is a sin through an excess of rationalism. A folktale does not address itself to the awakened secularised consciousness: it exerts its power in the deep recesses of the psyche, and nourishes and stimulates the imagination. The initiation symbolisms of fire and forge, death and resurrection by fire, forging on the anvil, etc., are clearly borne out in myths and shamanic rituals. Similar images, inspired by tales, act directly on the psyche of the audience even when, *consciously*, the latter does not realise the primal significance of any particular symbol) (Eliade, 1962: 107-108).

Joyce's work and practice as an artist blacksmith could be seen to invoke associations in the viewer of the mythological images of the smith, thereby enhancing the viewer's reception of his work through connecting it to ancient metallurgical processes and traditions. Furthermore, as human beings we come from a complex lineage of making things in the world. Eliade elaborates:

We are tempted to find in this category of primordial experiences the source of all mythico-ritual complexes, in which the smith and divine or semi-divine artisan are at once architects, dancers, musicians and medicine-sourcerers...the possession of the occult secret of 'fabrication', of 'construction' [] 'To make' something means knowing the secret formula which will allow it to be invented or to 'make it appear' spontaneously [] thus all crafts include some kind of initiation and are handed down by an occult tradition. He who 'makes' real things is he who *knows* the secrets of making them (ibid: 101-102).

Anthropologist Alfred Gell discusses matters of skill with relevance to craft practices and suggests in his article *The Technology of Enchantment and the Enchantment of Technology*, that the enchantment of an object increases as one's skill level rises; the more adept the maker, the more difficult it will be to follow the tracks of his/her making.³¹ The highly skilled piece transcends the understanding and ability of the viewer and in this way "resists" the viewer and enchants him/her.

³¹ Alfred Gell was a highly respected anthropologist whose most influential book was *Art and Agency*. It was while working towards this book that he wrote this essay, which anticipates some of the ideas expressed in the book. Glenn Adamson writes: "Gell begins from the premise that if one wants to approach art anthropologically; one must not fall into the trap of believing in its culturally specific claims (just as if one cannot approach a religion anthropologically while believing in its teachings). One must therefore seek a culturally universal premise on which to build a theory. Gell concludes that this can only mean thinking about art in terms of its making. What gives an artwork its power within culture – within the milieu of everyday life is, as he argues, technique: a particular way of making that sets the work apart from the rest of daily experience. Gell applies this idea widely, moving from wood carvings in New Guinea to sculptures by Picasso, without losing any sense of their cultural specificity. While it would be a mistake to simply equate his idea of technique with craft, it is clear that the latter plays an important role in Gell's discussion. In many cultures, the skill of an artisan is literally seen as enchanted.

The viewer is not in-the-know about the “secrets” of making things, and even if they were, they are challenged to perform at the same level of seemingly effortless fabrication. The crafter becomes an occult technician, transcending ‘normal’ self-possession and control (Gell in Adamson, 2010b: 471).

As a recognised master blacksmith, Joyce knows the ‘secret’ of making real things, and as Kathleen Whitney observes, “the craft necessary to make [his work] is a major presence that acts as an embodying force of meaning and material. The residue of intense physical labour, what the work is and what it says are inseparable” (2008: 61). In an article co-authored for *Metalsmith* magazine in 1994, Erika Ayala Stefanutti and Gary Griffin assert that “no material is a blank slate to which the artist bestows a meaning. Rather, meaning is rich with the history of its uses and symbolic associations.” This coincides strongly with Joyce’s comments on his work when he speaks of the role of weaponry and colonialism in relation to his working in metal (Halpers and Douglas, 2003: 56). To quote Stefanutti and Griffin further:

As with individuals, cultures are defined and redefined by the objects they produce. Every time an artefact enters the culture and every time an idea is transformed into an object, its physicality has resonance. Powerful because they contain not only what the maker injected into them (consciously or not), objects also contain the associative power of the materials, including the social and political histories, and the history of the social relations that particular objects and materials uphold (ibid: 57).

This coincides with one of Joyce’s statements quoted in Fields’ article titled *A Portrait of the Artist as Blacksmith*, where he says of his collection of historical cultural artefacts: “They’re like teachers; each one is a concentrated lesson and illustrates a specific design approach. Deciphering the functional and conceptual intent behind a work helps open a path to understanding a maker’s contribution to the world of handmade objects” (2007, 1). On his own contemporary pieces, Fields’ further quotes Joyce as saying: “[] everyone sees the world through a unique lens, so careful observation uncovers subtleties that can be learned from and applied toward a personal design vocabulary” (ibid: 1).

The art of blacksmithing requires focused attention and careful observation, which when practiced regularly develops the habit of carefully observing the material world around us. The secret of making with reference to blacksmithing technique is widely documented by writers such as Oppi Untracht, an American master metal smith, educator and writer who describes the process of forging metal in his book *Metal Techniques for Craftsmen, A Basic Manual on the Methods of Forming and Decorating Metals* as follows: “A metal’s malleability (from Latin *malleare*, to hammer) is its ability to be extended or shaped by being beaten or rolled in all directions without

One of the many lessons of his essay is that members of the modern and contemporary ‘art cult’ may not be as far removed from that mind-set as we think” (2010b: 464).

breaking or cracking, since the molecules adhere in the process” (ibid: 5). Metals have different and particular potential when shaped and extended. For example, a forged knife blade requires a razor sharp and strong edge with a flexible shaft that will not blunt or shatter on impact.

Joyce has achieved a high level of skill in this regard, using different metals, with a specific emphasis on steel, to manufacture his wide range of work and unique design vocabulary. His understanding of metal and his ability to manipulate it through using forging processes is evident in his work. Towards the beginning of his career he focused on architectural iron work and today his work includes metal vessels, metal sculpture, decorative metal hardware, metal furniture and public metal sculptures done by commission – he has clearly pushed the parameters of what metal can do. Joyce has applied traditional forging processes and techniques as well as new techniques to maximise the potential of what metal can do when worked. This is evident throughout his work and has become an integral part of his work’s content. Arden Reed writes about this pushing of parameters in an article titled *Santa Fe. Tom Joyce at Evo* in which he reviews Joyce’s 2006 solo show at Evo Gallery:

Although Santa Fe-based sculptor Tom Joyce recently won a prestigious MacArthur Fellowship, it was his reputation as a long-time blacksmith that gained him admission to Scot Forge, an Illinois firm that consumes 250 million pounds of metal a month, turning out work for various industries, especially defence. Joyce diverted some of its products from circulation and melted down scrap to produce several new bodies of sculpture. This show was about concealing and revealing. Joyce wanted to recall his material’s multi-layered past even as he obliterated that identity. He did so by folding the metal to bury the original skin and expose grains, cracks and imperfections. Joyce had only minutes to manipulate tons of heated iron before it became too cool to work. Using mechanised pincers he pushed it to its limits of malleability. Some of the work sheared apart in the process. Six sculptural groups, all machine-forged, over-filled the gallery, making it feel small; they ranged from objects that could be held in the hands to floor pieces measuring 36 by 41 by 36 inches and weighing over two tons (Reed, 2006: 1).

The six sculptural groups above have titles such as *Berg I* or *Berg II*, *Bloom* or *Stacked* and *Two to One*. The sculptures are huge, heavy, squeezed and forced shapes of metal that reference a forming landscape under pressure, exposed to elements of heat and cold as the metal was heated in the forge and then compressed within minutes of cooling under the power hammer. Joyce’s description of the African smith as the “master of the near-mystical transformative process involved in making iron from earth” seems equally appropriate to his own work (Joyce, 1998: 9). He exposes and shapes, buries and re-shapes the metal with only minutes to work, re-purposing the industrial metal once intended to function as part of a nuclear military weapon into art works which in part function as benches to sit on. He brings awareness to the metal, its uses and the craft that shapes it, and encourages a new and sensitive perspective.

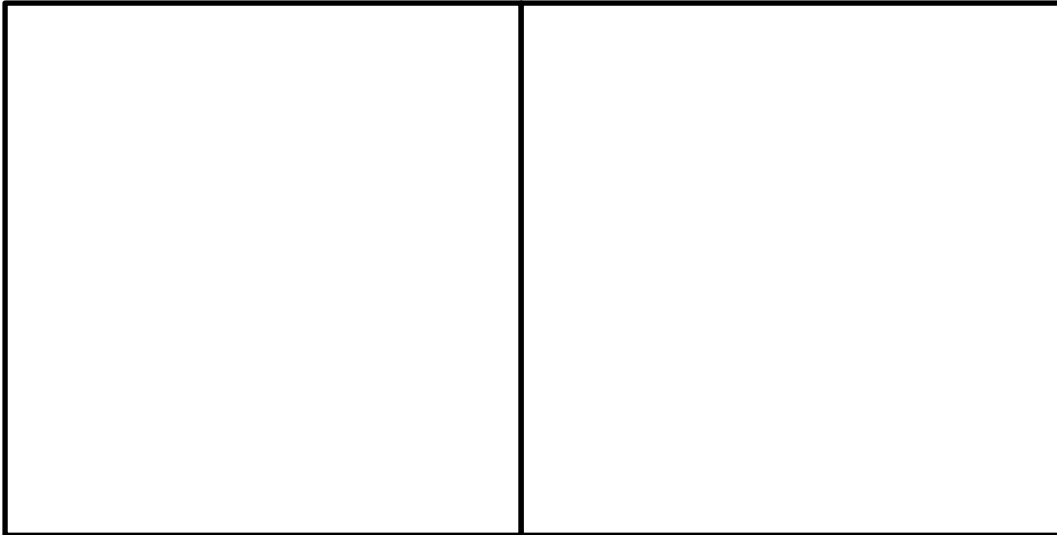


Figure 13: Berkovitch, E. (2005). Bloom and Berg on view at Evo Gallery, Santa Fe, NM [electronic print] Available at: http://www.nytimes.com/2005/08/14/arts/design/14berk.html?pagewanted=all&_r=0 From The New York Times: Swords to Plowshars.[Accessed 9 Jan 2015]

The Scot Forge work described above is based on the same forging processes that he applies when making his many exquisitely forged bowls. Joyce applies his forging skill both on a small and large scale. His *Inlaid Square Bowl* (1993) and other similar vessels are made by fusing left-over fragments from his architectural projects. The fusing process is better known by blacksmiths as ‘fire welding’. The metal is heated to an exact temperature and then fused by hammering the various fragments together while hot. Fire welding, according to Untracht, is the oldest welding process known (ibid: 283). Highly skilled smiths are able to produce a seamless, perfect fire weld. Joyce uses this technique in many of his works, including for example, the *Baptismal Font*, mentioned earlier, that he produced in 1994 for the Santa Maria de La Paz Catholic community in Santa Fe.

In this instance it could be said that Joyce operates very much like a traditional smith at the heart of a community that he engages through his work and process, gathering precious or discarded metal pieces from the community and the environment, and re-purposing the metal by performing a highly skilled blacksmith process of fusing the metal together to create a new base metal to form his new artwork to be used by the community. By involving the community in this way he educates the community about his craft and its relevance and creates ownership of the object created that is invested in the community through its contribution and involvement. Joyce can in this sense be seen to work in the same dynamic, adaptable fashion that he attributes to the African smiths:

By 1920 indigenous furnaces ceased to produce native iron. Detrimental shifts in local economies persuaded African blacksmiths to begin incorporating into their work salvaged materials that piled up with the growing industrialisation of the continent. With astonishing ingenuity blacksmiths now apply modern metal discards and junkyard steel toward the material needs of clients. From automobile suspension springs forged into tools to funerary staffs constructed from dismantled fifty-five gallon oil drums, blacksmiths in Africa continue to forge utilitarian and ritual objects for trade and for use

in all aspects of community members' lives [] this resiliency applies as well to the blacksmith who allows his own artistic traditions to evolve in order to meet the culture's current needs and forms of expression (Joyce, 1998: 7-8).

In a video on YouTube titled *Blacksmith Tom Joyce gives Historical Perspective on Iron Objects and the Notion of "Craftmanship of Necessity,"* Joyce describes how he approaches his projects which are modelled on the artifacts he has collected from smiths of past practice. He mentions an example of West African bar currency that he found at a flea market, showing how the object's shape and material allude to its use and design approach. The bar is made from fragments of used farm tools that a family would have collected over a generation. These are fire welded together to form the bar currency and this is done when the eldest son of a family is to get married. The currency is given to his bride's family by his father as a promise to take care of her and her family in the future. The 10 hoe fragments forged into the shape of the bar are proof of his ability to provide for his new family. The shape is pod like, "pregnant with possibility," and a promise to grow the family. The bride's father can then have the bar forged into an implement of use. Joyce shows how the iron of the bar is layered, like a pastry; the layers providing evidence of the fused forge welded fragments. Wrought iron has a low carbon content with inclusions of slag which makes it tough, malleable, corrosion-resistant and easily weldable. It is also not produced anymore. Wrought iron fragments are a precious commodity and the craftsmanship of this object is one of necessity. The artifact is successful in functioning through its use of minimal material to be repurposed after exchange, i.e. its purpose and use are highly valued in the community that it functions in (<http://www.youtube.com/watch?v=bNerGp8TmHO>).

Early craftsmen and traditional smiths used wrought iron for its forge-appropriate qualities, as outlined in the following paragraph in which Untracht describes the basic processes of forging wrought iron and steel:

Wrought Iron is an almost carbon-free iron, containing less than 0.3 per cent carbon. It is fibrous in structure as can be seen when it is fractured, and contains uniformly distributed, very fine streaks of slag (1 to 2 per cent), which is mechanically mixed with it. Relatively soft, it is malleable and ductile and withstands shock because of its inherent toughness. It has remarkable resistance to corrosion, forges well, can be shaped at red heat, welds easily when cold, and cannot be hardened by sudden cooling or quenching. All these properties were known to early craftsmen and smiths, who used the metal to create many decorative objects (1968: 34-35).

Other metals have replaced the industrial and commercial need for wrought iron, yet it is exactly these archaic associations that have attracted artist and craftsmen in choosing to work with this metal. Joyce's fascination with the history of iron, its uses and what this says about human beings and our culture is apparent in his work. He consciously considers the importance of the type of

metal he uses when producing a work, both for its technical properties and its conceptual potential.

In describing his *Inlaid Bowl* created in 1993, he explains that:

The inside of the bowl is made from iron I found as a teenager in El Rito, New Mexico. This small farming community is where I learnt to forge. Iron, as blacksmiths have known from the first accident smelt 3,000 years ago, has not been produced commercially anywhere in the world since the 1950's. Instead, our material of choice has been replaced with mild steel, a chemical alloy made up of other elemental components, including recycled material that is loaded with history inherited through the object's prior use (<http://www.segal.northwestern.edu/segal/pictures/photo/011-inlaid-bowl/>).

It is this aspect of 'loaded history' that informs much of Joyce's material choices in what he makes and how he constructs or works it. Also, he promotes an awareness of the role of steel as the world's most widely used metal in his work, as becomes evident in his following description:

The bowl is made from the left over fragments from my larger architectural projects and sorted for use in many of my vessels. Acknowledging that in an age of accelerated recycling, most materials are imbued with history and as a result, a strong chance exists that some part of these fragments originated as automobiles from Detroit, machinery from Pennsylvania and New York, tools from Ohio, ships from the east or west coast or appliances from anywhere. If the iron's molecular structure could be read, the iron in this bowl would represent a collective account of our material culture. It amounts to a partial sum of the massive reclamation of an industrial era supported by our planet, which most assuredly cannot be sustained (<http://www.segal.northwestern.edu/segal/pictures/photo/012-pieced-plate-bowl/>).



Figure 14: Merrick, N. (2000). Tom Joyce, Inlaid Square Bowl with Extensions and Hole 102 mm (H) x 368 mm (W) x 368 mm (D) forged iron. [electronic print] Available at: <http://www.anvilmag.com/smith/007f4.htm> From Anvilmag.com [Accessed 9 Jan 2015]

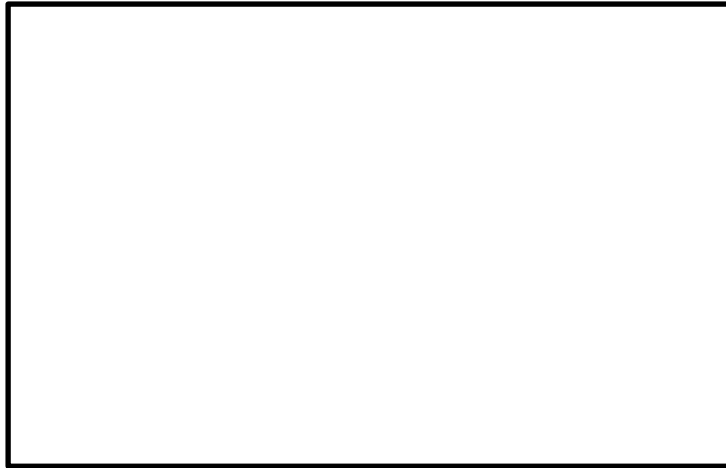


Figure 15: Joyce, T. (1993). Tom Joyce Pieced Plate Bowl 101 mm (H) x 600 mm (W) x 470 mm (D) forged iron [electronic print] Available at: <http://ldkocher.tripod.com/vesselsite/vessel2000/2000artists/joyce.html> From Tripod.com [Accessed 4 March 2015]

In this context it is worth mentioning Gell again, who writes about a “transubstantiation” through which materials and the ideas that they are associated with are transformed into something else. He speaks of this as “drawing our attention to the essential alchemy of art, which is to make what is not out of what is, and to make what is out of what is not” (1992: 53). Joyce’s work so clearly epitomises Gell’s concept of ‘transubstantiation’ of materials and the theme of warfare and weaponry is so relevant to the work of the blacksmith. Berkovitch (2005: 1) quotes Joyce as saying: “The solutions blacksmiths arrive at tend to be the same century after century after century - the practical solutions of developing better weapons; more efficient weapons.” As he has shown with his *Sotto Voce* series produced at Scot Forge, Illinois, whether it is the production of a small scale steel knife produced in a home forge or a nuclear steel missile in an industrial size furnace and press, the concerns of the production remain the same. His *Memorial Cairn* piece is a beautiful example of how he ‘transubstantiates’ his materials to point to the historical past purpose of these materials which are now reformed, recycled and re-purposed into two pieces of art for contemplation. They are described in a brief news passage as follows:

In contemplating warfare, Mr Joyce, 48, has seized on a new tool: a spade. Recently he has been sampling soils at old battlefields in New Mexico like Glorieta Pass, site of a Civil War confrontation, and Santa Fe Plaza, once fortified against Comanche and Apache raids. Friends around the globe have sent samples from places as diverse as Waterloo, site of Napoleon's 1815 defeat, and Gaugamela, east of modern-day Mosul in northern Iraq, where Alexander the Great defeated Darius III of Persia in 331 B.C. The dirt goes into 65 iron cannonball-size boulders that Mr. Joyce has forged as time capsules of human conflict. Holes drilled into them hold thimblefuls of once-bloodied earth; each is covered by an identifying label of smelted bullet lead. Stacked into five-foot piles that Mr. Joyce calls "Memorial Cairns," the sculptures are on view in an exhibition of Mr. Joyce's work at EVO Gallery here through Sept. 10. In a time of war, "I wanted to be there" - on the artistic front lines, that - "owns the responsibility," said Mr Joyce (http://www.nytimes.com/2005/08/14/arts/design/14berk.html?pagewanted=all&_r=0).

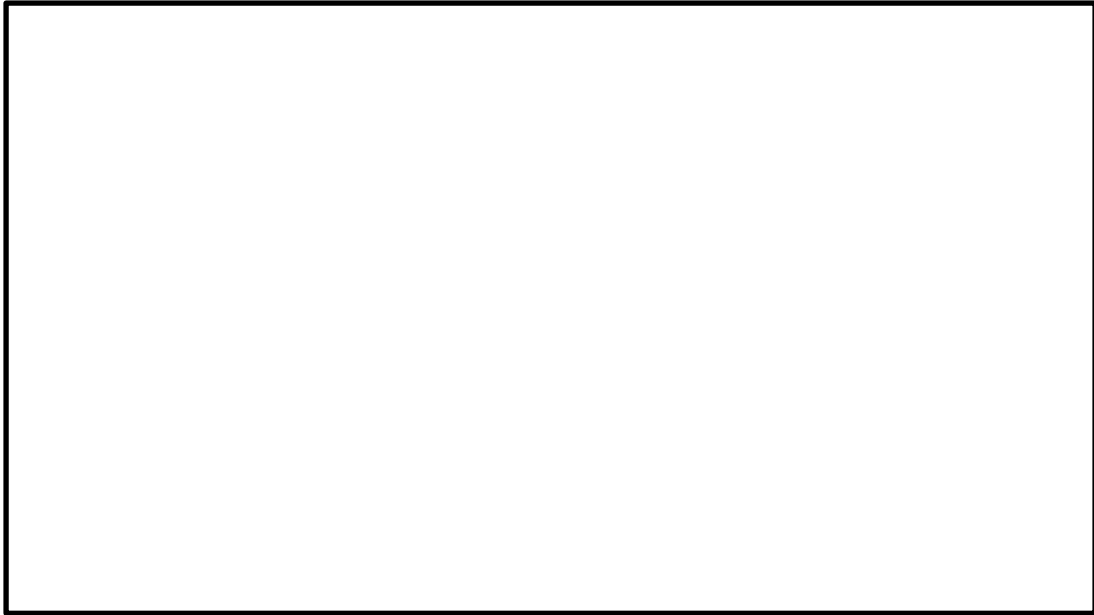


Figure 16: Swansen, E. (2014). Iron Cannonball-size boulders in production at Tom Joyce studio outside of Santa Fe. [electronic print] Available at: <https://touchingtheshutter.files.wordpress.com/2014/02/joyce-68.jpg> From Eric Swansen's touching the shutter [Accessed 9 Jan 2015]

As a master of fire, Joyce creates new, meaningful and delicate forms from recycled steel that represent the unsustainable industrial material culture that environmentalists and socio-politically concerned voices try to resist and change. As the custodians of the earth, which is given into our care by our children to ensure long-term sustainability, Joyce's work acts as a container holding a message, a representative custodian? The recycled steel is fused together through heat and hammering, forming a new base material, which references its own history.

Hillenkamp describes an intriguing idea for a sculpture that Joyce intended to start in 1999, at the time that he visited his studio:

His most recent idea is for an archaeological sculpture constructed from the remnants of his career as a smith, forge welded into clumps and interesting objects in such a way that the origins of the components are still recognizable. These objects will be arranged in chronological order and bound together with a sort of iron "thread", like the thread of an idea that leads from one thing to the next. The whole thing will be partially buried on Tom's land where, as the years go by, more can be added to the front end while at the back end the structures rust away and decay until only a ferruginous, three-dimensional pattern remains deep in the sand as archaeological recollection of past creativity (1995: 3).

It is not clear to me if Joyce ever made this work, however, when I read about this idea it reminded me of a comment made by Ingold in his chapter *On Weaving a Basket*:

Heidegger argued that we cannot engage in any kind of building activity unless we already dwell within our surroundings. 'Only if we are capable of dwelling', he declared, 'only then can we build' (1971: 160). Now dwelling is to building, in Heidegger's terms as weaving is to making in mine. Where making (like building) comes to an end with the

completion of a work in its final form, weaving (like dwelling) continues for as long as life goes on – punctuated but not terminated by the appearance of the pieces that it successively brings into being. Dwelling in the world, in short, is tantamount to the ongoing, temporal interweaving of our lives with another and with the manifold constituents of our environment. The world of our experience is, indeed, continually and endlessly coming into being around us as we weave. If it has a surface, it is like the surface of the basket: it has no ‘inside’ or ‘outside’. Mind is not above, nor nature below; rather, if we ask where mind is, it is in the weave of the surface itself. And it is within this weave that our projects of making, whatever they may be, are formulated and come to fruition. Only if we are capable of weaving, only then can we make (2011b, 348).

Ingold compares this process of making to a rope with knots. The rope begins in infinity and ends in infinity, without a predetermined line or direction. Each knot is a moment in time, a pause. The knots are the objects, artworks, artefacts we create. The rope then represents the ongoing life of experience, a weaving, or dwelling, and the knots represent what we make as physically manifest moments within the larger continuum of life. Joyce’s architectural sculptural idea of fire welding his past work together and creating an archaeological chronological record of steel in the earth reflects Ingold’s idea of life as a form of weaving and the objects being moments of clarification of that ongoing, endless process (Ingold, 2013 at <https://www.youtube.com/watch?v=Ygne72-4zyo>).³²

Joyce says of his practice: “I never take for granted that I can do what I do. It’s a gift that during this time opportunities exist to make a living as a blacksmith and sculptor [] it’s about facilitating a dialogue that extends much further afield than one’s own backyard and human life” (Fields, 2007: 2). It is about a highly aware way of being in the world, in which making expresses the quality of that being. The understanding of craft practice as connected to the practice of living is identified by Mike Press in an article titled *What has craft given us?* where he speaks of craft as “a distinctive and intelligent form of learning and source of knowledge”. He goes on to say that the quality of craft is about a much greater practice than the mere construction of objects and is essentially about how we live. This ability of craft to conflate the practice of making with the practice of living coincides with what Ingold speaks about in his writings on making, as discussed earlier. In the following chapter I will focus more closely on the learning of a craft and its value as a practice with specific reference to Joyce’s metalsmithing and his involvement in education (2010: 104).

³² In Adamson’s discussion of Simon Starling’s work *Shedboatshed* in the conclusion to his book *Thinking Through Craft*, he notes that Starling is “staging artisanal work through art in [] a highly aware way of being-in-the-world. Serious thinking about our own place in the environment, Starling suggests, will inevitably involve thinking through craft” (2007:167).

Chapter 2: Tom Joyce's studio craft practice and the imparting of metalsmithing skills.

While much of the information about Joyce mentions his involvement in craft and art education in passing, only very little is devoted specifically to the important aspect of his involvement in craft education and the imparting of metalsmithing skills. In this chapter I focus on what I have been able to find by way of commentary on his involvement in metalcraft training. In the following chapter I will consider these alongside recent observations made on the state of craft education in Britain and in the US to highlight the value of such training. I also focus on the idea of engaging in craft as a way of learning life skills and attempt to address what these competencies and capabilities are and how learning through making can be seen to develop such skills. This section directly informs my own involvement in teaching the skills of metalsmithing to youth and children with special learning needs and I bring in some of my own observations gathered from my experience in working with the learners.

In 1998 Joyce was awarded a grant by the *McCune Foundation* to implement a blacksmith mentorship-training program with young adults at risk in Santa Fe.³³ Metcalf mentions this briefly in his article *Craft Education: Looking Back, Looking Forward*, saying that the public school system in Santa Fe built a blacksmith forge to accommodate students with barriers to learning as a direct result of Joyce's experience of working with at risk youth and apprentices (2007: 8). Apprenticing and conducting on-site workshops is not new to Joyce. As already mentioned, with his 1997 *Rio Grande Gate* project, for which he designed, manufactured and installed entrance gates and railings for the Native American School in Santa Fe, he also offered on-site hands-on blacksmith workshops and lectures to students from the school and the art college in Santa Fe.³⁴ The following passage elaborates:

³³ The McCune Foundation mission statement on its website <http://www.mccune.org/> states "The McCune Foundation supports non-profit organizations that advance the quality of life for the people of South-western Pennsylvania by fostering community vitality and economic growth to improve the region for current and future generations". In 2004 the foundation conducted research about Santa Fe. Findings confirmed that 22% of the jobs in the city are from the arts-and-culture sector and that 40% of money coming in from outside the county is directly related to arts-and-culture. The impact of the arts and culture on the city's economy is six times the national average and twice that of the next ranked city. It also noted the lack of care for its aspiring artists and the emigration of young people between the ages of 20 and 40 from Santa Fe to find jobs elsewhere. The foundation plays a leading role in supporting arts and culture in New Mexico . In 2014 -15 the Foundation supports the New Mexico Centre for School Leadership which proposes "to develop high schools and educational leaders with input from the people who have the most at stake in the success of our educational system: students and families, community members and employers".

³⁴ Anthropologist, blacksmith and writer, Charles M Keller did a six month apprenticeship in Santa Fe with one of three blacksmiths in 1976 as part of his and his wife' (Jane Keller) research for the book *Cognition and Tool Use, The Blacksmith at work* (1996) . In the book the Kellers mention a blacksmith working on the fringes of Santa Fe who offered short courses in 1976 like the ones Joyce offered at his forge. The arts commissioner at Santa Fe supported CM Keller to set-up his apprenticeship and also supported these short courses. It seems that Santa Fe is a city that supports the arts and is a conducive environment to practice as an artist-blacksmith (Keller, 1996:7).

In keeping with his community engagement, Joyce trains high-school-aged boys in his shop. Some of them are at risk, others gifted with their hands, but not so good at schoolwork. They are not true apprentices, in that they stay only briefly, but several have gone on to set up their own forges. His modest program is so successful that the Santa Fe public school system developed plans for high-school blacksmithing instruction – for the first time since the manual-training movement faded years ago (Koplos & Metcalf, 2010: 464).

*ArtFeast*³⁵ in 2007 also saw him roll out lectures and on-site workshops for art students from public schools in Santa Fe. In his 2007 interview with Joyce, Fields describes Joyce's involvement with craft/art education as follows:

He'd been blacksmithing only four years when he began teaching. Invited to Italy and England to teach in his mid-twenties, he realized that he had a unique way of approaching design, that others had an interest in learning from his vision and work. He's been teaching ever since, for years accepting apprentices from around the world. With his openness to new experiences and new expression, he continues to learn as well. Wherever he's traveled, he's studied architecture and met blacksmiths, and through his trips to Europe became well-versed in European art history. Although he still travels and teaches overseas, he donates time to work with local kids who come to his shop as part of their art or welding classes. "Besides basic techniques, we discuss how I approach my work. I try to coax out their individual voices by encouraging them to observe their world for clues." It's his dedication to the art education of young people that led to his involvement in Art Feast. "We're all born to be creative and curious." His role as teacher, then, is to nurture student's untapped innate abilities, helping them to learn to work more intuitively with their chosen materials (Field, 2007: 2).

Joyce's approach to making and teaching supports an approach of inquiry in which the crafter is first and foremost curious about the world, observing the world for clues, discovering innate abilities within him/herself and learning to work intuitively with the materials, which relates well to Tim Ingold's understanding of the craft learning process which he compares to that of a hunter tracking his prey. The hunter is ever alert and responsive to visual and tactile clues in an intrinsically variable environment (2013: 11).

In a YouTube video Joyce speaks about how he learnt blacksmith skills and gives a historical perspective on iron objects and the notion of "craftsmanship of necessity" (featured in the *Memory* episode of *Craft in America*, which premiered in May 2007 on PBS and was published on YouTube on December 5 2012, (<http://www.youtube.com/watch?v=57XsNAoq3k>). He says that as a result of not having finished high school, a big part of his education was found in the iron artifacts he had

³⁵ "The proceeds from ArtFeast go to ARTsmart, an NPO which ensures that Santa Fe and New Mexico youth have the opportunity to explore, experience and engage in the visual arts, which are a critical component of every students education" (http://artfeast.org/artfeast_events/).

collected over the years. He considers these objects "teachers" in their subtle details of design and manufacture and goes on to describe one particular artifact, illuminating how he thinks about his work and design and how he approaches his projects. He refers in this instance to a "craftsmanship of necessity." The artifact is a 19th Century shovel forged by a smith for a farming area that had an abundance of clay soil and the shovel was designed to yield the least amount of resistance so that the clay soil would not stick to it - looking more like a pitch fork than a spade. The smith forged a thin blade of tool steel to form a cutting edge that would slice cleanly through the clay. Tool steel is expensive and the design ensures a minimum of tool steel to be used. The shovel thus effectively satisfies a need with an economical use of material and cost. The "craftsmanship of necessity" can be discerned in closely examining this object and Joyce's research into the history and practice of forge work also clearly evidences this aspect.

Joyce's approach to his work corresponds very closely with Ingold's ideas regarding an art of inquiry in which the learner finds him/herself in a correspondence with material and environment, keenly observing the way things are, thinking through the observations, following the movements of things and beings, responding to them with judgement and precision, a knowing from the 'inside,' learning by doing in the course of carrying out the tasks of life (Ingold, 2013: 12). I have found Ingold's observations on craft practice as a way of being in the world very illuminating as it corresponds closely with Joyce's way of teaching and has in turn made me think about how I teach and work in an enhanced way. Learning by doing, or learning through making, as is the case with traditional crafts, is a process that does not simply prepare a person to make craft products but assists in the development of life capabilities and competencies.

How novices take on skills in a short time to achieve a task in blacksmithing is something of a mystery to me. Ingold's ideas about craft being an art of inquiry comparable to a hunter tracking his prey together with Joyce's comments help me to think about and understand how this happens. I detail a specific workshop below that I recently organised and co facilitated, in an attempt to reflect on how the novice learns these skills within a short space of time.

On 4 September 2014 I co-facilitated a three-hour blacksmith workshop with two assistant blacksmiths and seventeen male youth at risk aged thirteen to seventeen at a shelter for young people living on the streets in Berea, Johannesburg (Jabulani Khakibos Kids). The young men had never done blacksmithing before. The workshop included three outdoor workstations with three trainers. We provided three portable outdoor forges, six small railway track anvils on wooden stumps, safety equipment, hammers, tongs and 10 to 12 mm mild steel round bar. The three-hour training session was to assist the young men to make their own ceremonial spear blades as part of an art counselling course they were enrolled in offered by *Lefika La Phodisa*, the *Art Therapy Centre*.

All the novices successfully hand forged a ceremonial spear blade, some larger than others, some better balanced and finished than others. The workshop was facilitated as follows.

After starting the forges and preparing the fire for work, we introduced ourselves to the novices. We showed them samples of what they would be making.³⁶



Figure 17: Schwankhart, M. (2014). Vuka Design novices forging spears [Photograph]

We explained the process, the risks involved and the safety rules to be adhered to. The novices listened to our instruction and began to work while we assisted them physically and instructed them with words and actions. They thus observed us and one another and had three hours to simply try their hand at it. Our instructions concerned both the making process and the teamwork process of working in a small space with many people and with potentially dangerous equipment around. One of our trainers was deaf and the novices working with him relied on observation, nonverbal communication and the general communication between learners and trainers in the work area. Burnt work or skew work was corrected by the trainers. Some learners required a lot of help while others worked quite independently.

³⁶ Vuka Design offers two courses in blacksmithing. The one year course offered to youth and apprentices is an accredited skills based programme affording the learners a National Certificate in Craft Production blacksmith skills. This program prepares learners for further training and for work in a blacksmith enterprise. The second course is a one year life skills blacksmith course offered to children with special learning challenges. Aspects of this program make up one to five day workshops for children, youth and adults cross culturally. Vuka Design trainers (including myself) and apprentices facilitate both programs and the short courses. As a result I have been teaching basic blacksmith skills (including copper forging) for 10 years. Vuka Design's training programs were initially funded by Government through the SETA system. In 2007 Vuka Design forged new partnerships to access private funding. Product sales and income generating workshops supplement this funding.

My sense as a trainer at the beginning of a workshop with novices is usually one of insecurity: can they get this right in such a short time?³⁷ This comes from seeing how a lot of them struggle to adjust their bodies and to handle the tools and materials to accomplish the task at hand. I have learnt, however, to be trusting of them, to believe that they can do it, to observe them and help when I feel it is necessary and let them learn through trial and error. Sometimes I have to help the novices adjust their body movement or position and at other times I have to help with understanding the heating process and the fire. At other times it is to help with focus and attitude towards their work and each other. Their unexpected material results also require effort on my part to move the metal into a shape that can be further worked by them to become the desired product. At the end of the workshop I am mostly in awe. In those short three hours of being in this blacksmith training session, in this “field of correspondences” (Ingold, 2013: 10) between novices and their trainers, the tools, equipment and materials and the fires, the novices somehow develop a good enough capability and competency to achieve the task to varied levels of perfection. Both trainers and novices are required to be alert and aware of everything around them to achieve their task. A learner can be shown and can be helped to physically adjust, however, it is through his/her own trying and practicing that a “knowing from the inside” emerges and s/he is able to do as was shown and instructed (ibid).

The value of learning through a direct engagement in craft is incisively investigated in a book titled, *Cognition and Tool Use, the blacksmith at work*, in which anthropologists Charles M. Keller and Janet Dixon Keller write about “how individuals with a goal in mind go about accomplishing the end that they see as worthwhile, desirable or necessary” (1996: 14). In their book they reject the idea that people think solely in words and they report on their long-term investigation of nonverbal thinking by tool users – specifically blacksmiths. Using the techniques of participant observation (including introspection) and of observation-and-interview, as well as artefact analysis and replication, they explain in part the mystery of how a novice learns the necessary blacksmithing skills to successfully accomplish his/her task. Their book explores the “working of the mind in thought and the working of the body in the physical world” (ibid) and “takes on the difficult task of explaining, in words, what is

³⁷ Most of our training workshops that we run are paid for either by the participants or by a funder supporting the training. Our promise in return is to skill the participant and to ensure the participant leaves the workshop with a well-made product. This is an expectation that we meet to remain competitive. Very few participants want to attend a training workshop and leave with a failed product, even if the process of making the failed product was illuminating and valuable in terms of personal development. The amount of assistance given to a participant is unique to each individual and to the workshop. In December 2014 at a copper forging workshop that I facilitated for children, my 4 year old son, who was a casual participant, told me that if I helped hammer his bowl it would no longer be his own bowl. He did accept help from the children around him who were older than him and willing to help. He did not want to have a failed copper bowl but did want to feel that it was his through his own work.

going on in nonverbal thinking during tool use, and its interaction with socially acquired and augmented bodies of what the Kellers call “sedimented” knowledge” (Cooper, n.d: 1). Their study is based on the practices of contemporary North American artist-blacksmiths over a period from 1976 to 1996. Charles Keller’s six-month experience as a blacksmith apprentice in Santa Fe, New Mexico and his subsequent experience as a practicing smith in Illinois, producing replicas of colonial hardware, is the basis for much of the research. As Charles Keller himself comments:

One needs to practice an activity in order to represent knowledge appropriate to it [] observers and learners of an activity refer to the difficulty craftspeople have in articulating a full and rich description of their work [] the scholar interested in knowledge should take seriously the participant half of participant observation (1996: 157).

While the Kellers include anthropological debates concerning research methods and present an understanding of the conceptual processes in human beings based on goal-oriented observable behaviour, the book is particularly valuable to me in their in-depth study of artist-blacksmith practices that support my ideas about why blacksmithing, specifically, is a valuable educational tool. In the following section I will draw on some of the observations from their study in elaborating on such practices and will then connect these to Joyce’s approach to working and his sharing of skills.

The Kellers’ study seeks to understand what blacksmiths know that accounts for their ability to forge competent products. Knowing here refers to knowledge of past experience brought to the current task at hand. The smith thinks with pictures using mental constructs in his/her mind’s eye (1996: 134). As a result, knowing includes sensorimotor and aural imagery, which is equally important for conceptualisation of productive activity (ibid: 135). For learning purposes, the study reveals the necessary knowledge and thinking in mind and body necessary to complete a task. Blacksmithing is unique in that the urgency of striking when the iron is hot and waiting while the iron is heating allows for a tangible process of planning a product, testing the plan (while the iron is hot), assessing the plan and re-planning (while the iron is re-heated). This sequence of alternating doing and reflecting, with the mind and body constantly engaged in the task at hand, allows for a development of competence in thinking and practice that enables

[] a person’s ability to conceive, act, assess, and reconceive in the process of making something. When new, and sometimes unanticipated, conditions result from actions, knowledge is potentially transformed...this dynamic and constantly emerging set of relations makes possible the characteristic thinking process of the everyday behaviour of human beings and constitutes the foundation for lifelong learning and human productivity (1996: 17-18).

The blacksmith’s work is to shape and forge metal with hammer and anvil, implementing effective procedures and creative solutions to produce workable, aesthetic products. Heating the metal

makes it malleable; the smith thins, thickens, shortens, lengthens, narrows, spreads, cuts, pierces, splits, twists and bends the metal (1996: 47). Material is not lost in the process of forging, but rather transformed.

The blacksmith is required to maintain vigilant concentration at all times and the Kellers describe the smith's fire as a creative, transformative tool which is gaseous, changing and ephemeral and compare this to the work of the smith as follows:

However it is the heat of the fire that creates the plasticity required for iron to be forged, and the forge and the fire it contains are basic tools of the craft. It is possible to rapidly alter the size, shape, temperature, and atmosphere of the fire to suit the immediate needs of the work at hand by adding or removing fuel and by changing the amount of air fed into the forge. This mutability is part of the essence of blacksmithing activities. The pervasive objective of smiths is creative transformation. The mutability of the fire at the heart of forging is reflected in the blacksmiths' approach generally. Both the tangible tools and the conventional procedures of the smith are conceived as adaptable to work in progress. Forging itself is the transformation of a piece of stock to a finished product. The notion that nearly everything relevant to forging is subject to change means that the blacksmith works with the potential for reconfiguration in his technology, strategies, and production simultaneously (1996: 45-46).

It is worth adding Berkovitch's observation on Joyce's relationship to fire here:

Joyce's dances with fire are an ongoing routine: selecting a glove that won't singe a finger, snuffing a spark that is making a burning smell in a shop, segmenting the pattern in a metal section heated to 2000 degrees. There is no better place to witness this choreography than in *Pyroglyphs*, a video of Joyce sculpting, made by Steina Vasulka, an international video artist originally from Iceland who resides and works in Santa Fe. Vasulka's previous video work favoured elemental imagery such as the pounding surf or the screaming air brakes of a semi. In Joyce's shop she found new manifestation of the Norse God's lair, ringing with the percussive insistence of air hammers: the offering of hand to fire in the creative venture (1999:31-32).



Figure 18: Vasulka, S. (1994). A video matrix by Steina in collaboration with Tom Joyce. [electroni Print]. Available at: http://www.vasulka.org/Steina/Steina_Pyroglyphs/Pyroglyphs.html [Accessed 4 March 2015]

In the video that I recorded with the assistance of video artist Paul Carlos in documenting the making of my own creative practice, the forge fire became a central focus and emitted a strong sound that reflected the central transformative role it plays in the forging process. The novice or learner is required over time to manage the fire sufficiently to achieve set goals. The fire and the resultant hot iron may be frightening for many learners and learning to competently manage these elements is an achievement that builds great pride and confidence.



Figure 19: Schwankhart, S. (2014) Vuka Design learners forging [Photograph]

Forging a product can be likened to solving a problem in which a goal and a strategy of making is conceptualised. This hypothesis is tested during the process of making when unexpected material results can occur. The Kellers refer to constellations of work which include units of ideas, tools, equipment and material needed to perform the steps to achieve the final goal. If successful, the hypothesis becomes sedimented knowledge and may be presented as a proven and tested recipe for making. If it is unsuccessful, the hypothesis is re-evaluated and reconstituted, changing and adjusting the prior knowledge as applied to smithing. Failure to achieve the result, the Kellers explain, can be as a result of a lack of skill or concentration on the part of the smith or a poorly conceptualised constellation and ‘umbrella plan’ (a term that Charles Keller uses to refer to an overall conception of the task to be performed). Herein lies the potential of the process for learning. Through doing, the learners are confronted with their own abilities and limitations and an opportunity presents itself to improve. As the Kellers elaborate:

The constellation is a hypothesis positing a step in a procedural sequence. These arrangements of mutually constraining ideas and real-world elements are essential to the efficient enactment of a productive sequence. This is particularly clear in the case of blacksmithing because construction of a constellation allows the blacksmith to accomplish his goals in the episodic intervals necessitated by the activity of forging itself.

It is the assembly of tools and materials to be at hand for enacting selected means to an end that enables the blacksmith to work efficiently within the time provided by each heat. In turn, the construction of constellations is enhanced by the rhythmic and episodic nature of blacksmithing, which provides for a period of reflection and anticipation while standing at the fire heating a segment of iron. The effectiveness of the smith's action during the productive phase of each heat is largely a reflection of the adequacy of the constellation pulled together for the current step (1996: 101-102).

The making process is a dynamic emergent-synchronic event in which ideas and material practice continually affect and change each other (ibid: 24): "Knowledge governs but does not determine practice, and practices, as they are enacted, may constitute a source of new information and may open prior knowledge to reproduction and transformation with further implications for ensuing practice" (ibid: 17). As mentioned above, conceptualising production is not a simple thinking process. The Kellers refer to the task-specific imagery a smith holds in mind and hand as a conceptualisation; a rubric of thinking that enjoins activity through visualisation, kinaesthetic imagery and language and emotion; a marriage of hand and mind to solve practical problems (ibid: 127).

Berkovitch observes the following about Joyce and his interaction with students:

Addressing a group of college students touring his studio, Joyce selects random items from his personal collection that inspire a presentation on everything from the economy of use, to design history, to the user's hand [] Learning how a smith resolves a design issue has been critical for Joyce. Beginning about twenty years ago, Joyce designed a curriculum that encompassed the historical and regional study of iron objects from places like New Mexico, Mexico and Spain. He would look to these objects as models for a lively practical investigation into the aesthetics of making (1999: 28).

Blacksmiths of the past (18th to 20th Century) were resources to their communities, inventing and finding material solutions. The same fundamental tools and techniques are used by contemporary smiths, allowing for identification with the past and a continuity of a practice (ibid: 35). The work of the smith involves intense concentration, monitoring of the fire, tools, materials and actions, assessing progress and recognising problems as compared to the visualised image of their goal. Judgements made during forging are based on complex sensorimotor as well as images (ibid: 136). The coal is heated to different temperatures necessary for different tasks. The colour and look of the coal informs the smith of its state. Similarly, the general size and heat of the fire is largely assessed through sight, sound and feel. The softness or hardness of the metal is determined by its colour, the feel of the hammer when striking the metal and the resultant sound of the strike. Cold metal rings whereas hot metal has a soft, thudding sound. The Kellers elaborate on this as follows:

A skilled artist-blacksmith forges a product in iron by visualising a goal, seeing the procedures for its creation in an imaged form, and acting on that plan with a mind open

to alterations of the image and innovations in form. This process requires handling multiple images in rapid succession: the fire, the plasticity of the iron, the feel of the hammer, and the expectations for shape. The process also requires maintaining the goal-state images while perceiving intermediate changes in the empirical state of events associated with production. Handling these multiple images is difficult for a beginning smith but becomes easier as experience is gained and, perhaps, images become engrained. Still, there seems to be a limit to the facility with which one can handle the complex imagery required for production. While it is possible and often desirable to have more than one length of iron for a given project in progress at one time, it is very difficult to have more than one project underway at the same time. While the limit for each artist blacksmith is probably unique, the juggling of large number of related mental images at some point leads to distraction and confusion rather than effective production – hence the tradition warning against having too many irons in the fire (ibid: 157-158).

Referring to David Pye's concept of "Tools of risk" and "Tools of certainty," the Kellers note that blacksmithing entails mainly the use of "tools of risk" which are tools that have a wide range of application and results (ibid: 56). It is the smith's skill and experience that allows him/her to choose the appropriate procedure for a task. "Tools of risk" allow for freehand work, direct interaction with the material and require mind, eye and muscle coordination in use. For example, "[] the ability to precisely and repeatedly select the angle at which a chosen portion of the hammer face strikes the work requires skill; this is referred to as 'hammer control,' which a smith may acquire, lose, or regain" (ibid). In the case of making scrolls or leaves, which are common elements in architectural ironwork and a skill common to most blacksmiths, the Kellers describe the choice and use of hand-controlled tools as follows:

When repetitive elements such as scrolls or leaves are required, instead of relying on a device to constrain the transformations of the metal as it is forged, the artist-blacksmith prefers to use the more demanding and risky hand-controlled tools, even though this entails compensation for any undesired secondary features that may appear. As a result, if one compares hand-forged work with similar cast or stamped-out products, the hand-forged result usually contains irregularities and asymmetries not present in mass-produced items. It is these textural features that blacksmiths recognise as characteristic qualities of 'warmth,' 'life,' or 'flow' [] Factory productions with more exact specifications involve little of the synthesis of mind, hand, eye, and material so engaging for the smith and leave the resultant product 'cold,' 'dead,' 'untouched,' and 'sterile' by comparison. Each smith must constantly balance the realities of his economic situation with the value of working freehand. Using tools or techniques of greater 'certainty' in one part of a project may allow more freehand work in another (ibid: 57).

Working freehand is labour intensive and, in a sense, uneconomical, and yet it is preferred by blacksmiths. The Kellers describe how artist-blacksmiths identify themselves as a group, with shared principles that govern their work and which are individually negotiated according to each blacksmith's circumstances. While blacksmiths generally work in small shops, information is shared

through forge-in gatherings,³⁸ internet community sites,³⁹ publications and informal and formal courses. The Kellers refer to three principals that are shared by the group, govern their work and are negotiated when necessary based on commercial pressures: 1. Working with the plasticity of metal to *transform* it; *thinking hot*. 2) Using heat to achieve plasticity and transformation of shape thereby giving 'life' to the material. 3) Working *free hand*, ensuring the desired outcome is produced as completely as possible by hand and eye with a minimum of jigs or templates used:

The preference for working by hand reflects a fascination, challenge, and gratification associated with the intense process of hand forging. The need for constant attention, the union of hand, eye and material felt in every blow, the potential for new ideas to grow as work proceeds, all result from working by hand (1996: 55).

Part of the gratification and frustration of working free hand, with thinking hot and transformation as primary principle, is that it is labour intensive and time consuming. Skill is critical in accomplishing an end effectively with minimum effort. The Kellers describe skill as follows:

By skill, we mean a combination of sensitivity to visual and tactile input from the on-going work, muscular control that allows the efficient production of a desired end, and sophistication of procedures implemented to carry out the work. A skilled performance requires that an actor bring his knowledge of blacksmithing to bear in monitoring and evaluating changes brought about by his actions. Deciding if those changes conform to images of how the work should look at any given stage is part of skilled monitoring. The shape of the piece after each hammer blow as well as the feel of the tool on the material are critical in these assessments. Recognising problems, diagnosing the cause, and applying appropriate corrective procedures are part of the knowledge of the knowledge-based strategic component necessary to operate skilfully. The manual ability to move the work through its necessary phases as quickly as possible with a minimum of physical errors is important as well (1996: 55).

³⁸ Vuka Design organised such a gathering in 2007 at its workshop at St Vincent School for the Deaf in Melrose, Gauteng. Mostly blacksmiths from Gauteng attended the day of events, with demonstrations and competitions seeing learners and blacksmiths win prizes. The forge-in event helps the novices make contact with practicing blacksmiths, exposing them to potential job opportunities and new ideas, techniques and practices. Vuka Design also invited funders and partners supporting the training programme to ensure long term support and sustainability. The British *Artist Blacksmith Association* organises annual forge-ins on an international level, as do other blacksmith associations around the world. The Kellers note that forge-ins are crucial in the imparting of new and old blacksmith knowledge and practice that can be written about but really only fully understood through observation and participation. It is at these events that shared principals of this self-identified group are reinforced and affirmed (ibid: 57).

³⁹ I am a member of a site called *IFORGEIRON*. While the South African membership is not very active, I use the site for accessing questions and answers concerning blacksmith knowledge and practice from master to novice smiths all over the world. Another important site is *ANVILFIRE* of which I am not a member, but that is well used in South Africa. *BABA* also has a Facebook page that I follow. Information from knife making to forge set-up and maintenance, to any technique tried and tested is available through question and answer. Blacksmiths from all over the world are connected in their practice and knowledge through these sites. Tools and equipment are also sold and bought via these sites.

Each smith constantly balances the realities of their own economic situation with the value of working freehand. Using tools of greater 'certainty' increases efficiency but compromises principles (ibid: 57).

In the case of forge welding joints in an architectural wrought iron piece, the decision to rather rivet or arc weld joints is better suited to the market value of the piece. However, in the case of the production of a colonial replica of a tool, the forge weld is necessary to achieve as closely as possible a replica of the original tool. The price of the end product should reflect this expectation and ensure that the time consuming, highly skilled forge weld is compensated for.

Being organised is another critical component of the work. An efficient set-up enables minimum effort and high quality, timeous delivery of product without too much of a compromise on the blacksmith principals. The Kellers show how the organisation of the shop and the tools reflect a blacksmith's stock of knowledge, enabling the smith's work. Knowing for doing is made manifest in how the tools at hand are organised. Once metal is heated, it cools quickly and the smith does not have the time to find tools, clear work space or prepare equipment when needing to "strike when the iron is hot" (ibid: 60).

While the forging process is dynamic and innovative by nature, there is a strong tendency with blacksmiths to be conservative in their practice (ibid: 56). Setting up a blacksmith shop is generally expensive and labour intensive. Working within the above-mentioned principles means that results are hard-won by means of physical labour, skill, time and resources. The blacksmith's tools are either handmade or hand selected and often many of the tools are made for a specific task. This makes these tools precious and a need arises to preserve them and not push them past their limit (ibid: 46). Small blacksmith shops also generally require that the smith handles the business side of the workshop to bring in orders. As a result, blacksmiths tend to operate conservatively and each smith is required to find the middle ground when negotiating upholding principals of the craft and meeting commercial pressures.

Blacksmithing is a practice that has largely managed to remain an 'open system' as opposed to the 'closed system' associated with mechanically produced work that tends to constrain and limit human activity (ibid: 176). In an 'open system,' "[p]eople who use tools actively [] build an increasingly rich implicit understanding of the world in which they use the tools and of the tools themselves. The understanding, both of the world and of the tool, continually changes as a result of their interaction. Learning and acting are interestingly indistinct, learning being a continuous, lifelong process resulting from acting in situations" (ibid: 173). On visiting Joyce in 2013, Jackson writes: "Most of the hundreds of tongs, punches, hammers, and chisels lining the walls of his shop are tools that Joyce

and his assistants forged” (Jackson, 2013, 2) and in a video interview with Tom Joyce (*Craft In America: Memory* episode), one sees him teaching novices in making a blacksmith tong. Joyce says of the tool that it is an “object that will facilitate all the work that you [the novice] will do for the rest of your life.” The demonstration of making the tong shows a novice assisting Joyce in forging the arm of the tong by means of a sledgehammer and he corrects the novice in showing how he has to try to tilt his hammer blows in such a way that they are square to the anvil face, thereby preventing irregular thinning of the metal. Joyce comments that “teaching blacksmithing is important to me because it is an oral tradition” (<https://www.youtube.com/watch?v=oQMejulzPcg>).

In a training situation, the trainer enables the novice to learn by providing a ‘context of opportunity’ (Ingold, 2013: 13). The video shows how the trainer (Joyce in this case) keeps in mind the umbrella plan of what must be done to accomplish the task and communicates this to the novices in bite size pieces as the novice progresses through the stages of making the product and completing the task. Joyce simultaneously shows and instructs. The novice tries to follow the example and instruction by adjusting his body and knowledge to do the new activity. He/she gradually gets a sense of the correct ‘feel’ of how to work and starts to recognise the correct shapes the metal should take. This is a slow process of adjusting movements and attention and beginning to understand something of the process of making. Depending on the success of the progress, the novice becomes fascinated by the work and will be deeply engaged in concentrating on the task. This is especially so in a group that is enthusiastic about making, for example, their own spear or knife blade. Lack of concentration immediately shows in either burnt work or slow progress. Disruption and distraction by others is counterproductive and can be adjusted by the trainer (and often by the group of novices themselves) by assisting a novice who may be struggling.

The trainer is responsible for maintaining a well-organised training space with tools, equipment and materials ready for use. In this sense the workspace can be said to anticipate the successful completion of the task (ibid: 85). The training space is an expression of the trainer’s knowledge about blacksmithing and a well-organised training space allows for safe and ‘effortless’ work.⁴⁰ The trainer sees the umbrella plan in the mind’s eye and the novice learns to see and hold this same spectrum of knowledge. The trainer maintains an awareness of the umbrella plan, the constellations, the progress and the safety of the group at all times. Any changes to the plan during the process of making are accommodated and the trainer aims as far as possible for the novices to complete their task safely within time available, enabling a positive experience that affirms their learning and ability. Blacksmith training is an effective way of training people to achieve their goal through their

⁴⁰ At Vuka Design we have developed portable forges with workstations. We run an annual Winter School program in July at the Waldorf School in Bryanston. While transport and storage on site is laborious, we are able to train a group of 40 learners with 6 trainers without a formal workshop set-up.

own effort and can create a positive learning experience. Over time, with further practice, the trainer is able to withdraw assistance more and more until the novice is able to hold in mind and body the entire process of making the product independently. This includes planning, implementing, assessing and re-planning the production, if necessary. Time constraints, environmental issues of waste and pollution, economic constraints and safety are all part of the instruction. Under supervision, the novice therefore learns to make independently. The learner is enabled to use body and mind with tools and materials and equipment effectively to complete his/her task. This is both a preparation towards sustaining work and self in any situation. In my own experience the trainer must not only be skilled and knowledgeable, with good planning and organisational skills, but must also be a loving role model, trusting that the novice can master the skills at hand. A trainer aspires to this, but may not always achieve this level of facilitation skills.

A big part of learning new skills is to be motivated to do so. Metcalf comments that the value of working in a craft medium lies in the “centrality of pleasure in labour [] we get involved in a craft because the work is compelling in a way that nothing else we have experienced is. And while some aspects of craft can be sheer drudgery, we keep working because, at some level, the work remains deeply satisfying” (Metcalf, 2007: 4).⁴¹ Peter Korn (2013: 49) echoes Metcalf’s sentiment in his book *Why We Make Things and Why It Matters: The Education of a Craftsman* which reflects on his own creative craft practice of woodworking:

What was it that made this craft so compelling? Over the ensuing years I have come to see that some of its rewards may be discovered through the practice of any creative art, while others are deeply rooted in the nature of craft itself – in its singular and pervasive materiality. Unlike writers, composers, and dancers, whose media are words, sound, and bodily movement, a craftsman fashions tangible matter – traditionally wood, clay, metal, glass, or fiber; today almost anything – into enduring objects. Sculpture and painting are the arts most similar to craft in this regard, and certainly there are grey areas where one shades into the other. But the contemporary sculptor or painter is participating in a conversation that often regards material and skill with suspicion, tolerating them as necessary means to conceptual ends. The contemporary craftsman, in contrast, celebrates material and skill and considers them sources of meaning within the work.

Korn’s observation that craft is especially fulfilling because of its “singular and pervasive materiality” speaks of the way in which “the maker sees the immediate effect of every step he takes along the way [] The craftsman is forced to come to terms with the physical properties of materials, the

⁴¹ In his book *The Craftsman*, sociologist Richard Sennet “asks what the process of making things reveals to us about ourselves and critiques social and economic conditions for depriving workers of the satisfaction inherent to “doing a job well for its own sake,” which is the essence he distils from craft. His solution is to cultivate an “aspiration for quality” in our workplaces and schools” (Korn, 2013: 11). He notes that to become an expert in any chosen field, research has shown that 100 000 hours (3hrs per day for 10 years) of practice time is required. A traditional medieval Goldsmith apprenticed for 7 years at 5 hours per day (2008: 172).

mechanical properties of tools, and the real capacity and limits of his own dexterity, discipline, and imagination [] The holistic quality of craft lies not only in engaging the whole person, but also in harmonizing his understanding of himself in the world” (ibid: 55-56).

Artist blacksmith Albert Paley confirms this when he says:

It was the plasticity of iron and steel that initially fascinated me about them, and attracted me to them. This inherent characteristic served as catalyst to the experimentations that gave me an understanding of these materials resulting in a design theory founded in paradox. The dichotomous nature of these materials present opposite and seemingly contradictory states at the same time and place; movement and stagnation, rigidity and plasticity. The tool imprints, incisions, tears, twists and burns, record the evolutionary nature of process and form development. Movement basic to organic, of which we are all a part, made visible in the steel becomes a foil to human gesture, resulting in empathy and anticipation through this visual dialogue (Paley, 1993). (Keller, 1996: 41).⁴²

A potential to harmonize the self in relation to the world is offered through this engagement. With the material of the craft, the maker is challenged to come to terms with the real capacity and limits of his/her own dexterity, discipline and imagination in relation to the craft. Craft training and practice then can be said to shape both material and the maker.⁴³

⁴² In her book *Vibrant Matter*, Jane Bennett (2010: 58) writes about material as having agency, a fascinating concept to me that makes sense on some level. Bennett concludes that iron is actually not a dense, rigid, lifeless material. When analysed down to its molecular structure, iron is made up of moving particles separated by nothingness. Microscopically it is moving and is gaseous. We however experience it as solid, rigid and unbreakable. Bennett argues that all matter has “life” and not only responds to human action but changes human action. Bennett writes “the crystalline structure of metal is full of holes or ‘inter-crystalline spaces’. These ‘vacancies’ can be ‘as important as the atom’ in determining properties of a particular metal. It is the variegated topology of a metal sheet or rod that metallurgists exploited when, for example, they use heat to produce an alloy or to turn iron into steel”. She says that “objects appear as such [solid] because their becoming proceeds at a speed or a level below the threshold of human discernment. It is hard indeed to keep one’s mind wrapped around a materiality that is not reducible to extension in space, difficult to dwell with the notion of an incorporeality of a differential of intensities (ibid).

⁴³ Jane Bennet notes that “Instead of a formative power detachable from matter, artisans (and mechanics, cooks, builders, cleaners, and anyone else intimate with things) encounter a creative materiality with incipient tendencies and propensities, which are variably enacted depending on the other forces, affects, or bodies with which they come into close contact” (2010: 56).

Chapter 3: Learning the skills of metalsmithing

My interest is in the educational value of learning a traditional craft for its potentially wide application and its innate ability to positively affect the learner, without reducing craft practice to a secondary status in the service of art, design or personal development. Joyce, it would seem, fully recognizes the value in this with his emphasis on training others throughout his career through apprenticeships, on-site workshops, lectures and his funded 2007 training program for youth at risk in Santa Fe. Training is grounded in the materials, the tools, the equipment and the techniques of the craft. At the same time, Joyce encourages an explorative approach to making and communicates this to his students.

Glenn Adamson references Heidegger when he writes about how the making of a thing “reveals” both the material and the maker simultaneously (2007: 95). As the Kellers have shown, the blacksmith process of making requires knowing and skill on a sensorimotor and aural level (1996: 136). In his essay *Craft Education: Looking Back, Looking Forward*, Metcalf says, “craft offers an expanded field for education, one that can respond to many different kinds of minds”⁴⁴ and “the ability to instil positive values – or if you like – to build character”⁴⁵ (2007: 8). It is worth quoting Metcalf at length where he goes on to say:

This, I admit, is risky territory, since we are accustomed to shying away from questions of morality in public institutions. And yet, I contend that part of a comprehensive craft education must, by its nature, instil something in the way of good values and character in an attentive student.

The subject of moral improvement is not altogether foreign in the present-day academy. One of the fields most given to justifying itself in terms of positive values is sports.

⁴⁴ Vuka Design’s programme’s over the past 10 years have catered mainly for youth learners and children with special learning needs that are not coping with the demands of their lives. Most of these learners have struggled academically and socially within the school system and have done very well in the blacksmith training programme. It is my sense that the school system does not cater for their learning needs and that this, rather than their ability, is the cause for their poor school performance.

⁴⁵ While at Vuka Design our task is to train learners in blacksmithing skills as a life skill, I perceive our work to also address the challenges our learners face in terms of their behaviour appropriate to school, training and work. I have recruited the Vuka Design staff over the past 10 years to facilitate the training. Their skills and behaviour model a “way of being” for the learners that helps the learners adjust their own behaviour accordingly. Blacksmithing is a high risk activity, where learners are at risk of burns and other accidents. Taking responsibility of their actions and working effectively in a team is an important aspect of the training. The trainer’s work is as much about training the learner to achieve a healthy work ethic as it is to train blacksmith skills. The trainer is required to be firm, clear, skilled, respectful of everything in his field of influence and supportive in a loving and trusting manner. The trainer’s leadership is tested by the learners and if the trainer is able to maintain these boundaries of fairness and clarity in their work and treatment of everything around them, then the learners gain respect and adjust their own behaviour to mirror the trainers behaviour. The trainer maintains a focus for the learner until the learner is able to internalise that focus and act on it. We do not always get it right. Without a positive work ethic the learner is unlikely to sustain income generating work.

I've heard the mythology repeated many times. Sports teaches young people the virtue of teamwork – how to function within a structured role in order to obtain a common goal. A student who understands teamwork is supposed to be able to put his or her ego aside, and become part of a cooperative venture for the greater good. This, we generally agree, makes for a more productive worker and a more generous-minded citizen. We are also told that participation in sports builds self-esteem, conditions the student for a healthier life, and helps forge lasting friendships. It also teaches students how to get along with others.

Presumably, some of this is true. And if it is true, one might suggest that craft education also imparts certain values. Ruskin suggested that self-directed handwork forced the worker to think for himself, to learn self-reliance instead of merely following directions. That sounds plausible to me. Think of beginning students, struggling to find their way through an assignment that demands creativity. Not all succeed, but those that do gain a measure of confidence that is hard to come by any other way. Or think of the discipline that learning a craft imposes: the effort to get something right, the occasional frustration, and the accomplishment of finally gaining some control over a reluctant medium. And the nice thing about craft is that success is plainly visible - in the perfect clay cylinder, in a smooth planishing job, in straight selvages (ibid: 9).

Doug Stowe is a woodwork crafter and writer of five books on woodworking techniques who has taught at the *Clear Springs School* in Eureka Springs, Arkansas, for six years, and based on his experiences there, has written an article titled *The Wisdom of Hands*. Like Metcalf, he laments the decline of woodwork instruction at schools and makes a case for the value of the craft in education. He promotes woodworking as the ideal multidimensional discipline offering an integrated learning experience in which student initiated projects are taught in all their curriculum subjects, so that abstract concepts are taught through concrete experiential learning (woodworking). Stowe suggests that the movement of the hand facilitates the movement of thought in the brain (1994: 4). His ideas are based on the Swedish *Slöyd* educational system developed by Otto Salomon in Nääs and implemented in general education for all children. The premise is that craft education at this level is character building, developing independence, perseverance and the ability for exact work in the learner.⁴⁶ Stowe suggests that the movement of the hand facilitates the movement of thought in the brain (1994: 4). The link between the hand and brain development of the human species is referred to by many authors in an attempt to show how handwork directly affects the ability of the brain to think creatively and constructively, mastering abstract thought.⁴⁷

⁴⁶ Adamson notes that "*Slöjd* is a word with no precise English equivalent; it implies skill in work rather than craft as a productive activity. Salomon was quite explicit that his pioneering efforts were intended not to train manual laborers or artisans, but rather to inculcate in every student well-regulated habits of mind and body" (2010b: 11).

⁴⁷ My research about what abstract thought really means led me to the concept of Neuroplasticity which refers to the adaptability of thinking pathways between neurons and the potential for producing new pathway in the brain. The more we do something, the stronger

In an essay titled *The Hand: at the Heart of Craft* Metcalf notes that the hand does not end at the wrist, but extends to the arm, spine and brain through a network of tendons, muscles and bones with a “dense array of nerve endings routed to the spinal cord and then to many different areas of the brain” (2000: 2). Modern theory suggests that hand use, language use and cognition all evolved interdependently, the hand being an instrument of language, an extension of the brain (Ibid). The nerve endings in the hand are feedback sensors linked to the brain through the muscles, joints, tendons and skin that give the brain information about heat, cold, pain, pressure, hardness, compliance, texture and weight of material encountered. Simple actions of the hand require considerable sensory computational powers. Metcalf explains that craft is a set of complex procedures and actions that demand a high degree of skill and years of training. A skilled crafter coordinates different aspects of his perceptions, cognition and movement while working; his making being seemingly effortless:

The hand speaks to the brain as surely as the brain speaks to the hand. Self-generated movement is the foundation of thought and willed action, the underlying mechanism by which the physical and psychological coordinates of the self come into being. For humans, the hand has a special role and status in the organisation of movement and in the evolution of human cognition (ibid, 4).

In his book *The Craftsman*, Sociologist Richard Sennet explores our ability to express ourselves through craft and considers craftsmanship as more than a technical practice. In assessing craft and the development of skill he considers how we anchor ourselves in the world around us. Craftsmanship, Sennett suggests, is a way of being in the world and of taking care. He explains the hand-brain link with regards to the evolution of Homo Sapiens, saying that:

In evolution, Darwin surmised, the brains of apes became larger as their arms and hands were used for other purposes than steadying the moving body. With greater brain capacity, our human ancestors learned how to hold things in their hands, to think about what they held, and eventually to shape the things held; man-apes could make tools, humans make culture (2008: 150).

He goes on to explain how the development of the grip has been key to this evolution, but similarly the ability to release the grip. Neuropsychologists believe the physical and cognitive capacity to release underlies the ability of people to let go of a fear or an obsession (ibid: 152). Sennet suggests that “a neural network of eye-brain-hand allows touch, gripping, and seeing to work in concert.

that thinking pathway becomes, comparable to a road system, in which those roads used frequently have to be expanded and maintained to allow for increased use and those that are not used become derelict. Neuroplasticity suggests that we can learn and strengthen new practices and information at any age and that intelligence and ability is not a given genetic parameter at birth but has open ended potential and requires practice (Bernard, 2010: 1).

Stored information about holding a ball, for instance, helps the brain make sense of a two dimensional photograph of a ball: the curve of the hand and the hand's sense of the ball's weight help the brain think in three dimensions, seeing a flat object on paper in the round" (ibid: 153). Sennet links release to prehension and the ability to learn to take risk; to make an error and recover from that. Craft experience is all about learning through mistakes and recovery from mistakes, which builds confidence to engage with life in any context. Sennet links making mistakes to separation anxiety in the child and the healthy association to a transitional object. Learning to make mistakes and recover from them while learning to master a skill restores a healthy relationship to the other (if not established during the separation phase between mother and child). In my experience if a learner is given a task that is far beyond their current ability, they will be likely to give up in the process as it is simply too difficult to bridge the gap between what they are able to do with their mind and body and what is required of them for the given task. The training material must be aligned with the learner's level of competence and the learning step must be achievable. If unexpected material results are encountered due to lack of skill or knowledge on the learner's part, or if the process and material respond differently to what was expected, the learning from mistakes is a positive experience as it can be overcome and mastered. A trainer quickly can see if a task is too difficult and can adjust the task to ensure the learner will be able to overcome mistakes. I believe this is a critical part of the learning process.

Sennet describes "soft power" in which release is as important as grip; self-control comes from prehension and two differently skilled hands, working in combination, compensating for weakness. Our hands have evolved to co-operate, each hand specialising, the secondary hand anticipating what the predominant hand is doing, which seems to be unique to human beings (ibid: 173).⁴⁸

Heidegger's words come to mind again: making a thing 'reveals' both the material and the maker simultaneously. During training, the trainer can assess what needs to be adjusted in the thing made, how the maker needs to alter their mind and body to move the material differently to achieve a desired result. When a learner is stuck or the product is not progressing satisfactorily, often the trainer and the learner have to be open to trying new actions and approaches to finding a way to achieve their goal. Learning through doing is unique to the individual as we all have different challenges to overcome in achieving a task. This, for me, is a fascinating aspect of craft teaching. I

⁴⁸ Sennet suggests that, "hand coordination confronts a great delusion about how people become skilled. That is to imagine that one builds up technical control by proceeding from the part to the whole, perfecting the work of each part separately, and then putting the parts together – as though technical competence resembles industrial production on an assembly line. Hand coordination works poorly if organised in this way. Rather than the combined result of discrete, separate, individualised activities, coordination works much better if the two hands work together from the start" (Sennet, 164-5).

have observed that people do things in their own unique way and that the character or 'feel' of anything and everything they make has a certain quality unique to them. The more skilled a crafter is, the less easy it is to see their style or "feel." When I work with children I have a sense that their outward appearance and behaviour is often reflected in the thing they make. While I have to take care not to generalise here, a work can often be improved, strengthened, straightened or better balanced by helping the child adjust their own body. Many children can be said to not be totally present in their body. They have poor concentration and limited strength and do not stand and work with balance and purpose. When these things are brought to their attention and adjusted through their own effort, their work follows suit. Again, the trainer has to work with awareness and utmost respect and at the same time maintain a casual attitude. Handwork requires body intelligence described by Gardner as "the ability to use one's body in highly differentiated and skilled ways, for expressive as well as goal-directed purposes [] Characteristic as well is the capacity to work skilfully with objects, both those that involve the fine motor movements of one's fingers and hands and those that exploit gross motor movements of the body [] all crafts demand exceptional motor control [] bodily intelligence can thus be seen as a biological and cognitive foundation to all craft practice" (Metcalf, 2007: 4).

Ingold's expanded idea of craft as a gestural synergy of the human being, the tools and the raw material, described in his three chapters *Knowing from the Inside* (2013), *On weaving a basket* (2011b) and *Of String Bags and Birds' Nests* (2011b), is relevant here. He discusses five dimensions of skill⁴⁹. Craft practice is a form of "use" (2011b: 352), in which the hands and eyes of the maker, as well as the tools, are "*brought into use* through their incorporation into an accustomed pattern of dextrous activity" (2013: 116). He refers to this as "the gestural synergy of the human being, tool and the raw material" (2011b: 352). Skill therefore cannot be reduced to the merely technical and mechanical. Skill is thus not a 'thing' in itself, but rather a total field of relations between the maker, his/her context and environment and the materials and tools of the craft. As a result, Ingold says of skill that it requires qualities of care, judgement and dexterity (ibid: 347). Skill is grounded in attentive, perceptual involvement where "sensory corrections," continual adjustments or "tuning"

⁴⁹ According to my understanding, Ingold includes the following dimensions of skill as critical to understanding craft practice. These include firstly practice as defined as the "use" of the tools and the body when making. Secondly, the environment in which the crafter makes described as a "total field of relations" in which the maker, his or her body and mind within a structured environment results in the object made. Thirdly, the ability of the maker to bring the qualities of care, judgement and dexterity to the emergent task. Fourthly, the understanding that the attentive engagement of the maker with material carries its own intrinsic intentionality beyond the original design and plan of the object made. Lastly, the making process arises, or emerges, in the process of "use" in which the object cannot be reduced to design or technology.

of movement in response to an ongoing perceptual monitoring of the emergent task is present. (2011b: 353). He refers to this as an education of attention and argues that skilled practice cannot therefore be reduced to a formula (like a how-to-recipe), passed from generation to generation. He shows that learning a skill involves both observation and imitation, which is grounded in perceptual engagement with the total surroundings of the activity. Through repetition of movement and observation the learner gets a 'feel' of how the maker makes; fine tuning his/her own movements to achieve the rhythmic fluency of the accomplished practitioner. The teacher provides a context of opportunities for the learner to use to become skilled. The attentive engagement with material carries its own intentionality quite apart from any 'design' or plans that it may be supposed to implement (2011b: 352). Ingold concludes that making arises within the process of use through which real forms emerge and are held in place: the regular, controlled movement where the 'flow' of the maker's movement generates the form (i.e. it is not about the design that precedes it) (ibid). As he puts it: "In the art of inquiry, the conduct of thought goes along with, and continually answers to, the fluxes and flows of the materials with which we work" (2013: 6). He talks about a knowing from the inside, "a correspondence between mindful attention and lively materials conducted by skilled hands" and does not speak much about the role of the master practitioner who "teaches" the novice, other than to say that the role of this person is to establish the context or situations in which the learner can discover for themselves what they know and what they still have to learn (ibid: 10). It is rather about a 'growing' into knowledge than having it handed down to the learner through abstract theory and books (ibid: 15).

Metcalf notes that people with strong body intelligence tuned to fine motor skills and good spatial intelligence do very well when they are exposed to craft as they have a natural ability to work with their hands and with material (2000: 4-5).⁵⁰ The lack of crafts in public education means that learners who would usually excel in this area are not given an opportunity at education level and may perform poorly at normal academic education that does not cater for their primary mode of learning (through the physical engagement of their bodies and the world).⁵¹ Metcalf goes on to describe his

⁵⁰ Metcalf mentions from his experience with training learners that learners are naturally drawn to specific and varied materials (2007: 4). He is not able to explain this, but I would agree from my own experience that different materials resonate with different people. Some people take to metal like they know it even though they may never have worked with it before.

⁵¹ In 2013 one of Vuka Design's funders conducted an impact assessment of Vuka Design's blacksmith life skills program implemented at a school in Tembisa in 2013 with 36 grade 6 and 7 learners. The research measured and assessed the learner's attendance and academic results at school. Interviews were conducted with learners, educators and school governing personnel involved in the training program. School performance of learners enrolled on the program was assessed before the program and after the program and was compared to learners of the same grades not involved in the program. The researcher concluded that as a direct consequence of participating in the blacksmith program, learner academic results in English increased by a general 12% and school attendance increased from 50% to 89%.

own process of becoming a metalsmith jeweller. He enrolled in a jewellery course during his college studies and found that it changed his life. He had found his vocation: “completely satisfying and engaging, challenging and comprehensive [activity] [] I found a discipline that allowed my mix of intelligences, bodily and otherwise, to bloom and prosper” (ibid: 5). He describes craft as a pleasurable action; a “flow,” which has clear goals, immediate feedback and is characterised by a deep state of concentration (ibid). This “absorbed work” requires a level of skill so that the crafter is not simply struggling with their own body, the tools and the materials. As he says: “An experienced smith will note the success of each strike of the hammer, each round, each course, and feel a measure of satisfaction in each one. Every experienced craftsman knows how his craft can be broken down into parts, and he knows the pleasure of slow but steady work.” Characteristic of crafts is loyalty to medium, an emotional bond between work and the person. Quoting Frank Wilson, Metcalf states that “[p]eople are changed, significantly and irreversibly it seems, when movement, thought, and feeling fuse during the long-term pursuit of personal goals” (ibid: 6).

Referring to the writing of the psychologist Mihaly Csikszentmihalyi who has offered a number of insights about the nature of satisfying action pertaining to handwork, Metcalf explains that genuine feelings are essential to us and that subjective experience is at the core of what we experience as life. He notes that “[c]rafters are dedicated to their craft because they have an emotional commitment to it. They are passionate” (ibid: 7). Passion, he shows, leads directly to meaning: “emotional investment is configured as a goal [] once a goal is established, striving becomes necessary. Meaning demands active involvement” (ibid). This becomes an avenue for growth by “exercising innate intelligences and engaging in concentrated work. Handwork makes meaning, not just physical things [] meaningful self-actualisation” (ibid). “But being made by hand the craft object stands only at one degree of separation from a person [] in craft, a person always stands, like a shadow, in close proximity to the thing itself” (ibid). In other words, the object is “a human trace.” The handmade object stands for human presence; for a human’s touch, and a human’s care. Metcalf concludes that handwork is slow work, careful work, a form of resistance; it’s about subjective experience, about quality of life (ibid: 8).

Executive director of the British Crafts Council, Rosy Greenlees, concurs but also points out that there is much more to learning to work with one’s hands:

Learners were selected into the program by the School. Grade 6 and 7 learners in classes of 60 children and more who were not coping academically, with poor school attendance and at risk of dropping out were selected.

Important in and of itself, a craft education isn't just about creating beautiful objects. It has a vital role to play in wider industry, helps with problem-solving (as Matthew Crawford illustrated in his best-seller *The Case for Working with Your Hands*), and contributes to general cognitive development. It helps students see that there is more than one way to learn, and provides a sense of agency and empowerment. As the historian and master of Wellington College Dr Anthony Seldon argued in the *Evening Standard* recently: "All young people need an excellent grounding in the arts, creativity and sport." Yet if this decline continues then there is no question that the future of British craft will be in real jeopardy. And with it the material skills and expertise required by the film industry, engineers, designers, architects and surgeons (Greenlees, 2014: 1).

Recent critical observations on the state of craft instruction in British and American training colleges are worth noting with regard to the value of craft education. Two research reports compiled by the British Craft Council assess the value of learning through making, the contribution of making practices in the broader British economy and the place that learning through making has in the formal British School system. The role of craft practice is reported on in 1998 (*Learning Through Making, A national enquiry into the value of creative practical education in Britain*) and then again between 2007 and 2012 (*Study Craft: Trends in Craft Education and Training*). The reports show that there is growth in the creative industry in Britain with specific reference to craft practice, which is shown to significantly contribute to the British economy. The reports also show, however, a steady decline of craft education in the formal education system. Greenlees sums this up in her article *Making a Manifesto*:

The statistics are compelling: as the industry co-chair of the Creative Industries Council and vice president EMEA of Facebook Nicola Mendelsohn pointed out in her introduction, the sector is growing faster than any other in the nation, generating £71.4bn GVA in 2012. At a time when our financial services and manufacturing industries are recalibrating after the 2008 economic collapse, it's something of which we should all be proud. But a contradiction has emerged in government policy over recent years. While the departments of Business and Culture have been happy to spread the good news of the sector's success, the department of Education has narrowed the curriculum, keen to emphasise traditional academic subjects over the arts and potentially smothering a new generation of creatives in their formative years. Our report, *Study Craft: trends in craft education and training*, revealed an alarming 19 percent decline in the number of pupils enrolling on craft-related design and technology courses at GCSE level between 2007-09 and 2010-11. While numbers in higher education have held up this ignores a higher influx of overseas students, effectively masking a drop in the number of domicile students wanting to take places. And many parents still don't see the possibilities for their children to forge a successful and fulfilling career with a background in an arts or making-based subject (ibid).

The 1998 report assessed in detail the value of creative practical education in the British economy, health sector, employment and industry application. The research sought to understand the central

learning role played by making within a context of a well-documented famine of skilled makers today:

No one would deny the genuine pleasure and sense of satisfaction to be gained from making, using materials with intelligence and intent to satisfy a need. But is this a luxury, an activity for which there will soon be no place in the school curriculum? Can the development of the co-ordination of hand, eye and mind be safely disregarded? Can the sense of accomplishment from a job well-done be fully experienced from writing an essay or solving an equation? Can scarce resources be spared to develop skills which it appears many still believe to be concerned with no more than the efficient use of equipment and tools? In the information age, is there any merit in a practical education, one which gives young people the capability to operate in three dimensions? (Eggleston, 1998: 6).

The report defines making as “a creative process that develops practical, conceptual and visual skills and competence by engaging with ideas, materials and tools, thereby imparting knowledge and understanding in response to human needs” (ibid). It goes on to detail findings that suggest that the role of ‘hands on’ learning through making at school, college and university level and through courses is needed for national, cultural and economic well-being. Three teams carried out research in three areas: The Middle Essex University research team assessed how and if human competence and capability is enhanced by learning through making at school level (learners aged 5 to 16 years) and how employers view these competencies and capabilities and how the general public regard these skills.⁵² The Loughborough University research team sought to understand how and if an understanding of business skills is enhanced through the experience of learning through making at school level. The third research team from Sheffield Hallam University evaluated the employability of craft educated graduates, the demand for them and their capabilities and their developing roles as employees and employers. This team completed a survey of six craft-based higher education courses from jewellery and metalwork at Dundee to fashion and textile at Brighton.

Overall findings of the report concluded that practical insightful making education and practice is valued across the board by employers and the general public as it improves overall learning competencies and plays a key role in the future development of the British economy, cultural and social life. The report showed that specifically business and Industry require decision making and action skills that are associated with practical experience and skills. At school level, educators were found to understand the value of practical making skills as a means to achieve across the board curriculum activities. The report showed that craft based graduates in Art and Design are significantly contributing to Britain’s economy, not only within traditional craft practices like glass

⁵² Statistical Package for Social Science research method used. Observation, interviews questionnaires.

blowing, metalwork and ceramics, but also as applied to broader areas of practice which include animation, set-building, prototype product development for a wide range of creative industries including, for example, the medical field and the development of prosthetics. The report concluded that a wide variety of making skills contribute to the economy, including a significant number of amateur and hobby DIY practical makers for the home and community, with a high value of personal satisfaction for the makers. Learning by doing the report shows, offers the maker tangible achievements and thus fosters life-long interest in the made world. Despite these findings, there is a significant lack of support for practical making skills within the curriculum at schools, at teacher training level, within universities and colleges. This is not only so for Britain (1998: 6).

My particular interest in this report was the research conducted by the Middle Essex University team that assessed how all round capabilities are naturally enhanced through the making experience, even though it is not the focus of the curriculum. Making demands a wide range of competencies, which, once achieved, are applicable to other areas of learning. Educators use making to develop psycho-motor co-ordination and physical organisational skills. The report found that the following all round competencies and capabilities achieved by learning through making were desired by employers and educators (1998: 7):⁵³

- Ability to co-operate
- Ability to communicate when doing things
- Conscientiousness, reliability
- Initiative, energy, persistence and self-discipline
- Acceptance of responsibility
- Ability to comprehend through listening, reading and doing
- Job-specific skills
- Problem solving
- Adaptability in changing circumstances
- Application of knowledge in the solution of practical problems
- Ability to handle factual information; the capacity to view problems from different angles and perspectives
- Motivation in the accomplishment of tasks
- Ability to organise things and people\ability to think logically.

⁵³ The report further showed that technical programme's such as CAM and CAD which are crucial for industry do not develop these all round capabilities and competencies as 3D making does (ibid: 12).

Despite these findings, practical making is undervalued, under used, under resourced and under promoted in education in Britain and elsewhere (1998: 7):

The Council has argued that important advances in automation and information technology have often removed us from the direct experience of making things. New technology is a valuable resource but not a substitute for the whole experience of making. For the present and the next generation of adults, an inventive, resourceful and visually sensitive education is also required.⁵⁴ Not all become architects or designers or use craft skills to make things, but everyone needs a vision and an understanding of the way homes, products and communities should be now and in the 21st century. In recent years, however, human and material resources for 'hands on' learning in formal education have been reduced. There is a practical skills deficit in much of education and industry. This must be rectified. Learning through making in schools and colleges is needed (1998: 16).

Metcalf similarly notes that the preservation of the crafts as subjects of academic study are on the decline in America, Britain and elsewhere.⁵⁵ He writes:

There seems to be a pervasive anxiety in American crafts today. Attendance at craft Fairs has declined since the boom years of the 1990's, and some experienced makers have been forced out of the business for lack of sales. Certain individuals forecast the

⁵⁴ Not in the sense of pastoral like Morris and Ruskin and not simply about personal satisfaction and character building that Metcalf talks about, but encompassing. The British Craft Councils organised its 2014 Conference titled Make: Shift, which is a biennial conference exploring craft and innovation. "A surgeon, an expert on robotics in architecture and an inventor of colour-changing fabrics were among the world-leading makers, thinkers and innovators who took part in the first Make:Shift" (<http://www.craftscouncil.org.uk/what-we-do/makeshift/>). These makers are working in an expanded field of making beyond the limits of a craft material and a skill set, however requiring the same level of competence with a wider context of application. In his book *The Persistence of Craft*, Greenhalgh comments that "Classically the difference between craftspeople and designers is that the former engage in a single genre, while the latter are concerned with problem-solving that might move across a diverse range. The success of the great designers of the last two centuries is usually found in their ability to find novel solutions to problems by moving between material and technologies" (2002: 20). In this same book Gareth Williams comments in his essay *Creating Lasting Value* that in order to retain relevance in the modern world, craft must engage with contemporary concerns (ibid: 61).

⁵⁵ I started Vuka Design in 2003 in response to a call from SETA for training providers to roll out NQF craft training. It was an opportunity and there was a need. I formed a partnership with St Vincent School for the Deaf to rent their school workshop space and train their vocational learners. The workshop at the time had been closed for 10 years and functioned as a store room. Amongst the storage were a forge, a broken anvil, a lathe, milling machine, cut off machine and some odd tools; remnants of an active metal workshop started and initially run by the nuns 60 years ago. The learners we worked with from 2003 to 2013 were not able to continue schooling beyond grade 9 as their language and communication skills limited them. The National Qualifications Framework (NQF) learnership programme gave them access to further education and training and possible employment. However the NQF unit standards on a level 2 (grade 10) was beyond the skill level of our grade 9 learners. Our challenge was to develop a learning programme and assessment tools that accommodated their learning challenges. We produced a visual sign language DVD that introduced the language of a blacksmith craft enterprise which was entirely new to these learners. We also created assessment tools that could be done with sign language via an interpreter. We were one small provider addressing the needs of these learners in a schooling system that is ultimately responsible for these learners and in my opinion has failed them. In 2013 the government has recognised this shortfall in the system and is introducing the OFS system that enables learners to do skills-based training rather than academically weighted training. If the school system supported learning through doing these learners needs, I believe would be addressed.

gradual extinction of the crafts as we know them. Handwork, they say, is by nature irrelevant in the 21st Century. In addition, more than a few college-teaching craft studios have been terminated over the past two decades. And while new craft programs are occasionally started up, closures outnumber the openings [] the idea of craft instruction as a sustained study of medium and technique and history is obsolete (2007: 1-2).

Metcalfe goes on to examine current art education in colleges and universities and shows how traditional craft skills have become subsumed into a larger body of art practice. Selected craft processes and skills have become a resource to art students in the production of an artwork:

Post conceptual practice [that] consists of a relatively unstructured curriculum – a series of introductory courses followed by what used to be called independent study for up to two years. The concept of a major course of study has been jettisoned. The student uses whatever studio facility (or course) most closely fits his or her agenda at the moment. Upon graduation, presumably the student is perfectly adaptable to whatever art trends that might show up in the magazines. In this version of art education, craft is construed as one option among many, ready to be subsumed into a larger body of art. Students are free to float from one studio to another. Wherever the most energy is found, there students will gravitate. All studios are satellites, every previous studio practice is reduced to being service or a resource for students who come and go freely. Needless to say, this structure does not bode well for the intensive study of craft. The traditional craft forms – pots, jewellery, chairs, weavings – are re-conceived as elements in installations, if they are made at all. There is no incentive for the patient accumulation of skills, and no particular value placed on tradition (2007: 1).

I see the value in art education and an open approach to making as described above, however, as Metcalfe shows, in this environment in which “the idea of craft instruction as a sustained study of medium and technique and history is now obsolete,” there is no incentive for what David Pye⁵⁶ termed “taking great trouble” when learning traditional craft skills. He warns of a process of de-skilling if trends rather than practices are pursued.⁵⁷

⁵⁶ Adamson writes: “The most outstanding example is David Pye’s *The Art of Workmanship*, perhaps the purest piece of “craft theory” written in the twentieth century. Pye offers a disarmingly straightforward consideration of the physical realities that the rather imprecise notion of skill tends to conceal. A second text, as metaphorical and elusive as Pye is precise and concrete, is Michael Baxandall’s *The Limewood Sculptors of Renaissance Germany*, an art historian’s attempt to ground his methodology in an understanding of craft. Through reference to Thomas Crow’s recent reading of Baxandall, it is possible to argue that skill’s normative quality – it seems right in our eyes – makes it a profoundly cultural matter, and the heart of what it means to think through craft” (Adamson, 2007, 71). And “Pye’s great breakthrough was to divorce manual skill from *mental* skill (know how), going directly against the grain of the established Arts and Crafts Movement opinion. His method was to reserve the term “workmanship” to purely physical procedures, such as moving a hand plane over a board in order to smooth it [] and then to subject the mechanics of those procedures to rigorously literal analysis [] While John Ruskin had pronounced that “art is not the study of positive reality, it is the seeking for ideal truth,” Pye insisted that workmanship is a realm of discrete physical actions, each one susceptible to rational examination” (2007, 73).

⁵⁷ A recent research paper titled *Practical Minded, the benefits of mechanisms associated with a practical skills-based curriculum*, written by Dr Aric Sigman and commissioned by the Ruskin Mill Trust in 2012 references research that points to a steady decline in skills across the

Metcalf further argues that craft should not be conceived “as a subset of art, but as a distinct field of both practice and study.” As he goes on to say: “In my view, craft is related to both art and design – and overlaps portions of both – but is distinct enough to merit being a field unto itself.” He poses it as a question of clarity: “If craft has any hope at all of asserting its position in either the liberal arts or the visual arts, it must claim its own identity, its own competence, its own educational methods, its own history, and its own forms” (ibid: 2).

In his book *Thinking Through Craft* Adamson also notes the steady decline of craft instruction despite the documented benefits. He points to the largely politicised history of craft instruction at higher-level education. In the 1970’s, higher education no longer offered medium-specific craft courses to students and a steady decline of formal craft education has followed. He shows how in a post-disciplinary world, fewer resources are dedicated to the development of a particular craft skill (2007: 74). Metcalf furthermore notes that the health of college craft instruction is now largely dependent on local conditions – on the degree of understanding and support in whatever administration is at hand⁵⁸ (2007: 2). Eckersley’s 2014 research report findings support this view:

To effect real change we need to build a broad-based coalition of partners and supporters who between them can impress upon the government the importance of making in education at all levels, from primary school through to apprenticeships – and to emphasise the latter, the Craft Apprenticeship Trailblazer is launched at the same time, aiming to set a new world class apprenticeship standard for craft (2014: 1).⁵⁹

board in children and youth in part due to the increasing engagement of screen time as opposed to engagement in hands on learning time (2012: 14).

⁵⁸ Vuka Design was funded by Government between 2003 and 2007 and subsequently funded by private industry and arts and culture trusts.

⁵⁹ Recent Crafts Council research *Studying craft: trends in craft education and training* showed low provision and participation in craft sector apprenticeships so the Craft Trailblazer is welcome and timely. Jason Holt, Chair of the Craft Trailblazer Group, and CEO of Holts Group, said: “I am delighted that we have been successful in our proposal to pilot the Government’s new apprenticeship reforms. The craft sector is incredibly diverse and this coupled with the number of small businesses has made it difficult to operate apprenticeships under the current system. This is an incredible opportunity to shape an apprenticeship which will deliver the right training and skills for our respective businesses and the craft sector as a whole”. Crafts Council’s Executive Director, Rosy Greenlees said “We are delighted that the Government has recognised the need for a craft apprenticeship standard. Education, learning and talent development is a major priority of the Crafts Council so the creation of a vital new route into craft employment and training is very welcome. The breadth of expertise and knowledge of all the partners will be crucial to achieving a well-rounded sustainable standard which will benefit apprentices and businesses and ultimately strengthen the British craft sector” (<http://www.craftscouncil.org.uk/about/press/craft-trailblazer/1/>).15.1.15. According to BABA’s website a “Fully accredited Modern Apprenticeship in blacksmithing will be available in the near future” (<http://baba.org.uk/education-training-and-courses/>).

Metcalf and Adamson both look at the history of craft education and in so doing indicate reasons for this decline in craft education. Metcalf traces the first manual training school in the USA to 1825, started by mathematician Calvin Woodward. Craft was understood as a trade, which prepared workers for their jobs. Woodwork and metalwork were the primary trades taught. Woodward also emphasised the personal development aspect of handwork and Metcalf quotes him as saying in 1908: "It is not the making of things that is important, but the making of strong men and women through the swift and sound development that begins when the child begins to use its hands for the shaping of something which is really needed" (2007: 4-5). Metcalf shows that Woodward was drawing on the insights of John Ruskin in his well-known text *The Nature of the Gothic*. This document, he argues, was the most important document in the entire *Arts and Crafts* movement:

Ruskin felt strongly that work should not just be about mechanical repetition, or about maximising efficiency, but about exerting a positive moral influence. As he famously said of the worker: 'You must either make a tool of the creature, or a man of him.' In giving the worker the power to imagine, to think, to try to do anything worth doing – Ruskin's words again – the worker is given the chance to be more fully human (ibid: 4-5).

While elements of these ideas are worth pursuing, Adamson shows how the ideas of Ruskin and co-educationalist, Morris, saw craft as an endangered activity, under threat, due to the onslaught of industrialisation and the machine age. Morris and Ruskin promoted the notion that the industrial division of labour be resisted as it threatened the concept of the handmade (2007: 73). They promoted a utopian, socialist life "where people used simple utensils, wore simple attire, had a purpose and were happy and healthy pursuing a life in the country. One of the essential ingredients was the socialist ideal of a working fellowship, initiated by Ruskin and developed by Morris, where people could move away from the 'every-man-for-himself' principle of labour, towards small self-supporting communities [] An essential aspect of Morris's socialist vision was the harmony between life and art" (Racz, 2009: 21).

Adamson argues that this sense of craft being under threat of extinction is a concept that is a utopian prop, to help with the overall anxiety of an increasing, fluid, technological society (2007: 105-106).⁶⁰ He goes on to document the changes and development in craft education. In the early

⁶⁰ Designer and curator Chris Eckersley explains in his article for the *British Craft Council* magazine (2014): *Why machines are not the enemy*: "It's a popular myth that old skills are dying out. You only have to look around to see high levels of craft skill still practiced in everyday making and manufacturing – but much goes unrecognised, thanks to the bad press machines are sometimes given as an aid to manufacture. This is a mindset which insists anything made in a 'factory' – as opposed to a 'workshop' – cannot be 'crafted'. Even a workshop can be suspect; since Bernard Leach told potters they were artists, the craft preference has been for 'studio' production. Easily portrayed as inhuman (think of Chaplin's *Modern Times*) and the enemy of hand-production, in truth the machine is, as everyone knows, simply a useful tool. Eventually many of these prejudices can be traced back to William Morris. Before Morris, Henry Cole and the Design

20th Century, the *Progressive Movement* promoted manual training to develop abstract learning. Adamson refers to educationalist John Dewey who believed that craft training shaped the learner's experience for moral and aesthetic learning, preparing the learner mentally and physically for a sound society, very much in keeping with Ruskin's ideas (ibid: 70). This was unlike most trade schools, which focused on manual industry readiness.⁶¹ Adamson writes at length about the 1933 Black Mountain College that was a follow-on of Walter Gropius's *Bauhaus*. Josef Albers organised the college according to the old guild structure, with apprentices progressing to master status, where handwork was a preparation for design, rather than simply a preparation to practice craft as a profession. Through handwork, the student was prepared for a wide field of application, from concept art, to design, to craft practice. Craft however was still a discreet field of study requiring practice and time (ibid: 87).

Metcalf shows how in the early 20th century the idea of training designers for industry at higher education level became more and more relevant. Walter Gropius's *Bauhaus* was based on the idea that craft training lay the foundation for a career as either a designer or architect. Unlike Albers, Gropius made a stronger direct link to industry practice. Metcalf writes: "The theory was that hands-on experience with craft material would sensitise students to the innate physical properties of any object or building" (2007: 5). During the 1930's and 40's this idea was taken up by what Metcalf terms the *Bauhaus* reformist, Laszlo Moholy-Nagy, whose college used "both craftwork and machine work [] as exercises that would sensitise the student to abstract form and the properties of a given material" (ibid). Basically, Metcalf shows that through these colleges and this thinking "craft was repositioned as an equal partner to industrial design education [] promoted to [an] intellectual

Reform movement had been critical of the goods produced by British manufacturers, crusading against what he saw as bad taste; but Cole had no problem with the use of improved manufacturing processes. Morris, however, blamed the machine for the decline in standards, and sought to return production methods to a pre-mechanised age, as described in his utopian 1890 view of a post-mechanised future, *News From Nowhere*. Although a devout socialist, it is obvious that Morris's early Nimbyism was quite reactionary. The message: is 'No factories in England's green and pleasant land' – which is easy to say if you're high up on the Victorian rich list. Gordon Russell is a much more interesting character. Growing up in the Cotswolds in the early 1900s, an area then heavily under the influence of the Arts and Crafts Movement, he set up a furniture workshop in the village of Broadway. But by the mid-20s he recognised hand and machine as complementary, installing bandsaws, planers, dimension saws and the like, to gear up for batch production. 'The most urgent job of all was to teach the machine manners,' he said later. So he's a key figure, the direct link between the Arts and Crafts and the Modern Movements" (2014: 1).

⁶¹ Interestingly the NQF and now more recently the OFO system in South Africa focuses on skilling rather than personal development for industry readiness. However in my experience, the skilling can only happen successfully if the training addresses life skills: the person with their challenges need support to successfully take on new skills for work readiness. Skills without work ethic do not guarantee a competent blacksmith.

activity, above the sweat and dirt of labour” (ibid). However, Metcalf explains that as industrial design became more and more important and promoted, so the role of craft instruction became less so. With new industrial materials being used and explored, so traditional craft material instruction became less important. While the industrial designer has potential career satisfaction in large industry, “craft is a field of small business, with few employees and modest remuneration” (ibid: 6). A considerable time, minimum 3 years full-time, is needed to acquire competence to practice (Sennet, 2008: 172).

Joyce’s career as a blacksmith is interesting in this regard. According to Metcalf, Studio Craft has given rise to a rigorously intellectual new generation of makers who engage both practice and craft theory (ibid). Joyce can be seen to be a new generation maker. He underwent no formal training and achieved master crafts status in his craft with the ability to produce art for public and private commissions, galleries and museums. It is perhaps because he bypassed the educational system that it was possible for him to achieve his skill and practice. He seems to be an example of this new generation of studio crafter. One application of Joyces making skills combined with his environmental concerns and business skills is Qnuru; a lighting company founded by Joyce, that specialise in solar driven lights. Qnuru is evidence of Joyce’s ability to apply his traditional craft knowledge and skill to a contemporary cause and need.

Joyce immersed himself in the craft of blacksmithing, informally apprenticing with Peter Wells, and subsequently running his own shop spending hours of practice time mastering the skill. He is a part of a self-identified group of blacksmiths that share common principles of the craft: thinking hot, working freehand and engaged in material transformation (Keller, 1996: 5). He has applied his skill to industrial design projects, sculptural artworks and architectural ironwork. College training would perhaps have limited him in that not enough practice time devoted to mastering the craft of blacksmithing would have been available to him. The conservatism of European craft training may also seem not to have been appropriate.⁶² Hillenkamp’s comments regarding Joyce’s beliefs about training are pertinent here:

While Tom believes in the value of traditional European training in the craft, he tries to pursue alternative methods as well. Catchwords like ecology, sensitivity to the natural landscape, recycling, eliminating hierarchy and holistic thinking are not just empty slogans for him. They are concepts to the realization of which he devotes considerable time and energy. His notions of aesthetics derive not only from the implicit aesthetic of

⁶² On the BABA website the following blacksmith training is listed and found in their directory: 1. Three year BA in Artist Blacksmithing at Herefordshire College of Arts, 2. Year-long BTEC National Award, Certificate and Diploma courses, and 3. Year-long block release courses for experienced smiths, 4. Work experience with local smiths and short courses with private providers. In 2014 BABA was supporting the establishment of an accredited apprenticeship (<http://www.baba.org.uk/education-training-and-courses/>).

the craft but from study of such diverse sources as the "theory of the golden mean" and of the construction of medieval cathedrals. It is his intent to offer to the viewer of his work multiple levels of symbolism. These manifest themselves not only in the functionality of the piece but in engaging, ineffable and unique ways. Since the middle eighties, Joyce has made some thousands of small pieces: domestic hardware, fixtures and furniture, tools and so on. "I could forge those pieces in my sleep." He has sought new challenges and has found them as an "architectural blacksmith". Since 1989 he has been producing works that embody his unique style. Whether it is in a gate or architectural grillwork or in a simple bowl, Joyce remains true to his love of detail (Hillenkamp, 1995: 2).

Joyce's extensive knowledge and practice imbues his work with multiple levels of symbolism. For example, in an interview video-taped for the edition of *Memory* in the series titled *Craft in America* (first aired on 30.5.2007), he speaks about his work in relation to the mathematician Fibonacci who identified a numerical growth pattern that can be identified in many growing things. This mathematical equation results in pleasing proportions which the viewer "feels at home" with, as Joyce puts it. He used the number sequence to fold and hammer a steel bowl, resulting in a beautifully layered open vessel, fire forging and fusing the metal after each fold (<http://video.pbs.org/video/2090766075/>,). Using such a sequence enables him to generate form through an unfolding "pattern of regular movement" that happens in dialogue with the material (Ingold, 2011b: 360).

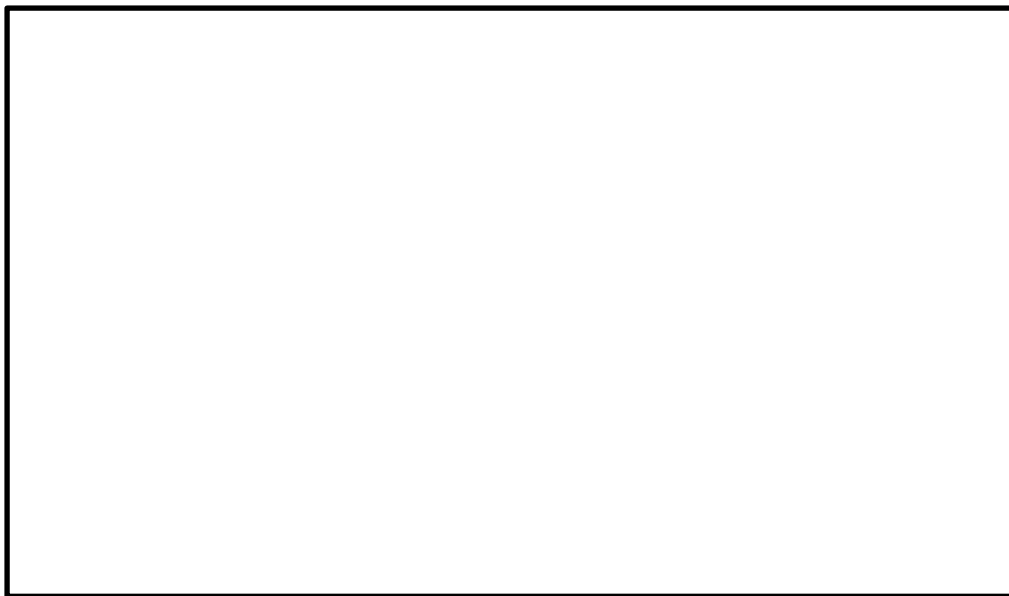


Figure 20: Metal Museum, (1989/1996). Tom Joyce, Fibonacci Bowl, forged mild steel, 102mm x 406 mm 381 mm . (10.2 x 40.6 x 38.1 cm), [electronic print] Available at: http://www.metalmuseum.org/master_metalsmiths From Metal Museum [Accessed 9 Jan 2015]

Ingold's description of the making process again comes to mind in this context. The crafter is curious about life, keenly observing the nature of things. Observation is not a passive act but an engagement with things. The crafter responds to the material, following its lead, bringing their understanding of things and of themselves into this engagement. In this "field of responses" the object is a

materialization of the otherwise unseen creative engagement with life (ibid: 345). The objects, artworks or artifacts are crystalized moments in a continuum of making and being. Like the weaver bird that does not develop the skill of weaving a nest if not given the opportunity throughout its growth and life to practice, so we too require a creatively rich context to develop this skill (ibid: 358).

In her essay *The Constant Craftsman*, Julia Meintjes describes this beautifully in reference to my supervisor Professor Walter Oltmann's work. Written for his catalogue accompanying his recent survey exhibition *In the Weave - Walter Oltmann: Working over Three Decades* (Standard Bank Gallery, Johannesburg, 2014), she describes how the creatively rich context Oltmann grew up in lays the ground for a lifelong pursuit of creative expression:

Of course, our memories about the influential aspects of our childhoods are filtered by experiences and personality. However, the context in which Oltmann grew up brings to mind an idea about the protection and stimulation of creativity expressed by another master of thread, Ramses Wissar Wassef [] the founder, in 1942, of Ramses Wissa Wassef Weaving Centre in Cairo, who advised some of the missionaries who came to teach art and craft (including weaving) at Rorke's Drift ELC in KwaZulu-Natal. 'Human Freedom never has as much meaning and value as when it allows the creative power of the child to come into action. All children are endowed with a creative power, which includes an astonishing variety of potentialities. This power is necessary for the child to build up his own existence [] The capacity for artistic creation exists in every child, but it needs fostering and protecting against superficiality [] I had this vague conviction that every human being was born an artist, but that his gifts could be brought out only if artistic creation were encouraged by the practicing of a craft from early childhood (Wissa Wassef 1992:21)' (Meintjes in Dundas, N & Charlton, J (eds.), 2014: 14).

The creative urge is common to everyone. Acquiring skill in a manual craft allows one to generate dexterity in many senses, to respond propiately and creatively to the changing requirements of both material and self.

Chapter 4: Coats: Garment sculptures and assembled drawings

Tom Joyce's work has been an inspiring influence on my own practice. His skill in shaping metal and his approach to making artworks has been a foundation for my own thinking and making towards the creative component for this research. Like Joyce, I am also a maker of forged sculptural works and similarly recycle found metal objects which are then incorporated into my artworks. Joyce uses resources within the community, recycling material rather than consuming new raw material, thereby challenging a culture of depleting the planet's resources. Working in a way similar to his, I also incorporate parts of a personal history associated with my blacksmithing experience and I refer to symbolic associations related to smithing. I also use my work and experience in blacksmithing as an opportunity to educate and involve young learners, recognizing the value in passing on such skills and experience.

In my creative practice I have tried to find ways in which to make sculptural objects that would allow me to integrate and creatively apply forging processes and techniques and even include the actual tools and implements that were involved in the making process. I am reminded here of what Risatti (2007: 16) says about the importance of both process and material in smithing: "A term such as smithing, whether it be gold, silver or blacksmithing, links together materials (metal) and specific processes involving heating and hammering so that process and material are given relatively equal importance." As Risatti further notes, the term implies action, technical process and specific materials but also reflects a long heritage (ibid). As in Joyce's case, my own creative work involving blacksmithing processes reinforces this functional, historical and mythical dimension of craft as an important element grounded in the object.

My process of making has been a slow, expanding manifestation of thoughts and feelings in response to the materials and tools of my blacksmith training work. The training NPO that I run is a small business and, as a result, I am involved in all aspects of work ranging from fundraising to recruiting, supervising staff, facilitating training as well as managing workshop stock. Blacksmith training tools and materials have accumulated over the past 10 years and include anvils, leg vices, forges and a variety of tools and equipment, either handmade or found in scrap yards and junk shops. From the starting point of wanting to use such items in my own creative work, I have slowly built-up four metal-adorned leather coats together with two related large mixed-media drawings with collaged elements. The idea of using the coat as my primary sculptural object derives in part from the protective leather garments worn in a foundry and forge environment and are, in fact, fabricated from such leather safety gear. I have repurposed used and discarded safety gloves, overalls, and aprons that the learners and staff have used during training. I have also repurposed discarded and collected materials like nuts and bolts, old keys and steel off-cuts (from a collection of accumulated

materials that I have often used in art workshops). Even an old family tent has been shredded and plaited to make up one of the coats. The layers of leather and fibre together with forged metal collected over the past ten years result in heavy garment sculptures that exude a relic-like quality and resemble ceremonial and/or shamanistic costume.⁶³

The recycling ethos that is so evident in Joyce's work has also compelled me to reclaim materials and objects and to incorporate them in what could be seen to be a kind of 'patchwork' approach to making. The accumulation of forged and collected metal objects attached to the leather garments results in uninhabited, ritualistic-looking costumes that may invite the viewer to imagine putting them on. The inclusion of forged and collected metal objects, implements and tools into the garments recontextualizes such objects and underscores the role of utility in blacksmithing activities as well as evoking the mythical dimension associated with such practice. As wearable sculptures constructed from found and recycled objects, the somewhat larger than life-size coats have been crafted into rigid garments that define space around the body. One of the coats (Bell Coat) has even evolved into a tent-like enclosure, allowing viewers access into the interior of the coat. A base armature made of mild steel round bar has been welded into and through a welding jacket. The coat was initially squat, standing 1 metre off the ground, but developed into a 3-metre tall and 1.5-metre wide leather and metal enclosure. The work is discussed more fully later on.

While the coats are displayed as sculptures to be viewed in a gallery setting, I have also video-recorded the wearing and 'performing' of some of the coats, drawing attention to the tactile and aural qualities of the garments. There is also an olfactory dimension in that they carry the smells from work done at the forge (emanating from the residue of materials deposited on the leather aprons and gloves while used in the forge). The performative element may be seen to connect them to ritualistic dance and ceremonial costumes. With the inclusion of sounds in the form of bells, gongs and rattling metallic objects attached to the coats, they may also recall the *Soundsuits* of contemporary America sculptor Nick Cave, whose works I briefly discuss further on.

⁶³ I have been involved in training children, youth and adults on short to long-term courses in blacksmith life skills over many years. In 2003, with the help of trainers and partners, I set up a blacksmith forge at *St Vincent School for the Deaf* and have subsequently set-up two further forges, one in Tembisa at Mayibuye Primary School and another in Fairlands at my home. This year we will be setting up a fourth, forge in Alexandra at Inkanyezi Primary School. Setting up and maintaining training workshops for blacksmithing requires efficient management of materials, tools and equipment for making and training. The physical resources enable the work and are constantly tracked, repaired, replenished and maintained as they are an asset to the success of the business. Together with the lead trainers, I manage this area of the business. It is a time consuming but crucial aspect that requires efficiency and discipline. It affects the quality of work and safety of everyone involved. The process runs better and worse at different times and the physical organizing and thinking about these resources takes considerable energy. It embodies, for me, in a material form the burden and potential as a weight to be carried when training children and youth.

My sculptural coats originated in the training workshop, gradually filling the small forge at home as well as spilling over into the kitchen/laundry area.⁶⁴ Several blacksmith trainers and apprentices helped me throughout the making process, especially in the completion phase of the coats. Their thinking about the work and their suggestions has greatly contributed to the making of the coats. A short documentary video focusing on the making process includes their participation, including the wearing and performing of them for video recording.



Figure 21: (Left) Warrender, P. 2014, Making the Coats



Figure 22: (right) Warrender,P. 2014, Laundry with coats.

The used, potentially discarded and re-purposed materials carry the history of their use as well as bearing evidence of the making, learning and teaching processes of learning a craft skill. The learners' gloves, for example, become hardened on the exterior from continuous use at the forge through the build-up of coal, hot metal, paint and other materials. In the potentially harmful environment of the forge, the gloves function to protect the hands of the user; the interior leather of the gloves becomes soft and stained from the rubbing against the skin of the hands during use. In one of the sculptures I unstitched the gloves to expose this soft interior and contrasted it against the hard exterior of the coat. In their role of enabling the work of the hands, the gloves are discarded at the point when they are no longer able to protect. The broken and used gloves stitched into a coat speak of the hours of practice that the learners and staff completed to learn and teach their skill as blacksmiths.

⁶⁴ Traditionally the laundry has been a female domain and the workshop a male domain. My Father had a metal workshop at home and while I could use it, it was his domain. The laundry was my mother's domain. In the past, blacksmithing has been seen as a craft that only men may practice. The sculptures have a strongly masculine presence in their scale and weightiness resulting from the forged iron attachments. Seen in the context of the domestic laundry space, the sculptural coats crowd and dominate the 'traditionally' feminine space while also hanging much like the clothes that are usually associated with the laundry. They thus seem to occupy both masculine and feminine domains.

Like the gloves, the sewn together leather jackets and aprons have become stained and saturated with workshop grime and materials (such as coal dust made into sludge by mixing it with linseed and machine oil and dubbin). The coats are then further 'coated' and embellished with layers of metal objects from the workshop, including copper wire, safety equipment, forged nuts and bolts, old keys, discarded learner products and carefully forged bells, knives and spoons. These embellishments are stitched onto the base coat through a slow process of hand sewing, resulting in slowly accumulating layers of discarded and salvaged workshop metal fragments. As with the gloves, the welding jackets and aprons have the purpose of protecting the wearer. The leather of these items is a relatively durable material that can withstand the punishment of the hard work and long hours involved in the forging of metal. While protecting the wearer, such garments are also somewhat cumbersome to wear and limit easy movement – something that is further dramatized in the fabricated coats with their attached embellishments. Their weight and size restricts ease of movement while giving them a sense of gravity and presence.⁶⁵

In certain cultures, metal additions to a garment empower both the garment and its wearer. McNaughton (1982) describes this occurrence in connection with the African Mande hunters and blacksmiths in his essay *The Shirts that Mande Hunters Wear*. While today, in post-colonial Africa, the Mande hunter practices are scarce and their hunting shirts rare, McNaughton writes about their significance in the pre-colonial Mali Empire and describes the shirt of an established hunter, which is heavily layered with amulets and objects, a visual record of his ability and his history as a hunter. McNaughton shows that the hunters and blacksmiths were a group apart from their society, perceived as powerful and dangerous in their ability to master the bush, fire and metal. The hunters, specifically, were identified through their shirts, which they “ built over time, during the course of practicing the activities that constitute the vocation” (McNaughton, 1982: 56). He further notes that hunters spent months living in the bush, using the raw materials to satisfy all their needs, learning to hunt and using medicinal plants and other substances to survive. According to the Mande belief, matter is imbued with *Nyama*, a life force that animates all things. The hunter, like the blacksmith, works directly with *Nyama* and learns to control it. As such, hunters and blacksmiths, hold an ambivalent place in society, which the hunter's shirts reflect. *Jridon* is the *Science of the Trees*, which McNaughton explains as the ability of the hunter to identify parts of living things that can be detached and recombined with other parts, making a third potent entity used to change and

⁶⁵ The welding aprons that make up the base coats are synthetic leather, designed to withstand heat and fire. The metal embellishments have tested the strength of this fibre. Punctured with stitches of thread and copper, the leather has torn and been patched with fabric and leather pieces repeatedly.

rearticulate the environment (ibid). He describes the shirts as laden with attachments, representing the opposite force of clarity and precision, which are valued by the Mande:

Hunters' shirts, at least at first glance, seem anything but concise. Old examples owned by expert hunters give the impression of having emerged full-blown from the bush. They almost sting the eyes with large quantities of attachments, with horns and claws, strips of rawhide and skin-covered amulets. Indeed, such shirts seem a conceptual model of the bush, with reference to its wild creatures and the means for gaining control over them. The cloth is often stained with a herbal solution that turns white cotton to a rusty brown [] Hunters' shirts begin quite simply as strips of woven cotton cloth sewn together with vertical seams, as is typical all over West Africa with cloth made on narrow strip looms (ibid: 56-57).

A young hunter will have an uncluttered shirt for a long time, with protective amulets and special pieces from his hunts and from his mentors attached. It is with time, with developed skill and accumulated knowledge that the shirt becomes layered with more and more attachments, reflecting how the hunters "[] expand themselves along the dual fronts of theory and practice" (ibid: 57).

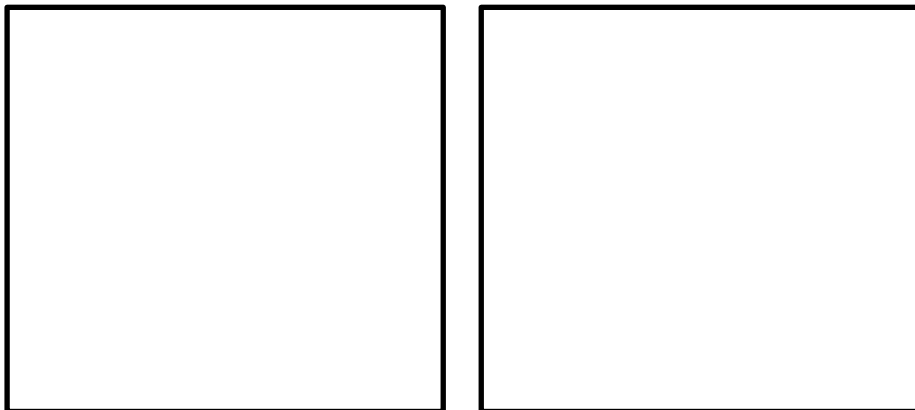


Figure 23: McNaughten, P, R. (1982) Complex Mande Hunter's Shirts [electronic print] Available at: <https://scholarworks.iu.edu/dspace/bitstream/handle/2022/3289/shirts.pdf?sequence=1> From Scholarworks.iu.edu/dspace. [Accessed 9 Jan 2015]



Figure 24: Warrender, P. (2015) Key Coat and Nuts & Bolts Coat detail. [Photograph]

My coats are comparable to the Mande Hunters shirts in that a base fabric has been embellished with attachments over time. The materials used to make the garment are, likewise, of and from the activity the maker is intensely engaged in. The coats, like the shirts, are invested with care and personal experience and meaning.

Examples of such embellished coats are encountered and understood in very different contexts and cultures. Pamela McClusky, in her essay *Heroes Go Solitary Walking: Hunters' Shirts* (2002), describes how Afro-pop singer and songwriter, Salif Keita from Mali, performs in a club in Vancouver, wearing a Mande hunting shirt adorned with amulets and attachments, originating from the culture he comes from. She observes: "He wears a bristling shirt and hat, activating a work of art with all the force it implies. No longer immobilized as it is in the museum, captive in a Plexiglas case, the shirt is where it once belonged. On stage, Salif Keita is showing what it's like to come from a line of epic tradition going back eight hundred years" (McClusky, 2002: 63).

The work of Nick Cave, briefly mentioned earlier, energetically demonstrates this element of activation in his performed sculptures. His *Soundsuits* combine his training in fibre art, fashion design and modern dance and are encountered either as worn on the body in performance or else displayed on stands in a gallery setting as static objects. In the book *Contemporary Textiles: The Fabric of Fine Art*, editor N Monem (2008: 159) considers Cave's suits as "[] suggestive of African ceremonial costumes, used by many cultures to evoke certain powers, or remind the community of shared histories and myth." She explains that "[t]he same principles run through Cave's work, where he uses elements from a variety of cultures to create something like a shared ceremonial tool with which we can begin to dream a cross-cultural myth or history that accounts for both what unites and divides international community" (ibid). The consistent inclusion of found objects and discarded items suggests this element of economy and community, yet their meticulous construction also evoke haute couture (Cassel Oliver, 2010: 44).

The catalogue to Cave's 2009-2012 exhibition *Meet Me at the Centre of the Earth*, further reveals his approach to making, wearing and displaying these *Soundsuits*. Cave has produced a myriad of these sculptural garments, which are carefully and skilfully crafted from recycled materials including colourful thread and sequins, sticks and driftwood, wool and fur and found objects such as old toys. Some of the suits are supported with steel armatures. The suits range in size from life size to oversized structures that are colourful patchworks covering the full human body, hiding the wearer's identity and thereby offering the wearer the opportunity to take on a new identity by performing and masquerading the sculpture. For the 2009 exhibition, he produced no less than fifty seemingly hybrid animal and human forms as suits. While the viewer does not wear the suit, Eilertsen notes

how the suits offer the viewer “[] a place of dreaming – a public incubator” (Cameron et al., 2009: 231). In the foreword to the catalogue J Foster expands on this in suggesting that a viewer encountering Cave’s suits is invited to take a moment to reflect on and imagine an alternative reality that is sustainable and connected within community. The suits offer the viewer a moment to transcend daily concerns, to “engage in the types of ordinary – and extraordinary – activities that are the core and substance of human interaction” (ibid: 16). Foster lists these to be “contemplation, imagination, collaboration, action – these are all part of our experience of art and life” (ibid).

Cave is referred to as a type of modern shaman. Eilertsen notes that Cave’s, work “explores issues of ceremony, ritual, myth, and identity” and says that “he does this through a layering of concepts, highly skilled techniques, and varied traditions, using materials such as manufactured and hand-made fabrics, beads, sequins, old bottle caps, rusted iron, plastic, sticks, twigs, leaves and hair.” For her the suits “are a kind of a search for an understanding of identity, whatever it is that can make someone the same as or different from others, and this is the topic that each one of us explores everyday” (ibid: 18). Cave’s work then offers the viewer the opportunity to imagine an alternative identity in the encounter with his suits. In her interview, Eilertsen explores with Cave what it is actually like to wear one of his suits:

You can’t just put a Soundsuit on right away. You need to look at it and imagine what it will be like to be wearing it [] you bring fragments together through contemplation and then you put it on and see what is there. You will be surprised. Something inexplicable happens when the suit is in motion, the sounds they make give them a magical life of their own. I would love it if everyone could put one on and feel the thrill that happens. My Soundsuits allow identities to be lost or hidden and new ones to be claimed. (ibid: 231)

Cave speaks about transformation and how for him it “means re-evaluating choices and options and reclaiming things that already exist [] how we respond with our senses” (ibid: 232). His work also challenges ideas about what constitutes a sculpture. In 2009, his intention was to co-create 90 Soundsuits within a community, offering children and adults the opportunity to create and perform their own Soundsuits for a community Mardi Gras celebration. He comments: “My fantasy is to have this performance be a celebration of diversity, economic difference, and our ability to come together as a community.” According to him the potential within the experience of making and wearing one’s own Soundsuit is that it can change the way one thinks about oneself and life (ibid: 223).

Dan Cameron considers the ideas and work of the German artist Joseph Beuys (1921-1986) in this regard, who, like Cave, was concerned with an “aesthetic of social communication, by which he meant a continuum of relations between things that are indisputably objects, and a broad range of actions, gestures, words, and even ideas that fall outside the realm of the concrete thing” (ibid: 20).

Beuys developed the idea of a “social sculpture” that relinquished the idea of the artist as author, providing a space and opportunity to create within a group. This seems to correspond somewhat with Cave’s idea of the Mardi Gras of suits made and worn by a public (ibid). Beuys also created a felt suit in 1970 that was modelled on one of his own suits and can be seen as a

material embodiment or self-portrait of the artist. *Felt Suit* can also be seen to represent the legend or myth of the artist. Beuys reportedly came close to death while flying his Stuka after joining the Luftwaffe in 1944. After his plane fell out of the sky, he was miraculously saved by Tartars who took his freezing, uncounscious body into safety and treated him by rubbing his body with animal fat and wrapping him in their traditional felt blankets. After he returned home he fell into a depression in which he worked out the principle of his art. From that moment he turned towards new materials often, working in felt or fat, which he introduced as ‘shamanistic initiatory’ features (Whiles, A. Harrison, A, and Young J., 2008: n.p.).



Figure 25: Monet, A. (2014). Art in motion: the Soundsuits of Nick Cave. [Electronic print]. Available at: <http://www.bluecanvas.com/magazine/articles/art-in-motion-the-soundsuits-of-nick-cave>. From Bluecanvas.com [Accessed 9 June 2015]

Considering my own coats in relation to the works of Cave, I also wish to offer the viewer a space that offers an opportunity for potential inclusion. However, unlike Cave’s Soundsuits, my coats do not completely hide the wearer’s identity. Furthermore, the coats are too heavy and “dirty” for a gallery audience to try them on. The effort to actually wear the coat is too challenging. As a result, like with Cave’s suits when displayed as static objects, they invite the viewer to imagine trying them on, their presence suggesting a substitute for the body.

Some of the sculptural works of American artist Harmony Hammond also bear a resemblance to my coats. Hammond’s 1973 series of garment sculptures, were aptly titled *Presences* and Elissa Auther describes this series of sculptures as being made from collected and painted fabrics which “exude a relic-like quality and vaguely resemble forms of woman’s indigenous ceremonial attire” (2010: 132). The title of the sculptures suggests a presence that is absent.



Figure 26: Hammond, H. (2011). Harmony Hammond's Bowery studio,1973, Presences. [electronic print] Available at: <http://wewhofeeldifferently.info/interview.php?interview=109> From Wewhofeeldifferently.info [Accessed 9 Jan 2015]

In an essay titled *Neither Fish nor Fowl: Walter Oltmann's Confounding Categories*, Professor Brenda Schmahmann discusses the "empty suit" with regard to Oltmann's wire woven suits. The life size structure of *Larva Suit I* and *II*, according to Schmahmann, refer to "the larval skin of a caterpillar, one that it will shed as it proceeds towards its development as a butterfly or moth" (Schmahmann in Dundas, N & Charlton, J (eds.), 2014: 29). She further notes that while the viewer is aware that the suit is an imaginative construction, the physical encounter with the suit in the gallery space suggests an absent presence.

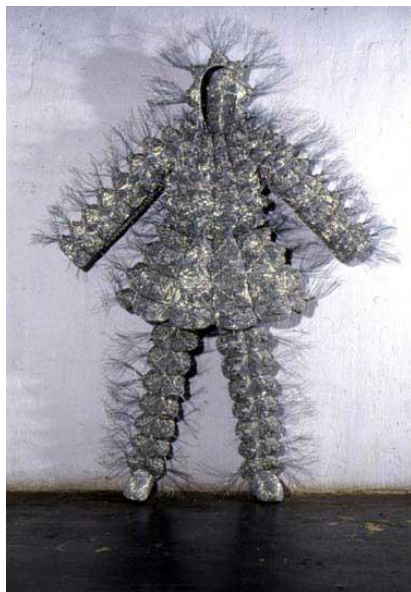


Figure 27: (Left) Cnoops, B. (2001) Walter Oltmann Larva Suit I, aluminium and steel wire 230 x 160 x 40cm [electronic print] Available at: <http://www.artthrob.co.za/01july/listings-gtown.html> [Accessed 9 Jan 2015]

Figure 28: (Right) Standard Bank Gallery, (2004) Walter Oltmann, Larva Suit II, aluminium wire, 210 x 152 x 50 cm. Private collection. [electronic print]. Available at: <http://myjhb.co.za/walter-oltmann-in-the-weave-over-three-decades/> [Accessed 9 Jan 2015]

Our rational faculties do of course enable us to grasp that the “suit” Oltmann has represented is the product of imaginative construction. We tend to understand, intellectually, that it only *alludes* to some indefinable something – perhaps the outer covering of a larva before it metamorphoses into a moth, perhaps a garment designed for human protection or perhaps some mutated creature. Yet, at some emotional level, we are likely to resist such a reading and instead feel that what we are witnessing is somehow an *immediate imprint* or, to use Charles Pierce’s category, an *index* of a body. *Larva Suit I* appears to present the shell, skin or perimeters of an otherwise absent being (ibid: 30).

The perceived emptiness of a life size suit is an invitation to try it on in an attempt to mentally complete the work. Schmahmann refers to a description of a 2005 United Kingdom exhibition on art and fashion that Oltmann indicated encapsulates some of his own ideas about the insect/suits he created, and how an empty item of clothing suggests absence:

Artists have been increasingly interested in trying to pin down the nature of identity, and often use “clothing” as a metaphor in this area. Clothing and fashion are important components of identity, and embrace aspects of status, ritual, culture, psychology, body image, personal interests and histories. Fashion itself is an art form that increasingly draws on art for inspiration. An ‘uninhabited’ item of clothing suggests absence and becomes an abstract symbol: a substitute or surrogate for the body. Representations or images of clothing invite the viewer to mentally try them on – this implied invitation to participate with the works and make them ‘complete’ makes clothing a potent vehicle for artists (ibid: 34).

The craft process involved in slowly building up the form through careful hand work mimics the gradual metamorphosis and becoming of the insect that is suggested in *Larva Suit I* and also carries the ‘imprint’ or ‘evidence’ of the hand of the maker who “stands, like a shadow, in close proximity to the thing itself” (Metcalf, 2000: 7). As Metcalf goes on to say:

With craft, the audience confronts an object, not a person. But being made by hand, the craft object stands only at one degree of separation from a person. In some cases, the fingerprints of the maker are literally impressed on the object, while other cases, evidence of the maker’s body survives only as the careful workmanship. Regardless, the handmade object is the direct trace of its author (ibid).

Polish artist Magdalena Abakanowicz’s fibre-based sculptural work is very relevant in this regard. Her large post-1970’s figurative sculptures cast from the human body in burlap cloth conflate the outer covering garment and the skin of the body. The fibre traditionally used to cover the body is the skin of the figure. The burlap cloth “variously takes the form of masses of headless standing bodies, seated torsos, featureless heads and hybrid beasts” (Monem, 2008: 163). In her book titled *Fate and Art Monologue* (2008), Abakanowicz details her memories of her life and making and quotes an excerpt from a text she delivered at a conference in San Francisco in 1978.

When the biology of a body breaks down, the skin has to be cut so as to give access to the inside. Later it has to be sewn like fabric. Fabric is our covering and our outer attire. Made with my hands, it is a record of my thoughts (Abakanowicz, 2008: 41).

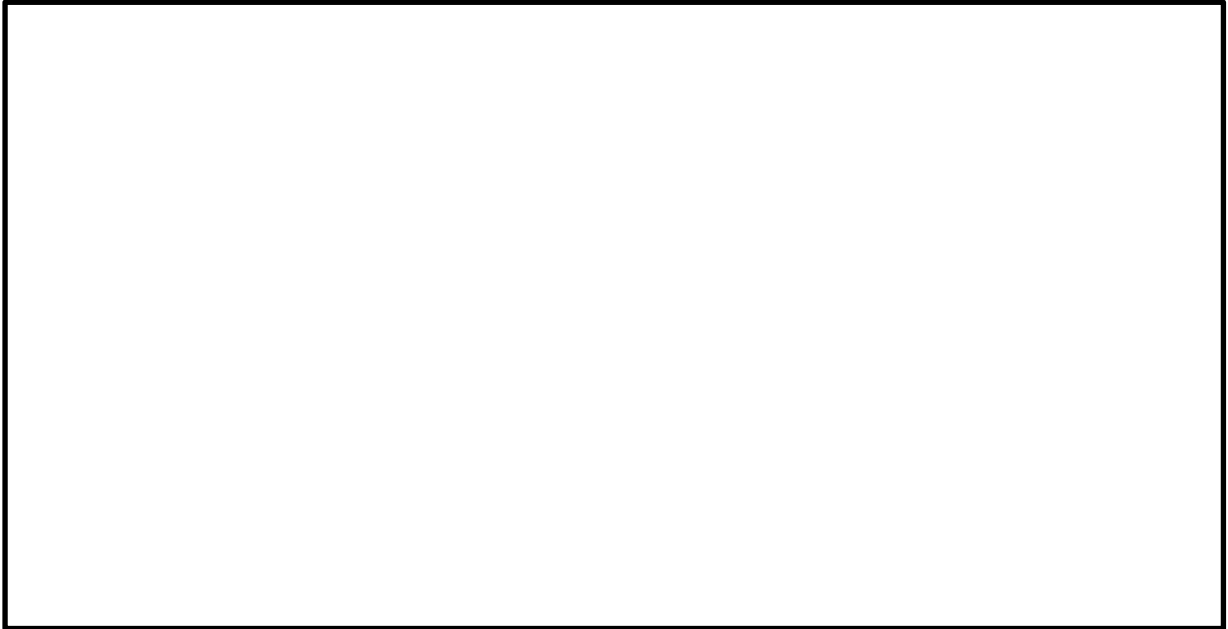


Figure 29: National Museum in Wrocławu, (n.d.). Magdalena Abakanowicz, *Crowd*, [electronic print]. Available at: <http://culture.pl/en/event/contemporary-art-in-the-attic-of-the-national-museum-in-wroclaw-ceremonial-opening>. From Culture.pl [Accessed 9 Jan 2015]

In her book *Contemporary Art and Memory, Images, Recollection and Remembrance* (2007), Joan Gibbons considers how artists represent and remember the past and “explore[s] works that anchor memory through an indexical relationship with the subject represented, works that almost literally ‘trace off’ the actual world” (2007: 29). She points to the casting process, in which the surface of an object holds the traces of its ‘life’ until being frozen in time by the casting process (ibid). Abakanowicz says of her casting process: “My figures derive from living models; which are, however, only a pretext. The finished sculpture is a result of interpretations, decisions often distant from where I began” (Abakanowicz, 2008: 73). The cast figures anchor memory through the ‘indexical relationship’ with what they represent, however then are further transformed through the process of slowly building up the form by hand, thereby anchoring the trace of the artist.

Her earlier *Abakans* (named after herself) are hand woven, monumental shapes that were hung from ceilings as series, creating cocoon-like enclosures that the viewer could step into - like a second skin:

Upon entering Abakanowicz’ pieces, the viewer is given a second skin to inhabit, an interior space that brings the non-visual – darkness, texture and isolation – to the fore. These ropes no longer bind; instead they provide a resting place of shelter, that is perhaps inconsistent with the authoritarian manner in which they command the space of their exhibition (Monema, 2008: 162).

In her book Abakanowicz describes her life as a Polish artist, experiencing the Nazi-Soviet invasion of Poland when she was 9 years old and the subsequent conditions under Soviet Communist rule (ibid: 163). She speaks of her challenge of living in Poland and not being able to own and occupy enough space to create and store her work and her memories detailing these struggles are movingly recounted. The images of the *Abakans* in her book feel to me like created spaces, formidable and yet safe. As she herself describes them:

The fabric I made was stiff, its surface grew into reliefs similar to tree bark or animal fur. I liked the fact that I was creating an object from its very beginning, from the outer shell to the total shape. I sewed several surfaces together to form a huge three-dimensional object. I could not see it in its entirety. I could only control it with my imagination. Monumental, strong, soft and erotic, these objects became the image of my reality, they stood against any established definitions (Abakanowicz, 2008: 38).

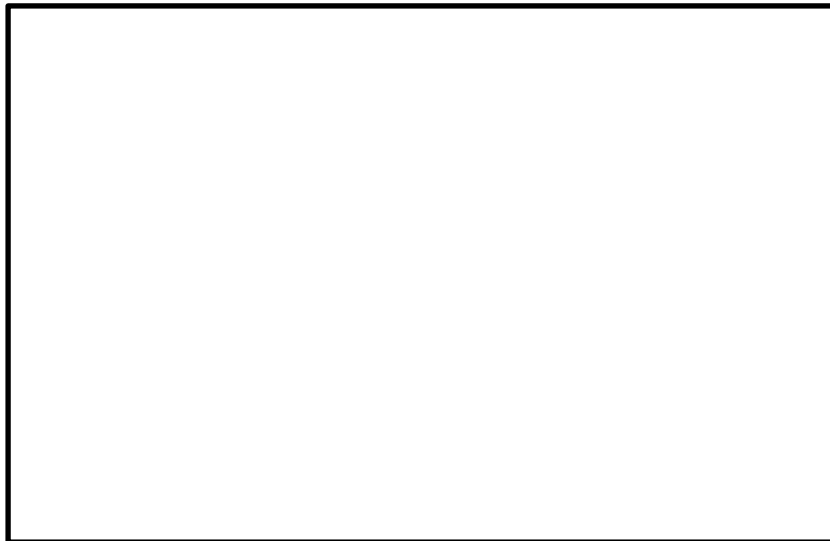


Figure 30: Craft Austria, (1976). *Abakan Red*; Abakanowicz, Magdalena; 1971-74;textile. [electronic print]. Available at | : https://ehive.com/account/3653/object/92901/Abakan_Red

When Abakanowicz received the award for Distinction in Sculpture by the New York Sculpture Centre in 1993, she had the following to say:

Art will remain the most astonishing activity of mankind deriving from constant struggle between wisdom and madness, between dream and reality in our mind. Every scientific discovery opens doors behind which are other doors, closed. Art does not solve problems but makes us aware of their existence. It opens our eyes to see and our brain to imagine. To have imagination and to be aware of it means to benefit from possessing an inner richness and a spontaneous and endless flood of images. It means to see the world in its entirety, since the point of the images is to show all that which escapes conceptualisation (ibid: 153).

I find Abakanowicz' artworks and observations very compelling and concur with her outlook expressed above. Similar to her monumental 'bark-like' *Abakans*, my coat sculptures can also be

seen to evoke shell-like enclosures. My own *Bell Coat*, for example, evolved during the making process into a tent-like enclosure, hung with forged iron bells of different shapes, sizes and sounds. It invites the viewer to enter, even to sit in its centre and to participate in striking the bells with a metal spoon. Depending on the rhythm and sequence of striking, a unique set of sounds will emerge from each individual who chooses to engage with the work in this way. The enclosure provided by the sculpture, when activated with sound by the viewer, has the potential to be either serene or discordant. In the following section I will briefly address the individual coats and drawings on display.

Glove Coat :



Figure 31: Warrender, P. 2015, *Glove Coat*, used protective leather welding aprons and 144 gloves (belonging to blacksmith learners and trainers), hand forged blacksmith tongs, steel pipe, forged steel hook and ring, steel cable with 255 pound anvil, approx. 2 m (H) x 2.5 m (W) x 500 mm (D).

The glove coat is bird-like in its final shape. Consisting of approximately 144 used leather gloves densely sewn to the base coat, the layered fingers create a radiating array that resembles feathers. The garment is further weighted with hand-forged tongs sewn into a base coat made from five welding aprons. The weighty wings are both burdensome to the wearer while also protectively enclosing. The exterior of the coat reflects the patina of the worn and sullied leather that has hardened through use. Experiencing the coat close-up adds a further dimension of being able to smell and touch the used materials deposited on the gloves. The layered accumulation of gloves imparts a presence that communicates the history of past use. The former function of the gloves was to protect and enable the users' hands in carrying out their work, but in their thick and rigid forms they also limited finer motor movements. This enabling and limiting function is a theme that runs throughout my work. The coat protects and looks bird-like (promising flight) with its spread out wings, yet it is restrictively heavy and cumbersome to wear. Conveying this idea to my practice:

teaching blacksmith skills is physically and emotionally strenuous work and at the same time enables both the learner and trainer in the process.

While wearing and performing the glove suit for the video recording I started a spinning motion which turned out to be quite a powerful experience, the weight of the suit and its attachments building in momentum as the spinning progressed. I felt quite nauseous and dizzy when I stopped the spinning motion.⁶⁶ The experience reminded me of the North African dervishes that spin layers of fabric during their dance. In this activated motion the heavy coat enhanced and accelerated movement, but in the static position it felt quite restrictive and limiting.

In its static display in the gallery I decided to introduce an anvil to feature as an anchor to the suspended coat. A strong cable was attached from the top of the coat and fed through a hook in the ceiling and then tied to the anvil positioned behind the coat. The anvil was thus placed as a counter-balance to the coat and reinforced the sense of weight of the object. I also decided to position the anvil like a 'pointer' to the coat in facing its tapering point towards the hanging garment. The anvil also serves to introduce the context of the forge and its important function in the process of making the artwork.

Glove Coat Drawing and Key Coat Drawing

Fire is one of the key 'tools' of the smith and our own forges are fuelled with coal peas sourced from McPhail Distributers. Managing the size and heat of the fire allows for efficient work and is critical to the process of forging. I have a love-hate relationship to the coal and the forge fire. The smoke of the fire emits toxic sulphur fumes that I have developed sensitivity to. While it clogs my breathing, the smell has become so familiar and imbues my work. The coal peas are shiny black coal pellets covered in a grainy dust that manages to penetrate everything. The workshop is always coated in a layer of this coal dust. To manage the dust we dampen the coal. Once heated and used, the coal forms a grey ash and a greyish-white clinker that clogs the fire. This is regularly removed during forging and new coal is then added. We use wood to start the fire and limit the coal smoke. When work has been

⁶⁶ During my Honours degree at Wits (1992-1995) I visited the Motouleng Cave, in the Southern Free State near Clarens. The immense sandstone overhang whose Sotho name means "place where the drums keep on beating" is widely known for its healing powers and is a popular destination for worshippers, healers and clerics (O'Toole, 2013: 1). With friends from the area we visited the cave on the night of a Zionist Christian celebration. We spent most of the night dancing, and spinning in circles while others clapped and prayed. The spinning dance was both energizing and mesmerizing and I remember having had to be pulled out of the circle of dancers to stop spinning. The collective momentum pulled the individual dancer into a perpetual spinning movement that was difficult to resist.

completed, the forge bed contains coal in its various states ranging from preheated coal to burnt coal, ash and clinker.



Figure 32: Warrender, P. 2015, Forge Coal Drawing, Fabriano cotton paper, forge coal and ash glue, varnish, red thread, approx. 3 m (H) x 2.5 m (W).

Figure 33: P Warrender, 2015, Key Coat Drawing, fabriano cotton paper, cotton cloth, forge coal and charcoal, oil, forged keys, approx. 2.5 m (H) x 800 mm (W).

Having these materials at hand, I decided to use them as drawing medium for wall-based works on cotton rag Fabriano paper. I started out by using the crude coal, much like one would use charcoal as a conventional drawing medium on paper. This approach left a brownish-black, scratchy mark and sometimes tore the paper. I proceeded to use smaller pieces of charcoal from bits of burnt wood left in the fire bed and then also began to add water and oil to make a paint or slurry to work with. In the case of the *Glove Coat Drawing*, I added some glue and varnish to bond the medium and strengthen the paper. Several sheets of paper were stitched together with yarn to form a base structure with which to work up a coat-like form. As with the making of the leather coat sculptures, the drawing involved a process of layering and adding segments of paper and coal to arrive at a highly articulated final form that similarly conveyed density and weight but also a certain fragility. Coal, like metal, transforms with heat - metal being born of rock and then shaped through pressure and heat. Coal enables heating and transforms in the process. These materials are transformative by nature and are at the core of the work of a blacksmith.

Nuts and bolts Coat:



Figure 34: Warrender, P. 2015, *Nuts and Bolts Coat*, with detail, welding apron with 8 aprons, cotton lining, copper wire, forged discarded workshop nuts and bolts, forged rings and hook, steel cable with 307 pound anvil, approx.. 3.5 m (H) x 2.5 m (W).

In the process of clearing out the maintenance room at St Vincent School for the Deaf to create another workshop space for Vuka Design, we came across boxes and jars of discarded, partially rusted and mismatched nuts, bolts, screws, keys and other metal workshop tool bits. I collected and stored these for a later purpose. Between 2009 and 2012 I had access to a power hammer, which is a mechanized hammering tool that enables one to shape large and heavy metal by controlling a foot pedal that activates the hammer. I spent a few mornings forging these bits of tool steel into various shapes. I envisioned them as embellishments, like encrusted beadwork on a coat. I made a base coat from a welding jacket and then sewed eight extra-large welding aprons to it to form an extended dress-like coat of approximately 2.6 m in length. The soft leather was saturated with dubbin and linseed oil to strengthen it for the weight that it would need to carry. The leather was pierced and thin copper wire was used to attach the forged nuts and bolts, starting from the top of the coat and working down. As I proceeded, I realised that I would need to attach more and more metal to attain an encrusted looking surface. It was a very labour intensive process and Vuka Design trainers, Joseph Mabesa, Simon Sithole, Jonga Mpambo, Joseph Sibiyi, Dudu Khumalo and Juda Moyo assisted me in forging the nuts and bolts by hand and attaching them to the leather. As the weight of the coat increased I had to further reinforce the jacket with fabric. The trainers started to include their own ideas, forging additional 6 mm round bar rings and brass screws that were then attached. In this way the coat took its own path of growth through the work of many hands. When moved or worn, the rattling of the metal elements emits a distinctive sound. To record this sound we video-recorded the

coat being worn. It took four adults to lift and carry the coat and I struggled to put the coat on and to stand and move in it. Dragging the coat over different surfaces also tore the leather as the metal attachments got stuck in various obstacles along the way, causing the leather to rip. When the video recording was completed we were left with the laborious task of patching the broken leather. These repaired patches are in themselves further embellishments and look a bit like wrinkles in the skin of a weathered face; the repairs record the history of the coat's 'life.' As with the *Glove Coat*, I 'anchored' this work by attaching it with cable to a large anvil placed beside it that also points towards the coat.

Bell Coat



Figure 35: Warrender, P. 2015, *Bell Coat*, steel armature enclosed with protective leather welding jacket, aprons and gloves, forged bells, knives, spoons and gongs, approx.. 3 m (H) x 2.5 m (W).

In constructing this tent-like enclosure I reinforced a base coat with 6 mm round bar to enable it to stand-alone as opposed to the other coats which are displayed as hanging. The coat sculpture was started in 2008 when I undertook two trips, one to Hlabisa in northern KwaZulu-Natal, where I visited blacksmith Bekhani Mhlaba and one to Botswana, where I worked with Sangoma and crafter Niall Campbell. I bought a collection of traditional spears from Bekhani and also observed him making spear blades complete with shaft and decorations for his clients in the vicinity. He worked with a small, hard-wood fire and reinforced round steel bar to create the blades.



Figure 36: Warrender, P. 2008, Bekani Mhlaba making a spear, Hlabisa, kwaZulu-Natal.

In Botswana, Niall, taught me how to make a small knife and spear blade from reinforced round bar.⁶⁷ I had, on an earlier overseas trip, visited a blacksmith in Sweden, Gustav Winkler, who forged beautiful ringing bells from steel and I decided to make my own bells free hand and with the use of the power hammer that I had access to for a short time at our workshop in Melrose.

The coat itself took the form of a bell in its open structure and I decided to embellish it with sound-producing objects, most of which were hung inside its enclosure. I was also looking at Siberian and other shaman coats that follow a tradition of embellishing leather handmade coats and jackets with metal objects, both protecting and enabling the wearer when traveling between worlds.

The coat started off as a squat garment hung with knives, spoons, bells and forged bolts, but proceeded to become a much taller structure at its final 3 m height. As a source idea for the next phase of development of this coat, I explored images of Mongolian yurts, which are enclosures made from a base structure of wooden beams joined together and then covered in layers of heavy felt fabric. The Yurts, like tents, can be dismantled within a day or two and reassembled in a new location. They are often colourful, the inner and outer layers being embroidered and quilted with patterned and coloured fabrics. With the help of the trainers at Vuka Design we extended the armature of the coat which I then enclosed by sewing welding aprons directly onto the armature. The jacket was lifted onto the base and the leather was saturated with a slurry of coal dust, ash and linseed oil. This resulted in a strong smelling dark black, sticky coal surface. The interior of the 'tent' is hung with gongs and bells that a viewer is invited to strike/play.

The larger than life coat with its inviting interior that allows for sounds to emerge reminds me strongly of skirts like those worn by the Makumba dancers in Bahia Brazil, except that their dresses are pure white. My grandparents lived in Brazil and on visits to them I was introduced to *Nosa Senhora Aparecida*, the Black Madonna and mother of Brazil who is an integral part of the Makumba

⁶⁷ For most of our short workshops with children at Vuka Design, we make blades, as most children popularly want to make their own knife, sword or spear.

culture and faith. We prayed to *Imanja* on Old Year's Eve with the beach worshipers who were dressed in wide-armature white skirts made of lace and lengths of cotton. The blackened coal-saturated leather and rusted metal coat imparts a heavy presence in contrast to the Makumba worshipers in their white dress and has something in common with the sculptural forms that I made at the end of my Fine Arts undergraduate degree. These final-year works were Madonna-like shapes constructed from coal, soap, sisal and other hardware materials, also supported by a steel armature. I wonder about this material manifestation I have created in response to the workshop materials that I work with and the thoughts and experiences that went into the work. It seems to relate to Gibbons' idea of anchoring memory through an indexical relationship with the subject represented (2007: 29). When visiting the church in Brazil in December 2007 where the legendary figure of Nossa Senhora Aparecida was housed, it was a revelation to see how this small sculpture that was said to have washed up on a river bank in Brazil, was housed behind a bulletproof window in a separate room, stripped of its potency and its power as a symbol of feminine energy and motherhood. The sculpture seemed confined within the bombastic building. My sculpture of leather, coal, iron and sound feels to me liberated from such confines. The heavy and dark shape of the sculpture takes the form of a woman grounded in the materials of the forge and the earth, resisting confinement and refusing to be pleasant. The sound of the bells activates her presence, and reveals the potential of the space she provides.

Susan Kingsley notes that the field of metalsmithing has a masculine self-image. In her review of "Form Beyond Function" in *Metalsmith Magazine* (Spring 1987), she noted that

Despite the fact that probably two-thirds of American metalsmiths are women, and that many teachers indicate that their metalsmithing classes are predominantly women, men have defined the field. With few exceptions, men are the accepted old masters, the leaders, the thinkers, the judges and the juries (Kingsley in Halper V. & Douglas D., 2009: 284).

Criticising the pervasive misogyny she goes on to point out that:

Many women have looked to other cultures – prehistoric, ancient, primitive and ethnic – for overlooked and forgotten meanings for jewellery and for art. Because our culture has separated art from life, they search for ways of reconnecting them. Metalsmithing itself makes this connection. In some cases, the choice to work in a craft medium was made in order to avoid the patriarchal history of painting and sculpture. The notion of a great inborn artistic genius has no counterpart in craft. As craft is still thought of by many to be dependent upon learned skills, women have sensed that they would have an equal chance for success. Women no longer doubt that there is anything that they cannot learn to do (ibid: 286).

In my research I have not focused much on the gendered aspects of metalsmithing but clearly the field has been largely associated with a masculine identity. Women are increasingly participating in the craft of metalsmithing and as Kingsley optimistically ends off: "A balance between masculine and feminine values make possible a New Age, and create new meaning

for art that reflects the complete range of human potential and participation. Women and men could then be seen as human beings with equal potential, and craft and art would no longer be opposites” (ibid: 287-288).

Key Coat



Figure 37: Warrender, P. 2015, *Key Coat*, protective leather welding jacket, yellow ochre dye, tent canvas and ground sheet, oil-coal slurry, approx.. 1000 forged keys, forged pick-axe, forged hook, steel cable with 128 pound anvil, approx.. 3 m (H) x 1 m (W) x 500 mm (D).

In constructing this elongated coat I coloured a welding jacket in yellow ochre dye to match the colour of a tent I had kept in the garage for years.⁶⁸ I shredded the tent into narrow fabric strips and spent hours plaiting them into braids that I then sewed to the welding jacket. Despite its weight, this coat is narrower than the others and therefore more comfortable to wear. It can also be more easily performed, allowing a wearer to explore sweeping movements that allow the braids to twirl. In amongst the collected and stored nuts and bolts used for my other coat, I found discarded keys. I sent out emails to family and friends to collect more discarded keys for this sculpture and received bags and boxes full. A locksmith down the road also kindly provided his collection of old keys. Each key was hammered to disable its previous function and was then sewn onto the coat. Accumulating a considerable weight of metal, it finally required three adults to lift. Once worn, it moves easily and sounds with a high-pitched ring as the keys are activated. Blacksmith Joseph Mabesa wore this coat

⁶⁸ The tent belonged to my parents and was our home away from home during our holidays. From the age of 1 year old, I travelled with my parents and sisters all over southern Africa, including Mozambique and Zimbabwe. The tent could be attached to a Volkswagen Kombi and the distinct smell when unfolded brings back vivid memories. The tent ended up in the workshop and was used to protect equipment from rain during offsite workshops.

for the video performance. We video-recorded it in different locations at different times, as it was easier to move around and take with us than the other coats. In Alexandra I filmed Joseph walking down London Road, through the entrance and into the playground area of the school where we are currently setting up a metal workshop. The children gathered around him when they noticed him, following and asking questions, finally singing a wedding song that wishes the bride farewell. It was a wonderful moment to witness how the coat activated the community of children. As in the case with Adrian Piper's work in the 70's in which she wore smelly regalia and wandered around New York, initiating an unannounced and open-ended performance, the children were unaware that they were participants to an artwork (Buskirk, 2003: 214). The children know us and know what we do and what we represent at the school in facilitating craft training.⁶⁹ The coat worn by Joseph and my presence with the video camera introduced an element of strangeness and difference in their environment that they joyfully embraced, interpreted and engaged with.

At a Wits University studio space we also video-recorded Joseph wearing the coat, jumping, shaking and walking up and down the stairs. His movements activated the sound of rattling keys and we were able to explore the swinging and flying of the braids in vigorous movements. I could well imagine this coat as being part of a theatrical performance.

As with the previous coats that were suspended from the ceiling of the gallery, this coat was similarly hung with cable attached to an anvil positioned to the side of it and pointing towards it. In the static display of this coat I also decided to include a metal bowl below the garment filled with loose keys.

In the final stages of completing the above coats I was uncertain as to whether the stitches would be strong enough to hold the weight of the accumulated metal embellishments. This uncertainty related to the weight and strength of the garments is for me a somewhat symbolic characteristic of the entire endeavour of my blacksmithing involvements. It relates to how I have experienced my work in the capacity of trainer and as the person ultimately responsible for the training company that I have started and managed since 2003. It also extends to the doing of what has customarily been considered to be a man's work rather than that of a woman. Training learners with special learning needs in a skill involving high-risk tools, equipment and materials, with funding support commitments having to be renewed annually, has been a challenging responsibility. With the necessary support from but also frequent challenges involved in dealing with partners and stakeholders, my task has been to provide a conducive, resourced and enabling training environment to transfer skills. Training a learner is like holding something precious for a while that

⁶⁹ Their educators consented to my using the video as part of my body of work and exhibition, for the purposes of this Masters Degree.

cannot be put down until it can hold itself enough. Training for me is a carrying function, the trainer thinking about and addressing the learner's physical, emotional and mental ability and constraints, assisting the learner to master new skills, enabling their hand and mind to successfully complete the training tasks and program. As the learner becomes more and more skilled at blacksmithing, so the trainer hands over more and more responsibility to the learner. With the apprentice it becomes very clear how, once skilled enough, s/he becomes a helpful resource in the workshop and requires less thinking about. Carrying is in this sense about an 'emotional' weight. Once the learner is trained to complete their programme, there is a release of responsibility, even though many learners reconnect when needing assistance with post-training life choices. The coats have allowed me to intuitively work with and express my experience as a trainer, and make manifest this holding, carrying, enabling and yet restricting process of training a learner. It also speaks of my experience of creating and maintaining the company that makes the training possible.

In the process of video recording the coats in performance, the weight of the attachments together with the force of some of the movements caused the base coats to tear and it was a painful process of having to carry out extensive repair work. The blacksmiths assisted me in this repair work and became as intensely attached to the coats as I had become. The camera operator, Paul Carlos, suggested at one point that we should film one of the coats being burnt as a symbolic act of 'releasing' this attachment that had been developed. We agreed to what was in theory a liberating act, but in practice, none of us could go through with it. As soon as the coat caught alight we withdrew it from the flames. Our reluctance to sacrifice our coat reminded me of a memorable sequence from the 1986 motion picture *The Mission*, directed by Roland Joffe, in which the character of a converted slave trader, played by actor Robert De Niro, is seen pulling his armour, tied into a bundle with rope, up the side of a torrential waterfall. The unbearable weight of the armour slows down the progress of the party and the Spanish Jesuit, played by Jeremy Irons, cuts the rope, releasing the armour so that the group can move on freely. The slave trader is so attached to his armour that he returns down the steep incline to collect the bundle and continues pulling it up the mountainside. It is this spirit of persistence that equally underlies the commitment in our making and realising of the coats.

Conclusion

In an article titled *Tom Joyce: Broadband Virtuoso*, published in the 2009 edition of *Metalsmith Magazine*, Wilson-Powell describes how at the age of 36 Joyce was recognised by America's respected authority on artists-blacksmiths, Francis Whittaker, "as simply the best blacksmith in America" (Wilson-Powell, 2009: 28). Joyce has been recognised internationally as a Master Blacksmith through numerous prestigious awards. Despite being firmly rooted in the traditions of the metalsmithing craft, Joyce is not confined by them, and as Wilson-Powell goes on to say: "Grateful and humbled by such kudos the carpe diem nature of Joyce's homage to his elders and traditional smiths has always been to move forward, to take up formerly unavailable technologies, and to fully interrogate accepted doctrines" (ibid).

In this research I have looked at how Joyce brings together fine art and traditional craft practices and how he bridges the categories of fine art, fine craft and design in redefining traditional practices of blacksmithing and adopting such craft practices in order to invigorate sculpture within social and educational contexts. Having received no formal training, his mastery of blacksmith practices and the translation or application of these into contemporary art forms can be likened to the theorist Norbert Wiener's "notion of 'feedback' – that is, a system in which the output of a process re-enters as an input" (Adamson in Cassel Oliver, 2010a: 23). According to Adamson, these 'cybernetic' patterns can be found in many different situations, including in craftwork, in which for example the blacksmith's every strike is an adjustment from the previous one: "To be skilled is to adjust constantly to what has just been done" (ibid). This requires a highly aware way of being in the world (Ingold, 2011b: 353), in which one responds knowingly to the conditions of one's context and yet simultaneously gives up control, and deeply engages with material and process. It requires 'soft power' (Sennet, 2008: 173), in which the release is as important as the grip of the hand. This then further translates into how Joyce approaches the training of others in his skill, in which qualities of care, judgement and dexterity are foregrounded (Ingold, 2011b: 347). I get the sense with Joyce's work that all aspects of the object and its related activity are considered and thought through.

In 2013, Joyce was commissioned by Michael Shulan, creative director of the National September 11 Memorial Museum, New York, to forge the memorial epitaph. Joyce forged approximately 1,700 kg of World Trade Centre steel into 50 cm high letters that were hung in a single line "along 100 feet of concrete wall separating the main exhibition space from a room housing the 1,400 human remains that will be forever entombed at the site" (Jackson, 2013: 1). The quotation he was given to form in metal was sourced from the Aeneid by Shulan – *No day shall erase you from the memory of time* – and raised considerable debate about its appropriateness for the site, causing several delays in the

project. Joyce's comment on being asked to forge the letters for this traumatic site gives insight into how he thinks about his practice: "I am grateful for the chance to transform this charged material out of respect for those who lost their lives" (ibid). The transformative potential that Joyce recognises in the material he works with can be seen to be at the core of his innovative, conceptually rich, and highly skilled making. Responding directly to the material at hand, with a deep understanding of the history of metalsmithing and metal, he engages "the deeply layered histories of steel or iron objects, or the relationship of blacksmiths to blood and soil" (Berkovitch, 2012: 5). He follows the lead that the material offers, bringing to it his own skill and understanding of the world. As a result, his practice includes a wide range of techniques from casting metal, to making 'drawings' by scarring wood with hot metal, to teaming up with expert industrial blacksmiths at Scot Forge, Illinois. His work can be said to express both his conscious and unconscious intentions and at the same time contains the "associative power of the material" (Steffanutti and Griffin, 2008: 57).

While I have never had the opportunity of seeing Joyce's work first hand or to communicate with him directly, it has been a privilege to be able to read up on his work and his educational approach to blacksmithing in relation to my own creative practice and teaching of young learners. This project has been most valuable to my own development as an artist and craft skills trainer. In locating Joyce's work within a fine art context for this study, I have considered the craft and mythological significance of metalsmithing and how these have relevance to his work. Eliade makes the interesting point that while we may not be consciously connected to "initiation symbolism of fire and forge, death and resurrection by fire, forging on the anvil" we are part of a culture in which this imagery and experience is a powerful stimulus to our imagination (Eliade, 1962: 108). Furthermore, we are enchanted by the skill of the maker as seen in the object, which supersedes our own ability and leaves us mystified and enchanted (Gell, 2010: 46).

I have also examined his involvement in craft education alongside observations made by anthropologists and craft theorists in underlining the importance of learning craft skills and providing opportunity for harmonizing the self in relation to the world through such learning and practicing. Joyce himself speaks of blacksmithing as having exposed him to a long history of making that provides a kind of fuel for any other work that he wants to make (*Memory interview for Craft In America*, 2014 <https://www.youtube.com/watch?v=oQMejulzPcg>). It has clearly sustained his creative ambition while also impacting on the lives of others.

The conceptual content of his work, the references to iron and its history and the relevance to contemporary environmental issues is communicated not only through the objects he makes, but also through his active involvement in all aspects of the blacksmith craft. Joyce is a respected authority in his field of expertise, invited to lecture and teach his skills thereby expanding our

understanding of what he makes and why he makes. Adamson describes craft practice as “inextricably linked to performance” (Adamson in Cassel Oliver, 2010: 11). Blacksmithing captures our imagination, especially when witnessing the hot iron being shaped by the striking hammer on the anvil. Joyce’s work is framed by images and videos of his making process, including interviews with him in which he describes in words the richness of the experience of blacksmithing. He brings us closer to his practice through these modalities; we become a witness, as if we are a part of his making process and the material he transforms. We understand the object from a perceived informed place.

My own four coat sculptures and two mixed media drawings were framed by a documentary video and a photo-booklet that captured a moment in time, detailing the systematic labour and action of making as a form of performance. The video and booklet initiated a process of thinking about the work, relying on the performative aspect of the craft process underpinning the work. In a similar way to Nick Cave’s Soundsuits, the coats’ intensive and laborious making processes are literally animated through the documentary video which documents parts of their being made and worn, recording the sound and form in movement.

Adamson notes: “The imprint of the body within craft and the rhythmic impulse of the body in performance remain at the heart of craft’s persistence and its bold leap into the new millennium” (ibid: 18). This is clearly achieved by Joyce and I would like to think that this is captured in my work and in the recordings thereof. The process of transforming material and the resultant object are the product that initiates dialogue. On the one hand, it is a process of demystification giving the audience the illusion of participation in the making and activating process, revealing its ‘secrets.’ On the other hand, it is a process of mystification, as the recording is a considered construction of recorded events and moments that tell a particular story to engage the audience. As Gupta Wiggers writes in her article *Craft Performs*, craft is located physically, culturally, historically and materially and our choices in our practice is to determine how we perform this in context (Wiggers in Cassel Oliver, 2010: 31). During a question and answer session with a group of first year Fine Arts students who visited my exhibition, a dialogue emerged (prompted by their lecturer) in response to the work. They noticed the materials and the smells of the works and brought their own experience and knowledge to make meaning of what confronted them. A young woman spoke about her grandmother who was a traditional healer with reference to the *Keys Coat*. She responded to the braids that looked like dreadlocks and the coat that was adorned with hammered keys, reminding her of her grandmother when dressed in her healer’s paraphernalia. The keys symbolised her idea about her grandmother being a keeper of secrets, her healing profession. The Coat became a

catalyst for associations, memories, new meaning and experience. In my work I have encouraged participation in the making process and have been actively involved in educational work focused on blacksmithing. In this way I have explored possibilities of setting up interactive spaces for ironwork that also allow the viewer to engage in the experience of the making of blacksmithing. The research has deepened my understanding of the potential for contemporary blacksmithing sculpture to contribute positively in cultural and social contexts.

Suzanne Ramlyak, editor of *Metalsmith* magazine, has this final word about metalsmithing:

The process of articulating metal – of making it speak – requires an understanding of the medium’s behaviour. Along with considerable skill and formal vocabulary, [metalsmiths learn] to empathize with their material’s temperament. They [discern] its capacity and expressive range, along with the tools that can best achieve their aims. And regardless of [the different kinds of metalsmiths: blacksmiths, silversmiths, goldsmiths etc.], they are joined in a common goal: to create engaging objects that temper our lives with meaning and delight (Ramlyak, 2012: 9).

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