

Bronze production and the value of process

Reflective placement report

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Work Placement Report: Reflective Analysis and Career Development

Lockbund Sculpture Foundry, Bronze Production and the Value of Process

Abstract

This report evaluates the role of the contemporary art foundry within modern sculptural production, critically analysing the requirements and challenges of the foundry sector. This includes consideration of industry pressures such as globalisation, outsourcing, and the increasing integration of digital fabrication technologies, and how these factors reshape relationships between practitioners, clients, and production workflows.

In parallel, the report reflects on my own skills development throughout the placement, considering how my existing capabilities aligned with the demands of the workplace, where they fell short, and how they developed through direct engagement with professional processes.

The report positions the placement not only as a site of technical learning, but also as a framework for understanding my future role within the sector—both in terms of professional capability and a developing conceptual approach to material practice.

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Lockbund Sculpture Foundry

I have always been fascinated by casting processes, so I reached out to Lockbund, a local bronze art foundry centred on lost-wax casting in rural Cropredy. Established in 1993 by practising artists Simon Allison and Jane Hamilton, the foundry was initially built to facilitate their own work before developing into a professional bronze casting facility serving national and international clients.

The foundry operates at a small to medium scale, employing approximately 18 people across six workshop spaces over two sites. These are divided into mould making, wax work, investment, pouring, and chasing (though in practice the workflow contains far more nuance and overlap). After several discussions, the placement was organised to take me through each stage while working simultaneously on my own and existing client work. This provided exposure across the full production cycle and culminated in approximately seventy hours across multiple workshop environments.

This level of access gave direct insight into the technical workflows and collaborative practices involved in professional sculptural fabrication, but more importantly revealed how the foundry operates not only as a site of production, but of negotiation, where material, technical, and economic constraints are balanced against client expectations.

The foundry produces work for contemporary artists, public commissions, and restoration projects. Alongside traditional techniques, it integrates outsourced and in-house digital methods such as **CAD**, scanning, and 3D printing. From my observations, day-to-day engagement with these technologies remains relatively limited, with scanning and printing often handled externally. As a result, digital developments primarily support and streamline established casting methods rather than fundamentally altering them. Technological investment is largely focused on refining existing processes.

I found it particularly interesting that the foundry expanded in response to a client's needs. A large commission exceeded their initial capacity and, through collaborative investment, a second site capable of producing larger-scale work was established. From conversations with foundry management, previous workshop experience, and broader research into casting practices, this appears to reflect a wider condition within the sector: success and growth are often reactive and relational, shaped as much by artist relationships as by internal ambition.

Observing the structure of the foundry revealed that successful participation hinges on understanding how each stage interacts within a larger system. The lost-wax casting process is divided into specialisms—mould making, wax work, investment, and metal finishing—each undertaken by technicians with specific expertise. These roles require an understanding of process interdependency, where decisions made in one stage directly affect outcomes in the next.

A high level of technical precision is essential, as small inconsistencies introduced early can compound into significant defects in the final casting. For example, the wax worker must understand the flow of metal and air within the negative mould during pouring, influencing the sprue and support network attached to wax copies. This extends into the collaborative nature of the workshop, where knowledge is distributed and decision-making shared across multiple roles.

Industry Challenges

Globalisation, Technology and Production

The placement also provided insight into broader structural challenges shaping the contemporary foundry sector. While the UK art foundry industry appears relatively stable, it operates within a globalised market shaped by ongoing economic pressure and competition.

One of the key challenges is overseas production, particularly in regions where labour costs are significantly lower. Advances in digital scanning and fabrication have made it increasingly possible to outsource aspects of production without requiring the physical presence of the original artwork, shifting the boundaries of “local” making and complicating notions of authorship and origin.

Whilst there is broader industry pressure from outsourcing, Lockbund does not seem fazed. Its continued success appears grounded in consistent artist–technician relationships and physical locality. Dialogue, trust, and shared understanding remain crucial within a process that is inherently variable, particularly around constricting material and commission timescales.

However, outsourcing does influence expectations, particularly among new clients, where price becomes the primary metric of comparison. This creates a misconception that all bronze is equivalent, when in reality value lies in the quality of process, technical skill, and ongoing dialogue throughout production. It is this consistency and consultation that practitioners appear to value most.

Digital technologies are reshaping the skills required within the sector. Practitioners are increasingly expected to operate across traditional casting techniques and digital workflows. These demands directly inform the direction of my own development.

Material Value, Context

During my time at the foundry, I became increasingly aware of bronze’s conflicted hierarchical stigma and its long-standing position within contemporary art production. While the medium carries historical associations with monumentality, permanence, and institutional authority, I am more interested in the aesthetic languages of process and production that sit beneath and destabilise these inherited associations.

These concerns feel particularly relevant to my practice, especially in relation to sensorial engagement with materiality, which I partly attribute to a broader backlash against AI-driven image production and disembodied forms of making. Within this context, process regains value not as a means to an end, but as the primary site of meaning.

For me, bronze can be actively reframed. Whilst the historical context of what is depicted and its placement remain intrinsically tied to the material’s aesthetic and cultural weight, it is not the material or process itself that is inherently problematic, but the access, cultural associations, and histories imposed upon it.

Bronze is a functional alloy of copper and tin that balances hardness and malleability. It is not unique in its permanence; rather, its availability, workability, and ageing properties contribute to its prevalence in sculpture. Comparatively, the foundry also works in tin, lead, stainless steel, and silver, yet these do not carry the same cultural weight—either positively through classical association or negatively through colonial or patriarchal histories.

Sustainability

Lost-wax casting has remained fundamentally consistent for over 6000 years, though its supporting materials and techniques have been refined. Bronze itself has been modified through the addition of different metals to adapt its properties, giving the process an almost alchemical quality.

In terms of waste, the most significant output appears to be consumables—gloves, excess silicone, resin, grinding discs, sandpaper—though these are relatively minimal given the scale of production.

Many of the core materials used in bronze production have a slowly degrading cyclical nature:

Bronze can be reused many times, but not indefinitely. Over time, impurities and **inclusions** build up alongside **slag/dross** from repeated use. Whilst foundries are pretty efficient in recycling scrap, there comes a point where it has lost too much purity and is sold on to either less professional makers or specialist suppliers that purify and resell. Likewise Wax gradually burns or loses some of its properties through repeated heating, shifting from green to brown. Harder bars of blue wax are added to maintain the qualities needed to retain detail and workable surfaces. Colour within the wax is therefore categorical, denoting hardness while also allowing the foundry to track and adjust material consistency. The **ceramic shell** from the **investments** are reused in **spruing** supports as **gates**, and also reground into grog for new ceramic **slip**.

How casts are processed is fundamental to the quality of the final bronze. Foundries must balance scale, speed, quality, and profit—factors that often conflict. Rushed production may introduce imperfections unless offset by increased labour and technical expertise. From my observations, the acceptable balance fluctuates even within the foundry itself depending on client relationships and priorities; precision detailing may be more important for one-to-one life casts, whilst abstract or expressive clay bronzes allow greater leniency.

Process is the primary cost, not material. Mould making, waxing, investment, casting, chasing, and patination are all labour-intensive stages, whereas the metal itself is comparatively inexpensive. Value within the foundry is therefore fundamentally labour-driven rather than materially determined. This is, first and foremost, an economic condition. However, it also mirrors a broader shift within artistic practice, where value is increasingly understood to reside within process rather than solely within the final object. While these remain distinct forms of value—monetary and artistic—they intersect through the centrality of labour, decision-making, and negotiation.

My Skills Before, After, and Alignment with the Sector

Before my master's, I was keen to learn more about bronze and fascinated by its processes, so I reached out to Lockbund Sculpture Foundry to enquire about positions or work experience. At the time, they had recently hired and restructured and had no availability. Through persistence and the opportunity I had through the university, I informally reconnected, visited the foundry, and was eventually able to secure the placement.

At Newcastle University, I worked for three years as a School Technician, operating across multiple departments including Fine Art, Architecture, Music, Film, and Journalism. My primary focus was within Fine Art and Architecture, where I facilitated workshop use and supported both technical processes and studio installations.

Within these environments, I worked across woodworking, metalwork, and casting processes, developing a broad technical understanding of material practices. During this time, I also spent a year running the wood workshop, covering for a member of staff on long-term sick leave. This involved maintaining the space and equipment, supporting students in the safe use of tools, and troubleshooting technical and material issues as they arose.

Following this, I worked as a self-employed carpenter and later as a freelance CAD designer. Across these roles, I consistently found myself working between processes and disciplines, effectively operating as an interdepartmental facilitator. I naturally gravitate towards understanding how processes connect rather than viewing them in isolation, and I took genuine satisfaction in supporting others beyond the bounds of their specific disciplines.

This experience is important context for my starting position. Coming from a technical background with strong problem-solving skills and an ongoing interest in process, I felt my ability to assimilate information and recognise connections between stages would lend itself well to the foundry environment. Lost-wax casting, in particular, contains a broad set of interdependent processes requiring both technical understanding and the ability to think across stages rather than within them.

I entered the placement from an atypical and largely undefined position within the company. Lockbund typically hosts short placements for 16–18-year-old students and had not previously worked with a mature university student bringing a technical background. This positioned me as something of an unknown quantity and meant the placement was shaped less by fixed structure and more by my demonstrated competence and pace of learning, affording a notable degree of autonomy.

Whilst I could recognise, logically, that my prior experience positioned me well for the placement, I still entered the environment feeling apologetic, nervous, and constantly trying to prove my competence as justification for being there. I felt I didn't fully deserve the opportunity, which in hindsight limited my ability to engage fully at the outset. I think this partly stemmed from being an older student re-entering an educational and developmental context. At times, it felt like a reset of competency despite the experience I had accumulated.

This was compounded by the nature of the placement itself. It was not only an assessment of my technical ability, but also an exposure of my creative work and ambition. I still find it difficult to fully accept or project myself as an "artist," and that tension between technical competence and creative identity created hesitation in how I engaged, particularly in the early stages.

Over time, I began to understand that this discomfort was not necessarily a reflection of my capability, but part of negotiating a shift in context—from controlled, familiar environments into a professional space where both my technical and creative positions were being tested simultaneously. Recognising this allowed me to engage more openly, both in the workshop and in conversation, and to understand that this uncertainty was not a limitation, but part of a necessary adjustment.

Fundamentally, my biggest perceived weakness is social integration and confidence in my own abilities. That being said, I have come to understand that this discomfort does not stem from inferiority, but from a necessary transitional phase. Through exposure and awareness, I have become more conscious of it and better able to navigate it.

While my skills aligned conceptually and analytically with the demands of the foundry, the placement made clear where my limitations were. Whilst competent, I lacked the efficiency, consistency, and speed required within a commercial environment, particularly in hands-on processes such as mould making, wax preparation, and investment. Repetition and exposure are therefore not just beneficial, but fundamental to developing both technical competence and confidence within the process.

As a broader outcome, the placement culminated in being offered the possibility of future work following the completion of my studies. This positioned the experience not only as a site of learning, but as a viable entry point into the sector. My initiative in seeking out the placement, maintaining contact, and demonstrating both technical ability and engagement effectively functioned as a foot in the door.

Authorship and process aesthetics.

Within the foundry, authorship, labour, and decision-making are distributed—and at times contested—across a network of technical and material negotiations rather than emerging from a singular artistic gesture. This complicates the notion of the singular ‘genius’ artist often reinforced through the art market, where authorship becomes tied to individual identity and artistic aura. Technical contribution is therefore not supplementary but integral, raising questions around how authorship is constructed, attributed, and at times selectively obscured. Patina for example is often carried out by the technical staff selecting from a palette. Such a crucial aesthetic component of the finished product is often not done by the artist themselves.

Process has always been central to how I understand both my practice and the world. The “how” and “why” are not optional—they are necessary. I cannot leave something unresolved; I need to understand it fully.

During the placement, it became apparent that many within technical roles were desensitised to the material processes, framed as functional. What is routine within the foundry is often visceral and highly valued within contemporary art contexts. This raised questions around exposure and the desensitisation of aesthetics, particularly in relation to who is positioned to recognise and interpret process. This appears especially evident in practices where process itself becomes the work, rather than functioning as a delegatory means to an end.

Below, in Figures 1–6, are examples comparing functional aesthetics within foundry workflows and contemporary sculptures that appear directly influenced by these processes.



Figure 1 Callum McDonnell
Hand mould, silicone and brown casting wax.



Figure 2 Michael Joo
Doppelganger (Pink Rocinante), 2009
Enamel on Bronze



Figure 3 Callum McDonnell
Hand mould with registration marks.



Figure 4 Silicone mould being walled off

Here you can clearly see direct influence from silicone casting translated into a final bronze presenting process as the final object, where bronze mimics the labour-intensive process. the walling of sections, keying tabs and registration grooves.



Figure 5 Charlie Langton
Horse casting, green casting wax, plaster nails

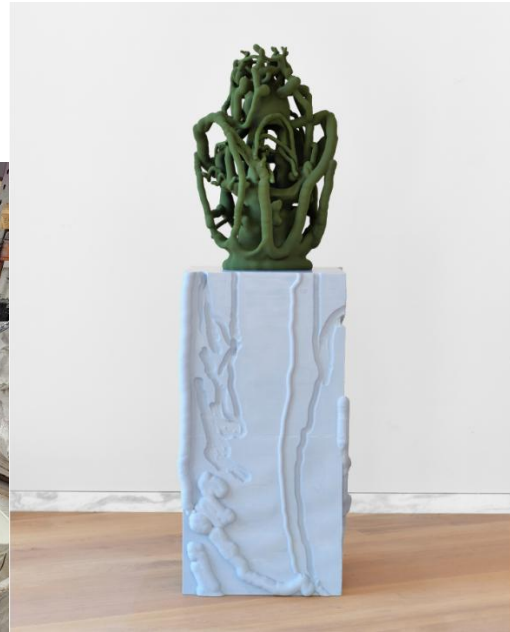


Figure 6 Audrey Large
FSV2512, 2025
Sand, binder jetting 3D printing

Similarly here you can see the exaggerated network of sprues, colouration of classic green casting wax atop a plinth that mimics similar positive and negative registration marks and white silicone colouration.

Career Development Plan

Authorship and process directly inform how I position myself within both technical and artistic contexts. Bringing together the workplace requirements, industry challenges, and my own skills development, a clearer direction for my future begins to form.

The placement reinforced that, while I have a strong analytical and conceptual grounding, I need to develop greater practical fluency to operate confidently within a professional foundry environment. At the same time, it confirmed that my approach to process, material behaviour, and interconnection aligns closely with the demands of the sector.

One of the more unexpected aspects of the placement was gaining insight into the foundry's broader artistic network, particularly its relationship to its gallery and artist-led opportunities. This expanded my understanding of what a role within this environment could look like. Rather than being limited to technical production, there is potential for a hybrid position combining fabrication, artistic engagement, and involvement in the wider dissemination of work.

The foundry represents not only a practical route into employment through technical skill, but also a space connected to artistic practice and community. This balance aligns closely with how I want to position myself professionally. The possibility of contributing technically while maintaining exposure to curatorial and creative contexts feels both sustainable and reflective of how I want to operate.

1-2 years: After uni I plan to develop my technical skills working within the foundry environment providing both financial stability, technical enrichment as a launch pad to develop confidence

in applying for exhibition and residency opportunities, the close proximity with the gallery environment associated with the foundry would provide an invaluable resource understanding work presentation standards, curation, networking and more.

2-5 years: maintain a hybrid role working both as a technician and practicing artist developing a richer financial literacy within the art market.

In response to this, my development will focus on three key areas:

1. **Technical proficiency**

Developing hands-on competence in mould making, wax processes, and casting preparation to meet professional standards of efficiency and consistency.

2. **Professional integration**

Continuing to build confidence within collaborative workshop environments, particularly in communication and informal interaction, to support long-term working relationships.

3. **Expanded skillset (digital + contextual)**

Increasing familiarity with digital fabrication tools while maintaining engagement with the artistic and curatorial contexts connected to foundry practice.

This approach reflects an understanding that future roles within the sector are unlikely to be singular, requiring movement between technical production, collaboration, and broader artistic contexts. These aims are not separate, but interdependent, reflecting the hybrid nature of contemporary practice within the sector.

Conclusion

It has been a privilege working within such a professional team, who so generously shared their time and knowledge. The placement provided first-hand insight into the bronze casting process, alongside a deeper understanding of the precision, collaboration, and problem-solving required within a working foundry.

The experience strengthened both my technical capability and confidence, while helping to clarify my position within the field and the direction of my future practice.

More personally, the placement also made me more aware of my own anxieties surrounding competence, belonging, and permission to occupy certain technical and artistic spaces. Recognising these patterns helped me understand how they shape both my working relationships and creative ambitions. Through continued exposure to professional and artistic environments, I have become more confident in projecting myself into conversations surrounding art production and contemporary practice.

You can see more detail on my placement on my website: www.callummcdonnell.co.uk/lockbund-placement

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Glossary:**CAD**

Computer aided design, using a variety of 2d and 3d modelling software to then be used in CAM. This crucially includes scanning solutions that create said models in real time.

CAM

Computer aided manufacturing. A variety of different machines that output designs and scans from CAD by either additive manufacturing like 3D printing, or by removing material to reveal the design such as Router and CNC machines.

Chasing

The finishing process where the surface of a casting is refined—tool marks removed, details sharpened, and imperfections corrected after casting.

Dross

Oxidised metal and impurities that form on the surface of molten metal; similar to slag but typically refers to lighter, oxidised material skimmed off before pouring.

Gates

Ceramic sections in the sprue supports that block molten metal running into different parts of the casting; part of the overall metal flow system.

Grog

Crushed, pre-fired ceramic material added to clay or investment mixtures to improve strength, reduce shrinkage, and help resistance to heat during casting.

Inclusion

Unwanted non-metallic material (such as slag, oxide, or dirt) trapped inside the solidified metal, often causing defects in the casting.

Investment

The heat-resistant ceramic or plaster material that is built up around the wax model to form the mould (also called the “investment shell”).

Lost wax (investment casting)

A casting method where a wax model is coated in a ceramic shell, the wax is melted out (“lost”), and molten metal is poured into the resulting hollow mould to create a detailed cast.

Patina

The process of applying chemicals or heat to the surface of bronze after casting to create colour, texture, and a protective finish.

Slag

A waste by-product formed during melting, made of impurities and fluxes that separate from molten metal and float on the surface.

Slip

A liquid mixture of clay and water used in ceramic mould-making (e.g., in investment casting shells or cores) to coat or build up the mould surface.

Sprue

A channel through which molten metal flows into the mould; originally formed by wax rods in lost-wax casting and later removed after casting.

AI Declaration

WHY I used generative AI

Due to my dyslexia, I struggle with grammar, flow of text and reading text back to myself. I also struggle to verbalise my thoughts accurately into writing. I therefore used generative AI to support proofreading sections for grammar, coherence and dictation, assisting me in mapping my structure for the essay.

WHAT it was used for

Generative AI was used to:

- proofread existing text for flow, readability, and provided feedback for academic clarity
- highlighted repetition to maintain word count and overall flow
- help restructure paragraphs to improve transitions between sections
- generate alternative phrasing for my dictated words so I could choose the most accurate version
- refine definitions for a glossary of key terms
- keep track of vocalised/dictated note taking

WHICH AI was used

OpenAI ChatGPT (GPT-5.2 Thinking).

WHERE AI-generated content was used directly (if applicable)

Some AI-assisted rewriting and sentence-level edits were incorporated into the final submission across multiple sections, including the abstract, methodology, somatosensory context, glossary definitions, and parts of the artwork analyses. These edits were used to reduce word count and were revised or rewritten further by me to ensure accuracy, tone, and relevance.

Confirmation of authorship and intellectual ownership

All research, argument development, artwork interpretation, and conclusions are my own.

Generative AI functioned as an editorial and structural aid only. I confirm that

I retain intellectual ownership of the work and that the final submission reflects my independent thinking, writing decisions, and practice-based insight.