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THE LINE, THE VOID AND THE CURRENT: IRON AGE ART FROM A DESIGN THEORY PERSPECTIVE

Keywords: (1) Early Celtic Art, (2) European Iron Age, (3) Design Theory, (4) Architectural analysis, (5) Archaeological Theory

Summary. Objects from the European Iron Age decorated with swirls and scrolls, faces and figures, and generally referred to as Early Celtic Art, can offer deep insight into later prehistoric notions of creativity. By drawing on archaeology and social anthropology, art and architectural design, this theoretical discourse investigates the design processes involved in the creation of Early Celtic Art. Rather than attempting to decipher a meaning behind decoration, this enquiry uses architectural Design Theory to explore the implications of certain design choices. It starts with the premise that these designs are integral to the objects in order to identify different layers of complexity, innovation and emulation and ends with wider reflections on who is creative and how. This approach borrowed from architectural analysis aims to open a new line of enquiry into the fascinating world of Iron Age creativity.

DESIGN THEORY AND EARLY CELTIC ART

Definitions of art and its function, and the theories behind designs have long been the subject of different disciplines such as anthropology (e.g. Anderson

1979, 11–16; Gell 1998, 5–7; Ingold 2013, 7–8), art theory and architectural history and theory (e.g. Osborne 1968, 13–4; Berger et al. 1972, 32–3; Kruft 1994, 13–5; overviews in Mallgrave and Contandriopoulos 2008; Andina 2013). When interpreting prehistoric art, archaeologists have recently found anthropological approaches most useful (e.g. Bradley 2009, 44–7; Garrow and Gosden 2012, 39; Robb 2015, 636–39). Later prehistoric objects, primarily made of precious metals with elaborate decoration and identified as Early Celtic Art (Fig. 1; Jacobsthal 1944, 161–63) have also seen art historical analyses (overview in Garrow and Gosden 2012, 44–56; compare Olivier 2014; Megaw 1970, 261–62, 276). Such studies also identified the limits of modern interpretation (Joy 2015, 44; Müller 2014). Most recent research into this subject in Britain has concentrated on questions of what Early Celtic Art "does", rather than what it may represent or "mean" (reviewed in Hunter 2016, 242–43). The recent joint exhibitions by the British Museum and National Museums Scotland explored Early Celtic Art from a material culture perspective with emphasis on the agency of the objects and the people behind them (Hunter 2015).

Analysis of artworks and designs cannot avoid theorizing, and relies on analogy and speculation. The following exploration of Iron Age design offers just this, from a new perspective of modern architectural Design Theory. Moving beyond traditional art historical approaches concerned with description and comparison, this new work does not interpret these as objects decorated with Early Celtic Art, but considers design product and creative process as inseparably linked. Its premise is that these three-dimensional Iron Age objects were conceived and crafted as entities, similar to designing architecture. Form, object shape and decoration are not only interrelated, but integral to the material and materiality,

the form and function of the object. In symbiosis, they generate the object's essence.

The following discourse builds on the author's experience in designing threedimensional, usable objects – buildings. The theoretical background developed from American and German-language theories of Gestaltungslehre (Design Theory). Drawing on ideas of the Modern Movement, it also incorporates contemporary themes of dynamic architectures which expand the field's boundaries into other art forms (Dwyre et al. 2015; compare Kruft 1994, 435–43;). The systematic framework of one Design Theory manual (Fonatti 1995) has proven particularly useful in explaining the ontology of designs. Aware that architectural theory is always subject to Zeitgeist, the interpretation presented here cannot claim objectiveness. It is a contemporary, workable method with the potential to inform new work on prehistoric art and architecture.

The analysis applies axioms of Design Theory to objects of Early Celtic Art, dating from the fifth to first century BC. The method understands design as an ongoing process not a finite result, with the aim to identify and analyse recurring notions of prehistoric creativity. It will not investigate the meaning of Early Celtic Art, but hopes to get closer at conscious and subconscious implications resulting from Iron Age design processes and their underlying agency (compare Gell 1998, 6). The modern perspective is not applied dogmatically, but intended as a useful analogy for design processes where evidence recording underlying concepts has been lost. In this sense, the method is archaeological (compare Kruft 1994, 15). In a second step, results of the design analysis will be investigated for information about the people who made, used and abandoned these objects and their levels

of creative engagement. By applying an architectural "way of seeing" (compare Berger et al. 1972), this hopes to inspire new or at least reappraise existing theories.

THEORIZING EXISTING DESIGNS: THE "AUFFINDUNGSPRINZIP" AS A VOYAGE OF DISCOVERIES

From the beginning of architectural theorizing and teaching Design as a discipline, a set of rules was established to discern "correct" from "incorrect" schemes (Vitruvius, Book I. chapter II.1–7; chapter III.2). Students were made aware of the implications of their design choice in a cultural and historical context (ibid. Book I, chapter I.5–6). Up until the early 20th century, prior to the Modern Movement, teaching Design Theory would have involved studying pattern books, following Classical doctrine (see Capon 1999, ix, 9–17; compare Palladio 1570, book one, chapter XX: "Of abuses"). The Modern Movement and subsequently Postmodernism have broken with these dogmas to the extent that now "all is permitted" (Kruft 1994, 443, cf. Jencks 1984, 80–2). Since then it has become essential in architectural Design Theory to teach design consequences, the obvious, but also subtle messages conveyed by specific designs in order to understand and control the effect of the architectural result (Kruft 1994, 16–7; Fonatti 1995, 8).

Such effects may appear subjective, thus their recognition and consequently the ability to teach design principles relies on two suppositions:

- design connotations are universally recognizable (and agreed) within a cultural entity or at least within a "creative domain", (Sawyer 2012, 59), here that of Early Celtic Art.

most participants of this entity are familiar with these meanings and
"manipulations" conveyed via a design.

This has been discussed in anthropology as "art as a cultural phenomenon" (Anderson 1979, xiv, 2); and "cultural-specific aesthetics" (critique in Gell 1998, 2– 3). Can one therefore only see in a design what one has seen before or has been taught to see (Berger et al. 1972, 8)? How can we understand Iron Age art from a modern background that is not part of the prehistoric domain and may only see what one has learned from Classical, Modern and Postmodern thought?

THE DESIGN MATRIX

Design Theory provides a framework, identified by Franco Fonatti as the "Auffindungsprinzip" (1995, 19), meaning the discovery of the principles of a design. As a systematized method this helps to detect underlying design concepts, i.e. the design matrix. It assumes that the design is a deliberate creation to 'speak' to its domain. This can be read in a semiotic approach as symbols conveying meaning (Anderson 1979, 53–4), but more so in Gell's "actioncentred" approach, which emphasizes "agency, intention, causation, result and transformation" (1998, 6). With regards to objects, this design matrix is expressed and therefore identifiable in their morphology (compare Fonatti 1995, 18). The design process is seen to operate at different levels of complexity: simple, dynamic, organic.

Although the matrix itself remains invisible on existing objects, the Auffindungsprinzip allows rediscovery of the design steps in reverse to the original process (cf. Ingold 2013, 7–8). This typical practice of art historical investigations aims to identify the control mechanisms within a design. Such analysis can be a useful starting point, as it retraces the voyage of discovery of the person who first saw the object and tried to understand its design and the motivations of the designer who created these objects. The method can be systematized in a four-step analysis of "morphological metamorphosis", starting from the original geometrical form (Fonatti 1995, 25–8):

Step 1) intuition (Fig. 2a): the spark that motivates the creator, who performs the metamorphosis of the original form.

Step 2) operation (Fig. 2b): the form metamorphosis; concentrated, systematized steps that transpose and transform the original form.

Step 3) new compositional system (Fig. 2c): new forms are generated from the deliberate transposition and transformation of the original form and the accentuation of sub-modules created by them.

Step 4) new design (Fig. 2d): the final result is new in relation to its metamorphosis, but still belongs to the same geometrical form family with regards to its elemental characteristics.

SIMPLE DESIGNS

The Auffindungsprinzip starts with tracing the underlying matrix, here exemplified by the Early La Tène perforated disc from the Somme-Bionne cart burial (F), to reveal a sophisticated series of intercutting circles (Fig. 3a). The matrix (Fig. 3b) reflects the designer's familiarity with sophisticated but

systematized geometry and symmetry. The use of Greek terms reveals where these ideas ultimately derived from (i.e. Pythagoras or Plato, see Capon 1999, 3). The design placed the origin of its matrix into a centre around which all other forms originated and ultimately referred back to. In this way, the design's symmetry is absolute and harmonious. A calm, ordered design was created that draws in but ultimately rests the eye. This may appear as a complex design, but it is not, because once these complexities are acknowledged, their repetition ensures recognition in other parts of the disc (Fig. 3c). The design fully fits the matrix. Seeing one part of the disc allows predicting what will occur in others. Predictability creates reassurance. Although intricate in detail, this disc represents a simple design because it does not include the unpredictable and its associated dynamics. The person who designed this object created a highly complex result, but acknowledged that complexity can be explained if not predicted within a system. Is such design reflecting underlying Iron Age philosophies of western Europe at the time? Or is it pointing to Classical ideas of reasoning and order? Or to the mandala, the ordered universe of Indian religion? The designer may have had contacts or at least knowledge of design concepts beyond his or her immediate sphere. What is even more interesting is whether such a design could transfer its implication without familiarity with philosophical ideas of order as a prerequisite. Embedded within Classical thought we cannot answer this.

IS LIFE PREDICTABLE? DYNAMIC DESIGNS

The issue with such simple designs is that they create structured formalism, i.e. total symmetry within the matrix and a strict adherence to it. Structured

formalism can degrade even complex designs to repetitive pattern (Fonatti 1995, 18). Part of the problem of understanding Iron Age designs lies in the tendency to analyse these in plan. This may seem appropriate for discs and mirrors where what has been identified as "decoration" is applied to a flat surface (Joy 2011, 205). However, the majority of Early Celtic Art objects are three-dimensional and their decoration interacts with the shape of the object (ibid., 210).

Decoration in space: the third dimension

Archaeological studies analyse objects in their archaeological context and discuss their creation, use and deposition. This should also consider designs in context, which is the physical object itself, the context of light and shade, and the context of the human eye, that is able to appreciate form, shape and design in light. As Le Corbusier reminded: "Our eyes are made to see forms in light; light and shade reveal these forms [...]. Architecture is the masterly, correct and magnificent play of masses brought together in light." (1923, 29).

The line

Designs start with drawing the first line, usually considered a two-dimensional act on a flat surface. However, lines incised on a mirror are three-dimensional grooves that break up the surface and modify the reflection of light. Together with the gaps or voids between them, they create positive and negative spaces (see Fig. 7; Joy 2011, 205). In each other's context, line and void form an entity; playing together in light, they become volume (compare Joy, 2015, 47; Olivier 2014, 49).

The void: "horror vacui"?

The line created in space cannot exist without this space. Paul Klee postulated that there is no such thing as a single concept. Following Plato, Klee argued that all concepts appear in pairs – as opposites (1914, 15). Thus the line does not create the void; it exists because of the void, in contrast and dialogue to it.

Felix Müller and Geneviève Lüscher have suggested that decoration in Early Celtic Art was intended to fill "empty space" to eliminate the "void", in fear of the vacuum: the "horror vacui" (2009, 312). This is applicable only if the design is considered as decoration or pattern on an empty surface, thus only to those cases where objects received decoration of Early Celtic Art design some time after their manufacture, e.g. the Etruscan bronze vessels found at Besançon (F) or Weiskirchen (D; cf. ibid.). I am reluctant to use the terms decoration and pattern as these imply that they can exist without the object. As Laurent Olivier critiqued, attempts to "push La Tène figurative art to the confines of the ornamental [...] turn it into a purely decorative production [...] [and] are false." (2014, 49). An undecorated brooch or mirror may still be functional; however, the lines on a 'decorated' surface can only be considered in and are specific to the context of this object. They are inherent to its skin, to its volume. This is why the tendrils on the brooch from Rickenbach (CH) have different shapes on the upper and underside of the bow (Fig. 4a–c). The upper design was clearly applied during manufacture, certainly before the foot of the brooch was bent backwards onto the bow and the spring was coiled. It is thus inherent to the shape of the bow. The lower decoration seems to have been made by the same hand, but could also be a

later addition (Müller and Lüscher 2009, 308–309). Yet both designs were adjusted to the brooch's shape and emphasize the bow's curvature. The lines, voids and tendrils cannot be understood without the context of the length, tapering and arch of the brooch bow, and thus become inseparable from its defining morphology and function.

THE ORGANIC FORM

To understand this inherent dependency between object and so-called decoration, it is worth returning to the Design Theory of the Modern Movement, and quoting Louis Sullivan's often abbreviated axiom in its textual context: "All things in nature have a shape, that is to say, a form, an outward semblance, that tells us what they are, that distinguishes them from ourselves and from each other." (1896, 407). In this definition, form is characteristic of the 'thing', and by seeing its form, we understand it. "Unfailingly in nature these shapes express the inner life, the native quality [...]. Whether it be the sweeping eagle in his flight, or the open apple-blossom, [...] the blithe swan, the branching oak, the winding stream at its base, the drifting clouds, over all the coursing sun [...]. It is the pervading law of all things numan and all things superhuman, of all true manifestations of the head, of the heart, of the soul, that the life is recognizable in its expression, that form ever follows function. *This is the law.*" (ibid. 407–408; original emphasis).

Moving beyond decoration, beyond pattern, and following Louis Sullivan's axiom, the function of an object has to be inherent to – and thus recognizable in – its

form (Fonatti 1995, 18). Such design cannot be built up by combining object with decoration. Addition or subtraction of individual elements within a comprehensive design are difficult if not impossible. Designed form and its socalled decoration cannot change without changing the object's function. Jody Joy refers in this context to JD Hill's study of pottery with Early Celtic Art incisions from Cambridgeshire (Hill 2003; see Joy 2011, 207). The decorated vessels have different forms and fabrics than the undecorated pots from the same site (Hill 2003, 176–80). Although Hill notes that these could have been imports, the clay signature from Wardy Hill strongly suggests the exploitation of a specific local source for the decorated wares only. This would imply local production, and that the designs were already planned when the clay was selected and the pot shaped, thus quintessential to the creation of the object. Such aspects have to be considered also for objects that received Early Celtic Art designs at a later stage in their use-life. In this line of thought, the addition of decoration would consequently have changed the object's function or required careful adjustment to the existing (see repairs on Torrs pony cap, Fig. 8b).

THE TIME ELEMENT: ACTIVATED OBJECTS

The tendril winds around the terminal of the torc (Fig. 1 insets). Growing in light, it encourages turning and twisting the object to follow its movement (compare Garrow and Gosden 2012, 110, 139). By activating the object, its design is not only experienced in its third, but also fourth dimension (Fonatti 1995, 23). Complex Iron Age designs not only considered space, but also time via movement (compare Ingold 2014, 128). They became dynamic. Compared to the static, systematized design of the disc from Somme-Bionne, this four-dimensional

symbiosis of object, design and movement renders the object 'alive' in our eyes. The life-metaphor and the term 'organic' for such designs imply that form can then represent figure (Fonatti 1995, 99); we start seeing human faces and animals in superficially abstract Iron Age designs.

Considering objects in their design context needs to place these in the hands of makers, users, viewers and beholders (compare Garrow and Gosden 2012, 318). The Battersea shield, for example, when turned and twisted, recreates the outline of its shape and three-bossed design at 90-degree angle within the central panel, albeit reduced in size (Fig. 5). This perpetuation of the design when in motion implies that the shield's movement was already anticipated in its conception. The quicker an object moves, the easier it generates new form as our slow eyes create new lines, make new connections. Paul Klee introduced the term "das bildnerische Denken", literally meaning "the image-creating, sculptural thinking", translated as "the Thinking Eye" (1914). The thinking eye produces form by connecting shape with memory. Thus who was creative in these four-dimensional Iron Age processes? At first, the original designers and makers, who created these objects out of their intuition by transposing and transforming original geometric forms. Their design product, the object, invited the user's creativity to activate new designs by moving the object in light. This now transposed the entire object to generate new forms. The movement allowed the viewers' eyes to create ever-new appearing and disappearing designs in their own creative process. By stimulating, transforming and transposing form and object, all these processes followed the four steps of the morphological metamorphosis described above. Thus all were creative, the designer, maker, object, user and viewer. The new creations by users and viewers, however, were fleeting; they remained only

in memory until reactivated again by new performance. Dynamic Iron Age art therefore created creativity at different levels, by different agents, including the object itself (compare Gell 1998, 6). It generated visual knowledge and memory via ongoing creative processes. These processes were not complete after the initial intuition, design operation and manufacture, but continued through using and beholding the object.

THE LINE, THE VOID AND THE CURRENT

The tendril, even when appearing on a flat surface such as a mirror, inherits movement because of its curving line, but also when not adhering to strict geometric symmetry (Fig. 6a–b). It moves from the predictable to the unpredictable, and in this way generates change, movement, innovation, but also tension. The geometric symmetry of the Somme-Bionne disc (Fig. 3) explains complex issues by fragmenting them into manageable schemes and categories, in order to render them understandable and controllable. Identifying an underlying order – the symmetric matrix – can reduce the fear of the unknown. In systems we discover predictability and find reassurance. As Laurent Olivier has argued, the depiction of an animal or object symmetrically unfolded, as on the Cuperly plaque (F), reveals everything of it; nothing is hidden or obscured (2014, 52). Non-geometrical, non-symmetrical, non-systematic designs, consisting of ambiguous, non-specific forms leave room for development. On the other hand, they also create disharmony which may be frightening as this acknowledges unpredictability.

In Design Theory, the harmonious, geometric-symmetric design is of lower order because of its predictability (Fonatti 1995, 18; compare Garrow and Gosden 2012, 81, for chronology of symmetric (later) and asymmetric (earlier) Early Celtic Art in Britain). Non-symmetric designs may at first appear to contain mistakes or be borne out of confusion, and are often classed as of lower quality (e.g. Müller and Lüscher 2009, 309; Müller 2014, 34). However, in Design Theory terms such designs are of higher order because they are active, dynamic, innovative and organic (Fonatti 1995, 98). Line and void in organic dialogue not only form a spatial entity; they create movement and tension, a visual current.

CREATING CREATIVITY

This resonates with Tim Ingold's "creativity of undergoing" (2014). Applied to the creative processes involved in making objects of Early Celtic Art, Ingold's definition questions our modern, western views of innovation, authorship and copy (ibid. 128–29). It can be argued that it is not the mastery achieved by learning the matrix and practising the pattern, so to say the 'knowing' of the geometric-symmetric, predictable design, but the submission into the unpredictable which leads the creative process (ibid. 135–37). By allowing life's unpredictability to enter the design, "submission leads and mastery follows [...] held in the tension between [...] imagination and perception" (ibid. 137). As an example, Ingold introduces sheet music (ibid. 129–31). In the analogy with Early Celtic Art proposed here, the original musical composition equates with the underlying design matrix. Both describe critical stages in the piece, but every new performance of the music or every new application of the design matrix to a new object leaves room for individual interpretation and improvisation. As much as

every new performance of a piece of music is creative, so is each new application of an existing design to a new object. If design and object are inherently interrelated, and if new performance is creative, then there can be no copies, simply degrees of innovation and (un-)predictability (Fig. 7a–b). It also becomes difficult to sustain quality judgements, if these are guided by modern, western concepts that are biased towards valuing innovation and neat execution rather than the creative-meditative processes of emulation (Sawyer 2012, 274–275; see Romankiewicz 2016a).

Following the guidance of the matrix, rather than strict adherence to it, requires submission to the creative process, the creative current (compare Ingold 2014, 135–36). Interestingly, many western languages such as English or German are not equipped to express this creative undergoing (see ibid. 137–38). These languages can only express creation as either active or passive. In the concepts discussed here, the answers as to who were the active or passive creators of fourdimensional, dynamic Iron Age designs are more complicated than can be expressed in English. Who was or is 'creative' and who/what was or is 'created': the designer, the maker, the user, the beholder or the object? The ancient Greek language, despite its advocacy of order and symmetry, is one of the few languages that allows expressing such complex relations in a middle voice, the medium. As Ingold put it, "in the middle voice, the doer remains inside the process of his [or her] doing" (ibid. 137, original emphasis). Specifically, in the indirect middle using $\pi o \iota \epsilon \hat{i} v$ with verbal nouns, this can be translated as bringing something about or to effect (Smyth 1920, 391). To act in the middle voice may reflect this creativity of undergoing better than describable in English, a process oscillating between active and passive, mastery and submission, not a single act

(Ingold 2014, 137). This interpretation of design processes, which I argue were also involved in Early Celtic Art, allows recognition of the dialogue between design and object, the processes of being creative and being created. In these processes, all of the above agents are "answering to a world that [...] answers to us" (ibid. 134). The unpredictability of these designs invites filling voids and forms with imagination.

In this sense, we today are still part of this ongoing creative process. Anybody who engages with these Iron Age objects is creating new forms and figures, reactivating these objects and becoming part of the submissive current of creativity. Whether the ideas, forms and figures that we see (or create) today were originally intended by the Iron Age designer, maker, user and beholder – or whether these are completely new creations by us – is difficult to determine, and secondary to this present enquiry. What is primary is that dynamic, ambiguous, non-geometric, non-symmetric Iron Age art is, according to modern architectural Design Theory, of the highest design order, because it allows activating a sheer inexhaustible, reciprocal dialogue of creative and interpretative layers (Fonatti 1995, 98).

IRON AGE CREATIVITY FROM A DESIGN THEORY PERSPECTIVE

To conclude, from a modern, admittedly western Design Theory perspective, the strictly symmetric designs of Early Celtic Art would be regarded as of lower order because of their predictability, and because of being in danger of presenting simply decoration or ornamentation. Designs would be interpreted as of higher order where shape and surface treatment appear to have been designed in dialogue, to become an integral part of the form and function of the object. Designs of the highest order would be those that are dynamic, that include or encourage movement and that are organic by engaging with unpredictability. These stimulate active and passive creative processes that start with the designer, the maker and the ancient user, but continue with the ancient as well as modern beholder, who all create ever-new or remembered forms that continue to reinterpret the object. A process that "carries on through" (Ingold 2014, 126), and of which we are still part of today.

Although developed from a modern context, the framework presented here can be applied more generally to archaeological queries regarding the processes of thinking and making objects in the past - crafted or built - and their creative impact onto the present day (Romankiewicz 2016b, 26, 30). In the context of Early Celtic Art, this investigation hopes to have demonstrated that morphological analysis to identify underlying design matrices, that is to read such designs backwards, can be fruitful (cf. Ingold 2014, 129). However, it hopes also to have demonstrated that such reading can only be the start to understanding the full complexities of Iron Age designs. They also have to be read forwards (ibid.), acknowledging all four dimensions of creativity and the active and passive dynamics of these designs as ongoing process. Therefore, Early Celtic Art designs cannot be separated from the object and its use. Analysing these as decorations outside the context of the physical objects and without considering their makers, users and viewers, demotes them to the confines of a pattern book. Such thinking about objects of Early Celtic Art hinders connecting with the "creative processes that give rise to them" (Ingold 2013, 7). Identifying different levels of

design complexities within this art may appear as attempts at typological categorizing. However, objects such as the Torrs pony cap (Scotland, UK) show that such categorizing will have to be very complex, as different design layers (simple, dynamic, organic) can be combined in a single object, and thus respond to different layers of creating, viewing and beholding. While an overall guiding matrix on the pony cap itself is symmetrical, albeit non-geometric (Fig. 8a), the volume of the object complicates recognizing this underlying symmetry in full, because the cap can always only be seen partially at any one time (Fig. 8b; compare Garrow and Gosden 2012, 105). This gives the impression of organic growth, emphasized by the non-symmetric swirls and tendrils on the horns (for contemporaneity of horns and cap see Briggs 2014).

In a second line of enquiry, this analysis of Early Celtic Art questions whether copies exist, or whether these are actually new interpretations of existing designs, as no two items are exactly the same. In a non-western context, where individual expression and novelty of design are less important, creative potential may be expressed in the degree of emulation, balancing innovation against belonging (Romankiewicz 2016a, 15–17; compare Ingold 2014, 124–26). While this complicates the identification of 'original', 'copy' or 'derivation', it also advocates caution when applying value-judgements in attempts to identify sequential typologies.

Finally, if as postulated, most objects of Early Celtic Art are not 'decorated' with 'patterns', but intrinsically conceived with them, either from the outset or when receiving further designs to mark change, then these designs cannot be additional or optional; no part of it could be removed without fragmenting the

entity of the object. The art becomes instrumental to the object, its ontology and life-history.

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