



Expanded Drawing Across Laboratory, Studio, and Exhibition

Kelly Cumberland^{1, *}

¹ School of Design, University of Leeds, LS2 9JT Leeds, United Kingdom;

E-Mail: kellycumberland@me.com

Abstract

This article examines expanded drawing as a situated practice operating across laboratory, studio, and exhibition environments. Developed through sustained collaboration with neuroscientists Dr Heiko Wurdak and Dr Sabrina Samuel (Stem Cell & Brain Tumour Group, Leeds Institute of Medical Research, St James's, University of Leeds), whose work engages cellular imaging technologies, the research asks how drawing can maintain methodological rigour while working with visual conditions that are partial, unstable, and continually in formation.

Through practice-led case studies, the article analyses how segmentation, time-lapse microscopy, projection, and material experimentation reconfigure drawing as a method of relational tracing rather than representation. These approaches introduce fragmentation, temporal unfolding, and shifting scale, which drawing does not resolve but actively navigates.

Framed as a cartography of practice, expanded drawing is positioned as a situated methodology that produces knowledge through specific conditions of observation, material engagement, and encounter. The article argues that drawing's rigour lies not in fixed outcomes, but in its sustained attention to these conditions, establishing it as a critical method for mapping relations that remain open, provisional, and unresolved.

Keywords

Expanded Drawing; Situated Practice; Drawing Research; Art and Science; Cartography; Practice-led Research

1. Introduction: Reframing Drawing as Method

Drawing has historically been positioned as a mediating act—one that translates observation into representation. Even where abstraction is foregrounded, drawing often retains a residual commitment to stabilising visual experience into form. This article unsettles that premise, proposing instead that drawing operates not as representation, but as a methodology, and a registration: a process that records, traces, and reconfigures relations as they emerge.

This shift is not merely semantic. It marks a fundamental reorientation in how drawing engages with contemporary visual conditions, particularly those shaped by scientific imaging technologies. Within the laboratory,

images do not present themselves as resolved entities. They emerge as fragmented, layered, temporally extended images mediated by technological systems (Fig. 1). These images do not invite depiction; they demand navigation. Crucially, they resist the model of visualisation as a means of clarification or communication. Rather than making the invisible visible in a resolved sense, they expose the instability and contingency of what can be seen.

My research develops from this encounter, establishing drawing as a parallel inquiry environment rather than a translational tool. Working in sustained dialogue with Dr's Heiko Wurdak and Sabrina Samuel, the practice operates alongside scientific findings, sharing a

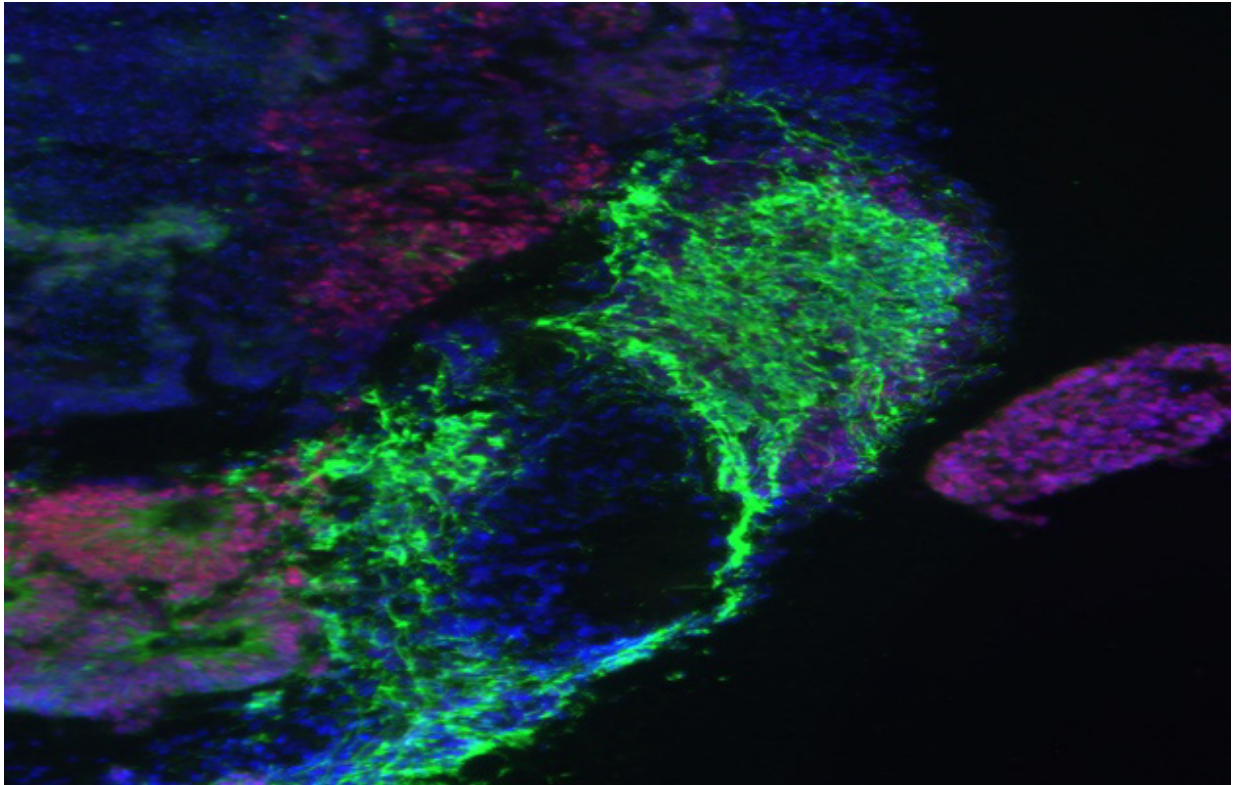


Figure 1. Microscopic cellular batch5 - 36 days.

Source: Drs Heiko Wurdak and Sabrina Samuel. Stem Cell and Brain Tumour Group St James's Hospital. 2024

The sections that follow do not resolve this tension. Instead, they trace how it is negotiated through an iterative lab–studio–exhibition model, in which drawing operates as a system in continuous transformation. Within this model, rigour arises from the consistency and specificity of the conditions through which drawing registers, reconfigure, and sustain relations in motion.

2. Practice-led Research and the Problem of Openness

Practice-led research situates making as a primary mode of inquiry. Yet this positioning poses a persistent epistemological challenge: how can processes that resist closure produce knowledge that is communicable in a critical sense?

Within this research, drawing is not deployed to represent pre-existing ideas. It is the mechanism through which those ideas are generated. This aligns with Donald Schön's (1983, pp. 68–73) notion of reflection-in-action but extends it to a domain in which reflection does not culminate in resolution. Instead, it circulates, producing partial and contingent insights that remain open to revision.

Tim Ingold's (2013, pp. 21–31) concept of drawing as correspondence is central here but requires further development. Correspondence is a mode of attunement in which practitioner and material co-evolve through ongoing interaction. Drawing, in this sense, does not describe a system from outside—it moves within it, registering shifts as they occur. This aligns with a process-based understanding of making, where form emerges through engagement with dynamic conditions.

This introduces a critical tension:

If drawing does not resolve, can it still produce knowledge?

Donna Haraway's (1988, pp. 575–599) concept of situated knowledge provides a framework that positions knowledge as embodied, contingent, and relational. However, within this research, this position is extended through systems thinking. Knowledge arises from the interaction of multiple conditions—biological, material, technological, and spatial—operating as an interconnected system.

Here, Jane Bennett's (2010, pp.1-19) notion of vibrant matter becomes operative rather than representational. Materials are not passive supports but active participants, shaping outcomes through their own tendencies and resistances. Drawing becomes a site where these agencies converge, producing effects that cannot be fully predicted or controlled.

In this research, the specificity of the condition is therefore not simply contextual, but systemic, grounded in:

- laboratory observation
- material experimentation
- spatial encounter

These are interdependent components within an iterative lab–studio–exhibition cycle, where processes are continually reconfigured rather than sequentially resolved. Drawing becomes the site where these interactions become perceptible. Its openness becomes a form of structured indeterminacy—a calibrated environment in which emergence can occur without collapsing into arbitrariness.

This reframes drawing as a method of sustained attention and duration, where knowledge arises through prolonged engagement with systems in motion. As Wurdak observes, stepping back from outcome-driven frameworks allows “new thought processes to emerge” (personal communication, 2025) —an approach that echoes drawing's capacity to generate insight through iterative, process-led engagement.

It is within the laboratory that these questions become materially grounded. Here, instability is operational, and drawing necessitates rethinking how knowledge itself is produced through practice.

3. Drawing from the Laboratory: Segmentation and Partial Visibility

The laboratory introduces a distinct visual regime in which biological processes emerge through imaging technologies that mediate rather than disclose. What appears is a technologically conditioned image—produced through magnification, filtering, and computation. As Karen Barad (2007, pp. 33–39) argues, such images do not pre-

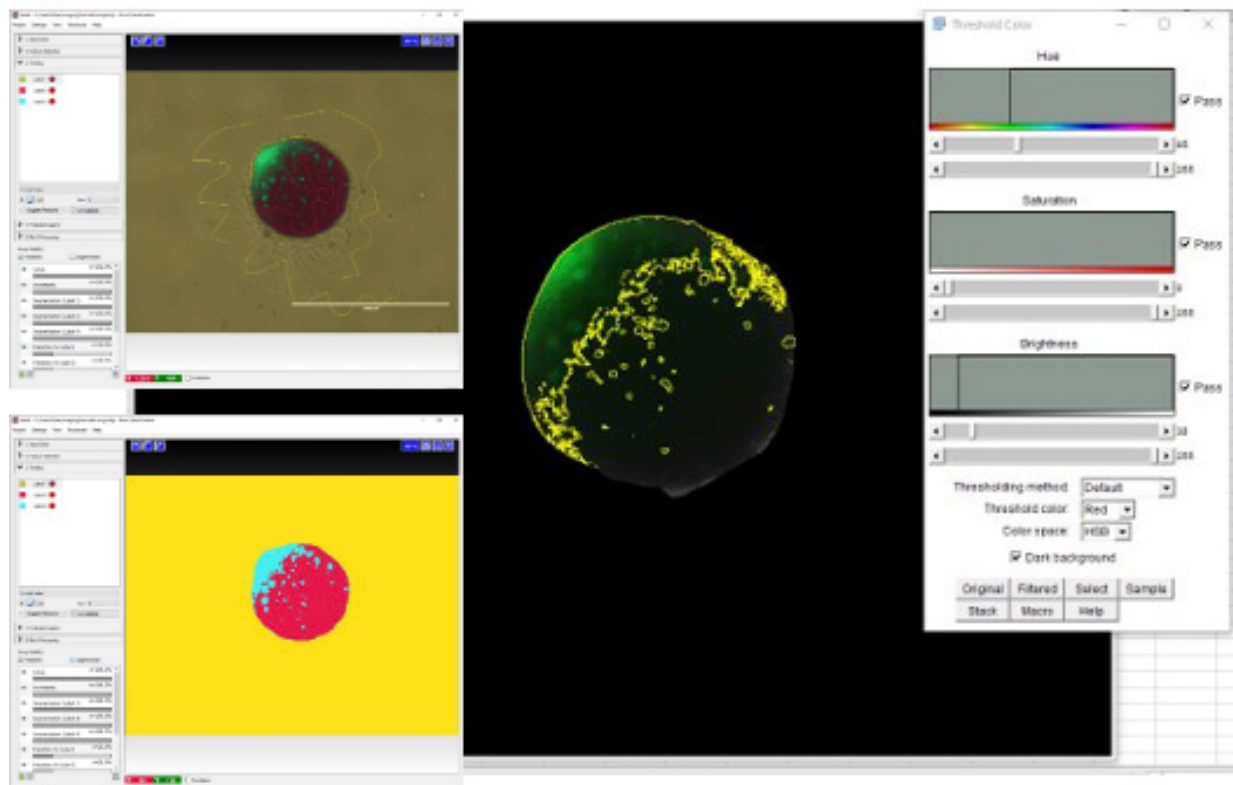


Figure 2. Internet examples of image segmentation in the scientific context (quantification of cellular phenotypes using ImageJ)

-exist observation; they materialise through intra-action between apparatus, matter, and interpretation. The image is therefore an event within a system of relations. Microscopy generates images that are magnified, abstracted, and incomplete (Fig. 1), often registering as fields of pattern and fluctuation rather than stable forms. Segmentation extends this condition. Through thresholding, masking, and classification (e.g. ImageJ), it isolates cellular features for analysis (Fig. 2), enabling measurement while simultaneously fragmenting the image. Segmentation clarifies and disrupts at once, producing a paradox in which visibility is achieved through division.

From a drawing perspective, this dual operation is generative. Segmentation demonstrates that boundaries are not inherent but produced through algorithmic decisions—edges defined by contrast and classification rather than by the cell itself. Images become outcomes of interacting processes rather than neutral representations. Drawing

enters this field as a continuation of these operations, extending segmentation into a method of registration that traces how relations are formed, separated, and remade. Here, collaboration is processual. Scientific imaging, computational segmentation, and drawing function as interconnected material practices within a shared system. As Wurdak observes, such exchanges “spark new ideas and guide research in novel directions” (personal communication, 2023), indicating that drawing not only responds to scientific images but also actively participates in their ongoing interpretation. This shifts the work away from a model of visualisation—where images clarify pre-existing knowledge—towards a parallel inquiry environment in which both practices operate through iterative, open-ended exploration.

In *Segmentation* (2024), this logic is extended through digital drawing (Fig. 3). Fragmented forms are layered and displaced, producing unstable visual relations that resist

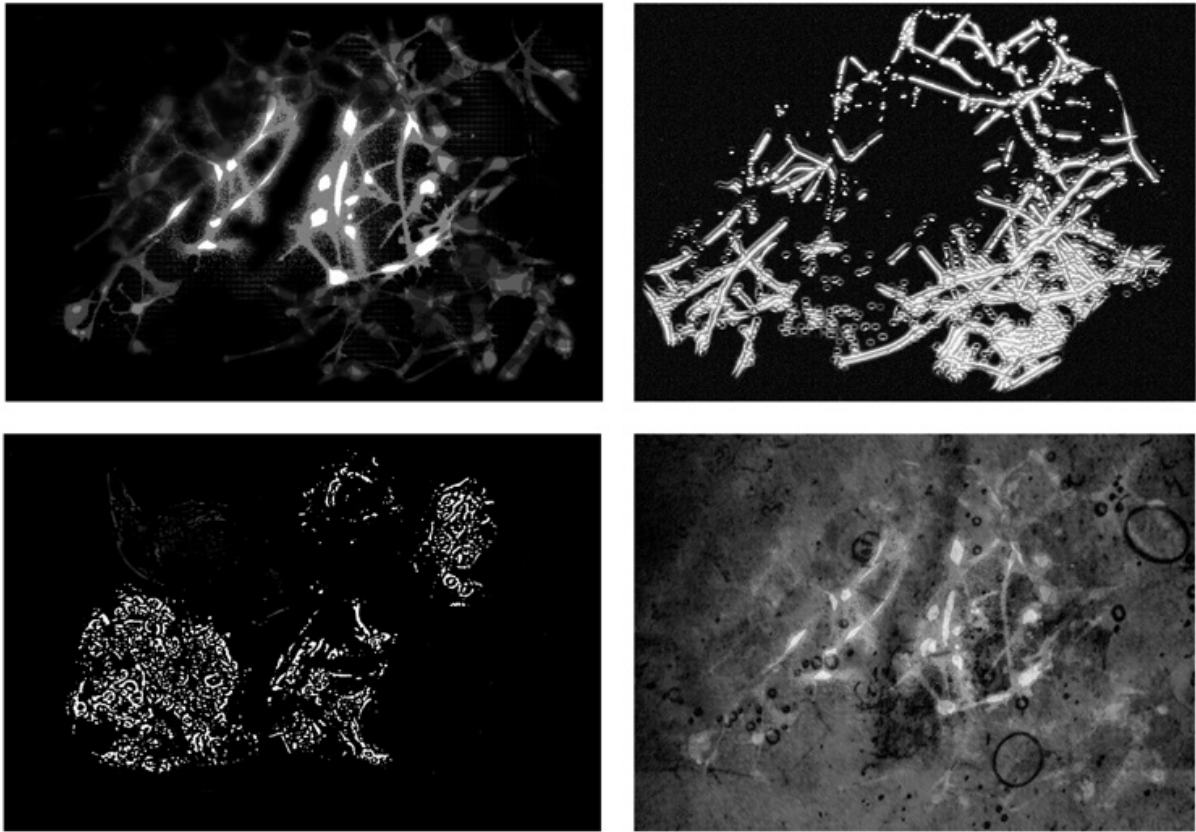


Figure 3. Kelly Cumberland, *Segmentation*, (2024). Digital drawing, overall dimensions variable

resolution. Segmentation shifts from an analytic tool to a compositional logic, generating images that sustain partial visibility rather than resolve it. For viewers, this does not “explain” cellular structure but invites attunement to the conditions through which images emerge—how they are constructed, interrupted, and continuously reconfigured.

This introduces a further dimension: segmentation can be understood as a morphogenetic operation. It participates in its differentiation, registering how structures emerge through processes of division and interaction. Drawing extends this by reworking segmentation beyond measurement, allowing it to function as a system through which form remains in formation rather than fixed.

This raises a tension: does aesthetic reworking detach segmentation from its scientific specificity? Rather than resolving this, the work maintains it. Scientific segmenta-

tion operates through measurement and reproducibility; drawing introduces ambiguity and transformation. The practice holds both, retaining the analytical trace while extending its perceptual and conceptual capacity.

This position aligns with Gilles Deleuze and Félix Guattari’s (1987, pp. 141–147) concept of the diagram, where form emerges through processes of organisation and disruption. Segmentation operates diagrammatically: structuring relations without fixing them, enabling images—and their meanings—to remain in flux. In this sense, drawing engages biological activity as systemic behaviour, tracing how relations unfold rather than fixing them.

If segmentation exposes the image as partial and constructed, drawing does not resolve this condition but sustains it—reconfiguring segmentation as a material, process-led method for thinking through how biological knowledge is produced, encountered, and experienced.

4. Conditions of Observation: Time, Pattern, and Instability

Observation in the laboratory is durational. Cellular processes unfold as continuous transformations in which structures emerge, dissolve, and reconfigure. Time-lapse microscopy renders this perceptible as layered, shifting patterns—what might be understood as pattern within pattern (Fig. 4). These formations oscillate between repetition and variation, producing visual fields that remain structured yet unstable, never fully resolving into fixed form. What is encountered is a temporal system in motion, in which perception must adjust to ongoing change rather than discrete events.

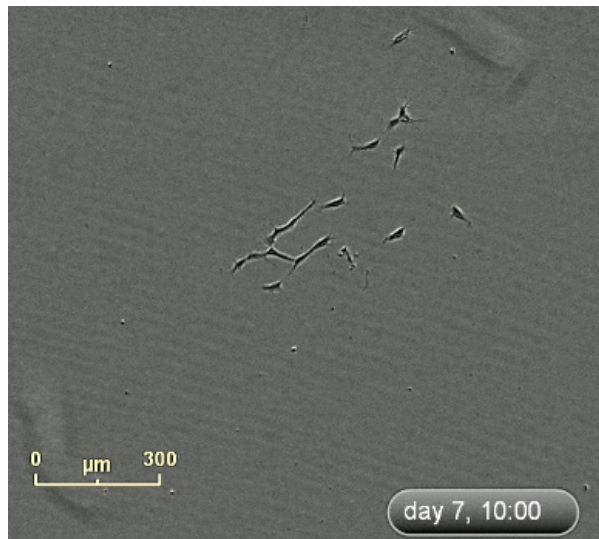


Figure 4. Time-lapse microscopy – human cell(s) under the microscope. Source: Drs Heiko Wurdak and Sabrina Samuel. Stem Cell and Brain Tumour Group St James's Hospital. 2024

For drawing, this alters its function. Rather than fixing a moment, drawing engages with temporal sequences—registering change as it unfolds. It operates under conditions that resist stabilisation, shifting from image-making to process-tracking over time. Drawing becomes less an act of inscription than a form of attunement, aligning with rhythms of emergence that exceed immediate perception. This repositioning aligns with Gilles Deleuze's account of difference and repetition (1994, pp. 28–35), where repetition generates variation rather than sameness. The patterns observed in time-lapse imaging function in this way:

iterative yet divergent, evolving through internal dynamics rather than linear progression. Repetition here is not cyclical return but productive differentiation, a condition through which form remains in flux.

In *Saline Solution* (2023), this temporal logic is materially extended (Fig. 5). Crystallisation patterns emerge through evaporation, producing unstable formations that echo cellular behaviours without representing them. These patterns are not predetermined but arise from interactions among salinity, surface conditions, and environmental conditions. Drawing here becomes the orchestration of conditions—setting parameters through which form can emerge—rather than the direct inscription of marks. This introduces a processional dimension, where the work unfolds over time rather than arriving as a fixed outcome.

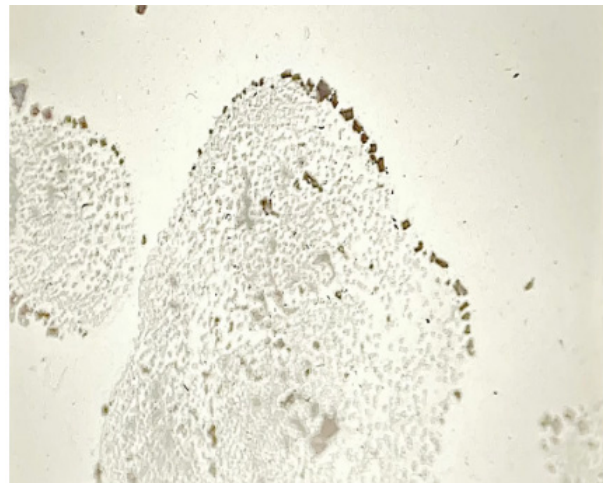


Figure 5. Kelly Cumberland, *Saline solution*, 2023, 35mm, slides and saline (variable projection)

Collaboration, in this context, operates as a more-than-human system. Laboratory imaging, chemical reactions, environmental variables, and studio interventions co-produce the work. Such iterative processes foreground, as Samuel notes, “adaptation, risk-taking, and openness to discovery, allowing us to visualise cellular behaviours in ways conventional methods may overlook” (personal communication, 2025), reinforcing the idea that both scientific and artistic practices operate through continuous adjustment rather than predetermined outcomes. Visual outcomes, therefore, emerge through distributed temporal interactions.

This introduces a critical shift in how drawing is bounded. If processes remain ongoing and forms unstable, drawing cannot be contained within a surface or moment. Instead, it extends across time, material, and environment. Its coherence lies in how these conditions are configured, sustained, and choreographed.

As Tim Ingold (2013, pp. 69–76) suggests, making can be understood as wayfaring—knowledge emerging through movement within a field of relations. Drawing, here, becomes a practice of sustained attention: following processes, registering subtle shifts, and negotiating when to intervene or withdraw. This is embodied sensing, in which perception develops through prolonged engagement with systems that exceed immediate comprehension.

The studio intensifies this instability. It reconfigures temporal observation into material and spatial form, extending laboratory conditions into environments where viewers encounter process directly—as an invitation to engage with change as it happens.

5. Studio Translation:

Experimentation and Reconfiguration

The studio reframes the conditions under which laboratory images are produced. Fragmentation, temporality, and instability are translated into material and spatial processes that extend rather than resolve them. Drawing operates here as an experimental system—testing how these conditions behave when displaced into new environments. Drawing, therefore, operates as an event rather than an object, which is reactivated through material and spatial means.

Projection is central to this shift. Microscopic imagery expands beyond the screen into architectural space (Fig. 6), transforming scale into a relational condition shaped by movement and position. The image is no longer viewed at a distance but encountered, enveloping the viewer within its field. This spatial expansion introduces a relational field of perception, in which the image is continuously recalibrated through bodily movement and environmental interaction.

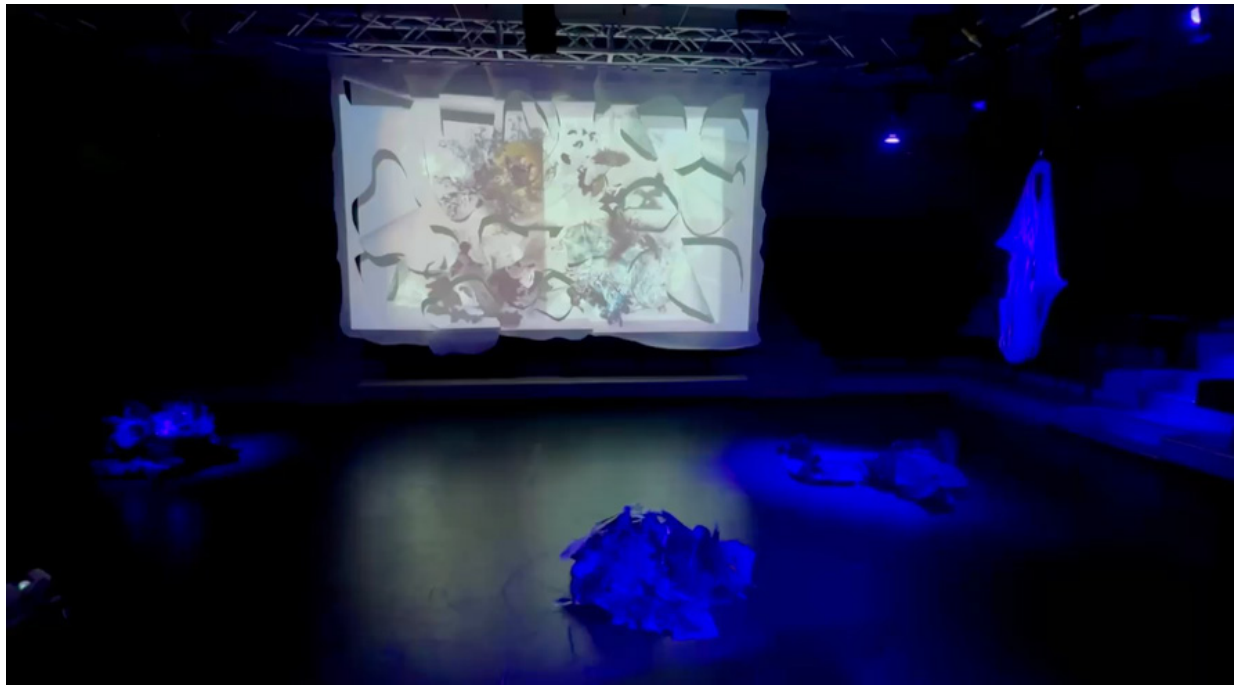


Figure 6. Kelly Cumberland, *Iteration LN24*, Light Night Leeds, 2024

Fragmentation further disrupts coherence (Fig. 7). Images are divided, layered, and repositioned across surfaces, preventing resolution. Rather than clarifying, these operations intensify partial visibility, distributing the image across reflections, interruptions, and overlaps. Fragmentation here functions not as loss, but as a structuring logic, enabling multiple, simultaneous readings that remain in tension.

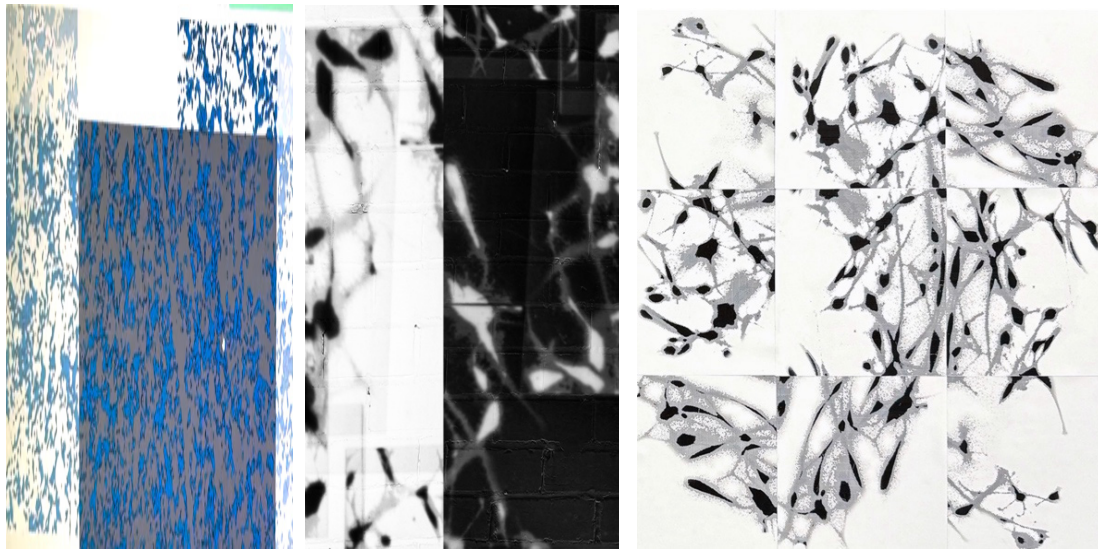


Figure 7. Lab image, 2024, Source: Drs Heiko Wurdak and Sabrina Samuel. Stem Cell and Brain Tumour Group St James's Hospital. 2024. Kelly Cumberland, *Fragmentation*, 2024, printed acetate. Projection, overall dimensions variable
Kelly Cumberland, *Conventus [bw] v3.0*, 2024. Digital print on paper and cardboard. Each 30 x 30cm

Materials actively participate in this process. Acrylic, mirrored surfaces, and light-sensitive substrates do not support the image but transform it—introducing reflection, displacement, and variability. Mechanical systems add continuous movement, producing conditions in which the image remains contingent and unstable. These elements operate as agents within a system, each contributing to the ongoing formation of the work.

In *Helix Opt LN24* (2024), these dynamics converge (Fig. 8). A motorised structure generates rotation while mir-

rored planes fragment and redirect projected light. The image emerges through interaction—never singular, always shifting in relation to material, motion, and viewer position. As Wurdak notes, our neural circuits respond uniquely to art, creating a sensory feedback loop that resonates with the transformative power of both disciplines” (personal communication, 2025), reinforcing that the work actively produces alternative modes of seeing. For the viewer, this offers a situation to navigate in which perception is continuously reconfigured.

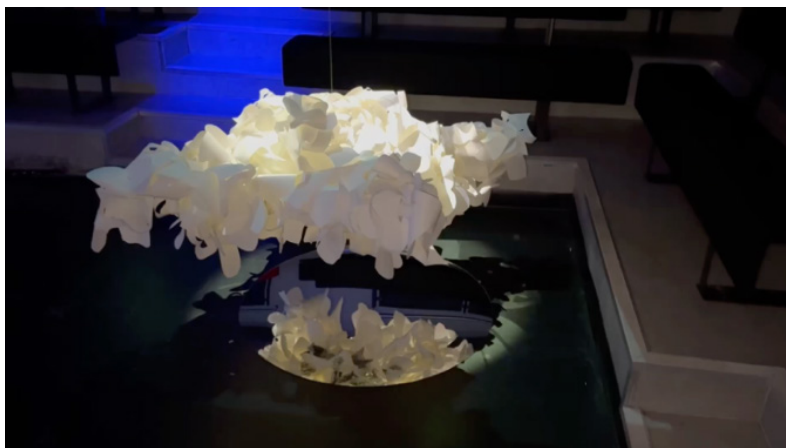


Figure 8. Kelly Cumberland, *Helix opt LN24*, 2024, Neobond, digital print, mirror, motor, ODV
Kelly Cumberland, *Helix silicium [3b]*, 2026, etched silicone rubber, mirror, motors, wire, ODV

Drawing, therefore, operates as an event rather than an object—distributed across interacting processes unfolding over time. This introduces a shift from composition to system behaviour, where what matters is how elements interact and transform. Authorship becomes correspondingly distributed. The artist establishes initial conditions but does not fix outcomes; material, technological, and environmental forces co-produce what appears.

As Karen Barad (2007, pp. 33–39; 139–141) suggests, phenomena emerge through intra-action rather than discrete agency. Jane Bennett (2010, pp. 1–19; 20–38) extends this by foregrounding the vitality of matter—its capacity to act, resist, and redirect. Within the studio, this vitality is operational: light bends, surfaces reflect, mechanisms rotate, and each interaction produces variation. The work behaves less as a constructed object and more as a dynamic system in continual adjustment.

This distributed authorship is not a loss of control but a methodological position. By allowing processes to unfold, the work remains open to contingency, enabling unexpected configurations to emerge. Drawing becomes a more-than-human collaboration, structured yet indeterminate, in which outcomes are neither fully predictable nor arbitrary, but arise through the interaction of multiple agencies.

As a result, drawing can no longer be located within a stable medium. It operates across projection, material, movement, and environment—less a defined form than a set of conditions through which images come into being and are experienced, extending drawing into a system of continual adjustment.

6. Material Thinking: Expanding the Definition of Drawing

Materiality further shifts what drawing does. Acrylic, light, and etched surfaces do not support images but actively condition them (Figs. 9–10), filtering, refracting, and obscuring visibility. What appears cannot be separated from how materials behave; image and substrate co-emerge. Drawing, in this sense, is produced through material interaction, where perception arises from the behaviour of matter itself.



Figure 9. Kelly Cumberland, *Vestigium pulvis [lux]* (2023), etched acrylic, paint, 1750x400x400mm



Figure 10. Kelly Cumberland, *Mensa lux*, [SD], 2025. light table, acrylic laser etchings, 880x1358x856mm

In *Vestigium Pulvis [lux]* (2023) and *Mensa Lux [SD]* (2025), drawing is distributed across spatial structures. Etched acrylic holds traces that shift with light and viewer position, while illumination produces fluctuating thresholds of visibility. Images arise through interactions between surface, light, and movement. For viewers, this becomes an encounter rather than a reading—perception is contingent, durational, and responsive to spatial positioning. This destabilises distinctions between drawing and object. The works operate between image and structure, in which drawing extends into spatial configuration, and structure conditions what can be seen. The question shifts from how drawing is made to where and how it comes into being.

Rather than resolving this through definition, drawing is repositioned as an operation. It functions through tracing,

mapping, and responding—articulating relations across spatially and temporally distributed elements. This operational shift introduces a form of material cognition, in which knowledge emerges through interaction with it. Materials do not simply present information; they generate meaning through behaviour, generating perceptual and epistemic effects that exceed intention.

While Jane Bennett (2010, pp. 3–10) foregrounds the vitality of matter, this research extends that position by demonstrating how such vitality becomes methodologically generative. Acrylic bends light, etched surfaces fragment it, and illumination modulates visibility—each action producing variation. Drawing, therefore, is an ongoing negotiation between material tendencies and configured conditions.

This repositioning retains specificity by grounding the drawing in what it does rather than in what it is made of. It establishes a methodological framework that allows variation without losing coherence—drawing remains legible through its operations even as its materials shift. This coherence is not formal but systemic, emerging through consistent modes of interaction rather than stable visual outcomes.

This leads to a cartographic understanding of drawing. Operating through tracing and mapping, it navigates relations between image, material, environment, and perception. Drawing, in this sense, does not depict a world but moves within one, registering connections as they form and transform. In doing so, it extends drawing into an ontological register, where drawing's identity becomes inseparable from its operations.

7. Drawing as Cartography: Tracing Systems in Motion

Cartography provides a framework for understanding drawing as an operation. Rather than representing fixed forms, drawing maps relationships as they unfold—tracing interactions, separations, and transformations across time and space. The focus shifts from what something is to how it behaves, positioning drawing as a method for engaging with systems in motion rather than objects in isolation.

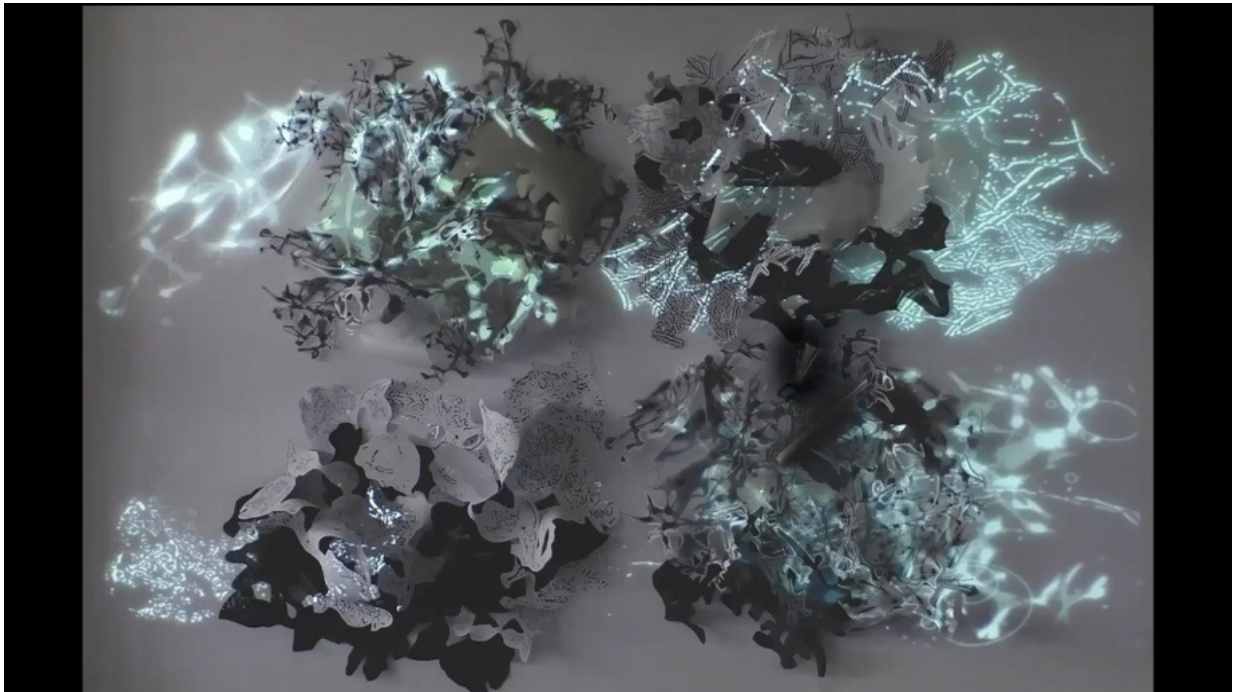


Figure 11. Kelly Cumberland, *Segmentation [v1]*, 2025, paper and projection, overall dimensions variable

Drawing, in this sense, maps dynamic systems. It registers relations, processes, and change without resolving them into stable configurations. This cartographic function extends laboratory conditions into the studio, where segmentation becomes a way of navigating complexity (Fig. 11). By isolating and differentiating elements, segmentation exposes relational structures; drawing reworks this to trace connections, divergences, and shifts as they emerge. What is produced is not a closed system, but a trajectory through one.

Here, mapping is produced through engagement. The act of drawing participates in the system it traces, both shaping and registering its formation. As Gilles Deleuze and Félix Guattari (1987, pp. 12–13) propose, cartography is open and performative—constructed in process rather than derived from a fixed structure. This aligns with a systems-based understanding in which relations are primary, and elements are defined by their interactions.

This introduces a productive tension: if the map remains incomplete, what does it do? Rather than delivering resolution, cartographic drawing provides orientation. It enables movement through complex, unstable systems—offering structure without closure. This orientation is responsive, allowing multiple pathways to emerge depending on how the system is engaged.

For the viewer, this becomes a navigational encounter in which understanding develops through following relations rather than decoding an image. As Wurdak suggests, even with deadlines, funding, and time pressures, this exchange is essential—it helps me take a step back, review, and move forward” (personal communication, 2024) rather than provide definitive answers, reinforcing that both scientific and artistic inquiry operate through iterative exploration rather than fixed conclusions.

Drawing, therefore, operates as a situated practice. Each work is contingent on the conditions of its production—technologies, materials, environments, and interactions—resulting in partial cartographies that remain open to

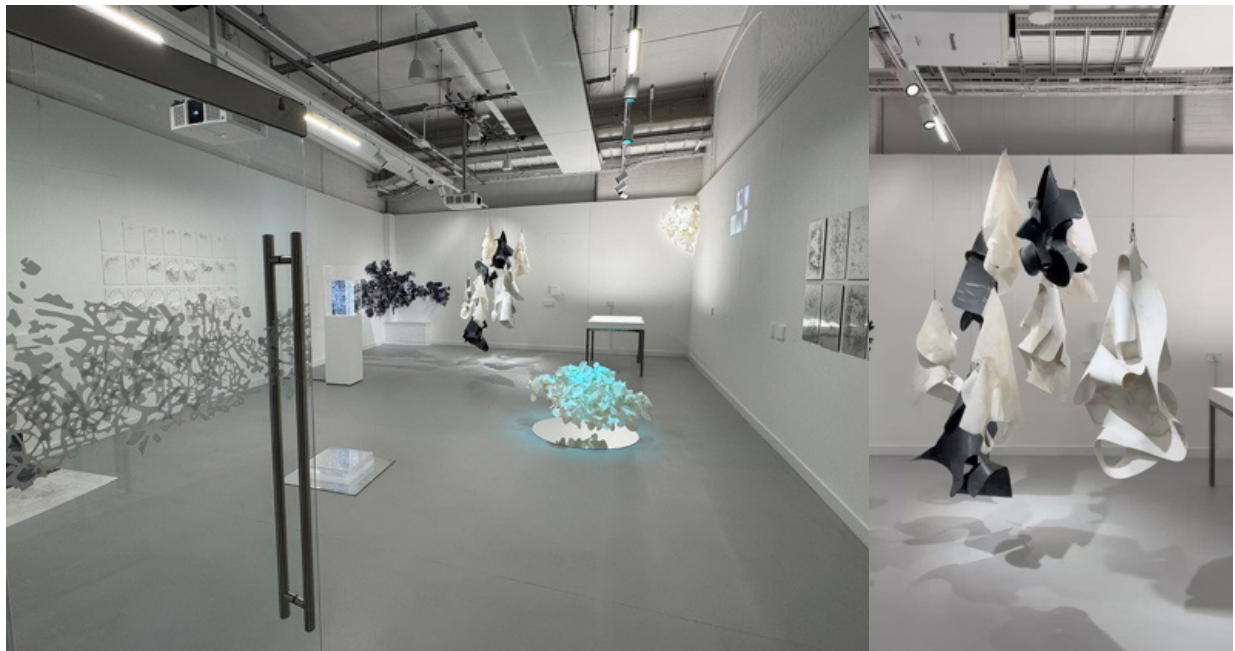


Figure 12. Kelly Cumberland, *Assembloids: Drawn a Life*, 2025, exhibition view. And *Helix silicium* [9], 2025, etched silicone rubber, motors, wire, overall dimensions variable

revision. This partiality is a condition of responsiveness, allowing the work to remain adaptive within evolving systems.

As drawing extends beyond the page into projection, material structures, and spatial environments, mapping becomes experiential. Relationships are not simply shown but encountered. Drawing functions as an environment through which systems in motion can be navigated. In this sense, cartography becomes a method of embodied orientation within dynamic fields.

8. Exhibition: Drawing as Environment

In the exhibition, drawing becomes environmental (Fig. 12). Processes developed through laboratory observation and studio experimentation extend into space, forming conditions the viewer enters rather than observes. Drawing is no longer positioned at a distance; it unfolds across architectural surfaces, projections, and material structures, transforming the exhibition into a spatial field of operation rather than a site of presentation.

Walls become sites of projection, structures distribute the image, and light operates as both medium and material—shaping visibility as it shifts over time. The image is dispersed, layered, and reconfigured through spatial relations. These elements are choreographed, establishing pathways, interruptions, and moments of convergence that guide how the work is encountered without fixing how it is understood.

This repositions the exhibition. It is not a site of display but of continuation. Drawing persists through new conditions of encounter. The exhibition operates as a processual environment, extending the iterative lab-studio cycle into a spatial and temporal domain where processes remain active. As Wurdak notes, the aim is not to provide definitive answers but to spark new questions” (personal communication, 2024), reinforcing the exhibition as a space of ongoing inquiry rather than conclusion.

The viewer becomes implicated in this system. Movement through the environment produces shifting perspectives,

partial views, and moments of alignment or disruption. The image cannot be grasped in a single instance; it emerges sequentially, through duration and position. Encounter becomes durational and processional, unfolding through time as a series of perceptual adjustments rather than a single act of viewing.

This aligns with Maurice Merleau-Ponty's (1962, pp. 235–240) account of perception as embodied and situated. Vision arises through engagement—what is seen depends on movement, orientation, and time. Drawing here operates as a perceptual field, structured through proximity, duration, and change. Perception becomes an active negotiation, continuously recalibrated through bodily movement within the environment.

Meaning remains correspondingly unstable. As Jacques Derrida suggests through *différance* (1976, pp. 61–65), it emerges through delay and variation rather than presence. Relations between image, material, and space shift as the viewer moves, preventing closure. This instability is a condition through which meaning remains open and responsive.

Drawing, therefore, becomes a space of encounter. It does not represent systems but enables their experience; relations are navigated rather than read. The exhibition extends drawing into an embodied, processual field—one that is not simply observed but inhabited—where perception and meaning remain in flux, continually reconfigured through movement, duration, and engagement.

9. Viewer: Participation and Instability

The viewer is not external to the work but is embedded within it (Fig. 13). Their movement participates in its formation, continually reconfiguring the relations among image, material, and environment. Perception shifts with position, duration, and attention, producing an unstable field in which no single viewpoint can stabilise what is seen.

Meaning emerges through encounter. What is seen is partial and contingent, shaped by the viewer's movement through the space. Viewing becomes inseparable from meaning-making, unfolding as an active form of real-time registration.

This repositions the viewer from interpreter to participant within an evolving system. As Jacques Derrida (1976, pp. 61–65; 280–293) suggests through *différance*, meaning is never fully present but produced through temporal deferral. Here, this is experienced directly: fragments, overlaps, and shifting configurations resist resolution. Meaning is not absent, but never complete, emerging through successive encounters rather than singular comprehension. Instead, it is relationally produced—arising through interactions between viewer, image, material, and space. Each encounter generates a different configuration, reinforcing drawing as cartographic navigation rather than representation. The viewer is invited to move within its logic, tracing relations as they unfold.



Figure 13. Kelly Cumberland, *Assembloids: Drawn a Life*, 2025. Private view

This positions the viewer within all four registers established earlier: perceptual (how the work is seen), epistemic (how knowledge is generated through engagement), embodied (how it is physically encountered), and ontological (how the work comes into being through interaction). These registers converge through attunement and duration, as understanding develops through sustained, situated engagement rather than immediate recognition. This raises a question of rigour. If meaning remains unstable, how does the work sustain coherence as a method of inquiry? The answer lies in how conditions are structured. Spatial arrangement, material selection, projection, and movement establish parameters that guide engagement without determining outcomes. As Samuel notes, embracing these iterative, hands-on experiments make us aware that art and science share fundamental characteristics: curiosity, serendipity and dialogue” (personal communication, 2024), reinforcing that instability can be a productive condition rather than a limitation.

Rigour, therefore, resides in these conditions. The work maintains coherence through its operational logic—how it structures, traces, and reconfigures relations—rather than through fixed meaning. What is consistent is the system through which outcomes emerge.

The viewer's participation extends the work rather than resolves it. Each movement introduces variation, sustaining drawing as an open yet structured system. Through this, drawing demonstrates its capacity to serve as a rigorous method of inquiry—by enabling knowledge to emerge through situated, embodied, processual engagement.

10. Conclusion: Situated Drawing as Cartography of Practice

This article began by asking what happens when drawing no longer seeks to stabilise what it observes, but instead operates within conditions of instability, partiality, and transformation.

Across the laboratory, studio, and exhibition, drawing has shown that it engages laboratory conditions directly—through observation, material experimentation, and spatial encounter. In doing so, drawing shifts from re-

presentation to method: not resolving visual phenomena into form, but navigating their emergence as a process of ongoing registration.

The analysis of segmentation, time-based imaging, projection, and material processes demonstrates that drawing can operate as a system of relational tracing—one that maps how elements separate, connect, and reconfigure over time. These cartographic operations produce frameworks for engaging with processes that remain in motion, where knowledge is generated through interaction rather than extraction.

This returns us to the central tension identified in the introduction:

How can drawing maintain methodological rigour while remaining open, processual, and unresolved?

The answer, this article argues, lies in understanding drawing as situated.

Drawing produces knowledge through the specificity of its conditions—where and how it is made, how it is encountered, and how it is continually reconfigured across environments. Its rigour is located in the consistency of its engagement with these conditions and the systems they sustain.

In this sense, situated drawing is not simply drawing that takes place in context. It is a practice constituted by context—by the relations among observation, technology, material, and perception, operating across perceptual, epistemic, embodied, and ontological registers.

As a cartography of practice, drawing does not map objects but relationships in process. It traces systems that cannot be fully stabilised, while remaining attentive to how those systems are structured, mediated, and experienced. In this sense, drawing extends beyond visualisation, producing forms of engagement that, as Wurdak (personal communication, 2024) notes, “offer an emotional and conceptual depth that scientific imagery alone cannot provide.”

This position expands drawing as:

- a method of inquiry
- a mode of navigation
- a practice of relational thinking

Importantly, this does not dissolve drawing into openness. It redefines its critical function.

Drawing does not resolve, but neither does it drift. It holds tension between instability and structure, openness and rigour, form and relation. It is within this tension that drawing operates most critically: not as a tool for fixing what is seen, but as a situated practice for engaging with what remains partial, emergent, and not yet fully resolved.

Acknowledgements: Drs Heiko Wurdak and Sabrina Samuel. Stem Cell and Brain Tumour Group St James's Hospital. 2024

Reference List

- Barad, K. (2007). *Meeting the universe halfway*. Duke University Press.
- Bennett, J. (2010). *Vibrant matter*. Duke University Press.
- Cartwright, L. (1995). *Screening the body*. University of Minnesota Press.
- Deleuze, G., & Guattari, F. (1987). *A thousand plateaus*. Continuum.
- Derrida, J. (1978). *Writing and difference*. University of Chicago Press.
- Haraway, D. (1988). Situated knowledges. *Feminist Studies*, 14(3), 575–599.
- Ingold, T. (2013). *Making*. Routledge.
- Krauss, R. (1979). Sculpture in the expanded field. *October*, 8, 30–44.
- Merleau-Ponty, M. (1962). *Phenomenology of perception*. Routledge.
- Schön, D. (1983). *The reflective practitioner*. Basic Books.
- Samuel, S. (2024). Personal communication with the author.
- Wurdak, H. (2023–2025). Personal communication with the author.

