

Continuum



Culture & Communication Reading Room



Continuum: The Australian Journal of Media & Culture

Vol. 6, No. 2, 1992

[Photogenic Papers](#)

Edited by John Richardson

The kaleidoscope: shake, rattle and roll

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The ubiquity of the kaleidoscope as a metaphor for modern life requires little if

kaleidoscope employed sophisticated elements of geometric theory in its construction, as well as utilising certain optical theories prevalent in the early nineteenth century,¹ it has never been argued since to have been significant in any profound theoretical way to the scientific or geometric discourses wherein it was initially situated. In fact the scant literature indicates that thinking the kaleidoscope as solely an amusing footnote to more important developments is the conspicuous method favoured by most historians, scientific or otherwise.² Another way is that recently advanced by Jonathan Crary. In a number of publications, culminating in his book *The Techniques of the Observer*, Crary argues that the kaleidoscope, along with the stereoscope and other optical instruments of the early nineteenth century, represented a shift in the way the Subject was conceived or constructed. This shift resulted firstly from a demand for a certain degree of immobility on the part of the Subject whilst operating these instruments; and secondly, by an alteration or expansion to the corporeal integrity of the Subject by its co-extensive relationship with technology - i.e., the body of the instrument melded, as it were, with the body of the Subject. Crary further argues that this re-constituted Subjectivity effected, amongst other things, the way in which vision came to be understood at that time. As pointed out by [Geoffrey Batches](#) in a thoughtful critique elsewhere in this journal, Crary's work is both provocative and valuable; it challenges the way in which theories of vision have been traditionally argued.

A further way, and one that will inform this present discussion, is to think this instrument as a problematic. This problematic is made possible because the production of meanings generated by an image will always exceed the tight restraint of the designer's intentionality whilst appearing to remain forever tied to the graphic forms of that intent. In other words, what we will be considering is how the ongoing production of meaning can generate a tremor in the stability of the initial theoretical frame of this instrument; a frame informed by geometry's long tradition of privileging the conceptual ground over and above its visual manifestation. And to consider also how the possibility of a seemingly unproblematic correspondence between the ground and its extrapolation, between geometric theory and its applied images, is intimately dependent upon the control

of the truth status ascribed to the image by the generative theory. This status in traditional geometry has been consistently understood as that of the graphic ancilla - a maieutic force, in the Socratic sense of that term - an ancilla to lawful principles; principles that have, traditionally speaking, their primary expression in the purity of geometric idealities.³ It follows that the possibility of installing a tremor in this tradition by understanding the kaleidoscope's images as announcing more than the mere subordination to geometry's theory - yet an announcement that is still in a sense able to leave in place this self-same tradition - such a possibility must duly excite our attention and interest.

In short then, our discussion will seek some comprehension of the idea that an image may exceed the prescribed limits of meaning laid down by its own generative ground whilst still remaining tied, in a sense, to that ground for its initial and subsequent generation as an image. The "in a sense" I speak of here will be the sense in which the possibility for this generation of excess-meaning may be understood as enfolded already within traditional geometry's existing theoretical structure. In order to gain the necessary perspective on the character of this enfolded excess it will be necessary to firstly examine the general conception of the kaleidoscope's images; specifically the very possibility of imaging fragmentation and change; twin conceptions that, as alluded to earlier, have for so long been the metaphoric promise of the kaleidoscope.

As a model of specificity and conciseness Ricoeur's theory of the metaphor is exemplary, and as such will more than suffice for our purposes. In discussing the basic structure of the metaphor, he says:

that [the] metaphor is the rhetorical process by which discourse unleashes the power that certain fictions have to redescribe reality. By linking fiction and redescription in this way, we restore the full depth of meaning to Aristotle's discovery in the Poetics, which was that the poiesis of language arises out of the connection between muthos and mimesis.

From this conjunction of fiction and redescription I conclude that the

place or metaphor, its most intimate and ultimate abode, is neither the name, not the sentence, not even discourse, but the copula of the verb to be. The metaphorical "is" at once signifies both "is not" and "is like." If this is really so, we are allowed to speak of metaphorical truth, but in an equally "tensive" sense of the word truth. (7)

Although Ricoeur's argument contains implicitly the conception of a non-metaphoric utterance - no doubt in its turn linked to a non-fictional reality which we might assume he sees as the ground from which his metaphoric process takes its leave toward redescribing reality; leaving this reader wondering as to how this grounding reality is to be understood outside of metaphoric utterances - this matter need not unduly delay us on this occasion. For what is of special interest and value about Ricoeur's definition is that it draws our attention to the two central elements typical of the notion of the metaphor in common parlance; namely, that the metaphor operates in two registers, that of is like and that of is not like.

To achieve this duality the metaphor needs to be understood as having its own specificity whilst at the same time referring specifically to a specific referent. In other words, to achieve the status of a Ricoeurian metaphor, an utterance or, as we are here interested in the modality of the visual, an image must in some sense position itself as, quintessentially, another form of whatever referent it is attempting to allude to or stand in for. It must also retain its own specificity in order to be positioned in the class of visual metaphors associated with the specific referent. It has to both call up the referent whilst at the same time evoking its own specificity in distinction to any other metaphor claiming to relate to the same referent. To retain coherency in this model, it is obvious that the image that is relied upon to act as signifier of the chosen concept, cannot, in any fundamental way, be at odds with the concept it alludes to. It follows, therefore, that what is at stake here is the coherency of the kaleidoscope's images being understood as images that validate the sense of a metaphoric transfer of the conception of fragmentation and change. Putting that another way, does the image fulfil the promise of the idea? Is fragmentation and/or change visualised?

In keeping with Brewster's initial etymological ground for the term "kaleidoscope" established early in his Treatise (1), it will be useful to quickly establish change and fragmentation's etymological debts. Change is from the Latin *cambiro*, to exchange or barter: in familiar usage; to cause to turn or pass from one state to another; to alter or make different; to vary in external form or in essence; as to change the shape of a thing; to change the countenance. And Fragment(ed) from the Latin *frangere*, to break: in familiar usage; a piece of a whole, an incomplete thing or existence.

With regard to "change", within Ricoeur's demand of *is like* and *is not like*, the imaging of change may be seen to be ably achieved by the kaleidoscope. The metaphoric promise of a distinct relatedness between the image and the concept is met in that the generated image is able to accommodate the two primary comprehensions of the term, change, i.e., alteration and process. For instance, with regard to the conception of change as alteration, the kaleidoscope's image clearly demonstrates a visual change of state from the initial scene or object. Through the act of combining a number of reflections of the initial scene, a composite image is generated that effectively alters the visual extension of the initial scene or object. Moreover, by definition of the very idea of reflection, the original scene is retained as it is multiplied. Thus the kaleidoscope's image fulfils the metaphoric requirement of *is like*, in that it retains the visual appearance of the single generating object or scene in the composite folds of the new image. It fulfils the second theoretical requirement, *is not like*, in that it produces a new visual object, i.e., the composite image.

With regard to change as process; the easily observed characteristic of the kaleidoscope in generating a seemingly infinite number of patterns with no two ever exactly alike, more than fulfils the specific idea of the ever-changing nature of change. That is, it fulfils the requirement of *is like* by supplying to the viewer a constantly ever-changing pattern like that witnessed in ordinary perception. And it fulfils *is not like*, by presenting this ever-changing pattern within the confinement of an apparatus whose precise geometric boundaries are seemingly not like, to all intents and purposes, the world of everyday perception. The fact that the observer can easily invoke change in the apparatus would also, in a weak

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sense, constitute not like in relation to the observer's incapacity to effect-at-will any easy changes of a substantive character to nature itself. Therefore change, in both its registers of alteration and process, may be comprehended as being adequately imaged by the kaleidoscope within the rigours of Ricoeur's binary definition of the metaphor. That is to say that, the kaleidoscope images an alteration yet also retains what it has altered; and the kaleidoscope produces an ever-changing image yet this imaged process is forever confined. Thus, within the stricture of Ricoeur's paradoxical definition, the kaleidoscope's image can stand as a visual metaphor referring to the idea of change.

However, turning our attention to the metaphoric transference of the idea of fragmentation/fragmenting we encounter something of a problem; one directly associated with the everyday meaning of this term: namely, as being an act giving rise to 'a fragment or a piece of a whole, an incomplete thing or existence'. This idea of 'a piece of a whole or incompleteness' has traditionally and commonly speaking, fastened itself onto the comprehension of certain images and assists in ascribing them a particular value. In that a fragment is either valued less because it is not whole, and/or, is valued as "more than" because it is all that is left of some "original whole" and therefore must stand-in for this whole. This idea is predicated on the contradictory claim that an integrity is afforded the fragment that is denied the whole. The whole can be fragmented but not the fragment.

Alternatively, if the fragment could be fragmented then it would have to suddenly transform into a whole itself, in order for the very concept of fragmentation to make any sense. This would amount to a claim that a fragment is that which it is a fragment of. Thus the inherent logic of this general idea of the fragment, when transported into the visual terrain, demands that the fragment be an unframed image, an incompletely framed image yet also one that has a certain corporeal integrity to its borders not shared by a whole-image. Within the confines of this logic, we are asked to perceive that the fragment-image is somehow an "open closed-ness" in contrast to the "closed closed-ness" of the whole-image.

To unravel this conceptual tangle it need only be stipulated that whilst an image can certainly be broken-up, what results visually is simply another whole-image.

As all images within the kaleidoscope enjoy a visually corporeal integrity it is absurd, therefore, to speak of a fragmented image, as that would constitute a claim that an image must have a visually corporeal integrity in order to be initially defined as such and such an image, yet also not enjoy a visually corporeal integrity in order to be defined as a fragment-image. In other words, whilst the composite image formed in the kaleidoscope is obviously made up of many images they are not incomplete pieces of some whole. Rather, they are multiplications of the initial scene open to the view of the kaleidoscope. What is produced by this multiplication is a visually whole-image, not an incomplete piece of some previously imaged-whole. Moreover, even when the image produced is a truncated version of the object towards which the apparatus is initially pointed, the visually truncated image would still be a whole image. As an aside, were it desirable to posit truncation as a metaphor of fragmentation it would clearly not require the exclusive services of the kaleidoscope - almost any other ocular apparatus would suffice.

This stipulation leads us to by-pass the everyday notion of a fragment as an "incomplete part of a whole" and to think the term instead at its deeper etymological level: i.e, breaking-up. That is, we must disassociate or sever the idea of an unframed image from the idea of the ability of an image to be broken-up into other images. Of course, this severing will lead us to ask: "what then has been fragmented"? Certainly not the image of the initial object or scene or their generated reflections, for as I have just indicated, an image cannot be a corporeal incomplete image, although an image can be broken asunder into a multitude of other whole-images. What then has been imaged if not incompleteness?

To comprehend the metaphoric appropriateness of the kaleidoscope's image in terms of a breaking-up, and not some corporeal incompleteness, is to understand immediately that what the kaleidoscope breaks-up is visual familiarity or visual expectation. That is to say that, an object or scene looked at unencumbered by the mediation of the kaleidoscope would have, to all intents and purposes, a certain look that we can assume would be familiar to the viewer. When viewed through the kaleidoscope the image of this self-same object or scene loses its immediate

visual familiarity by being visually located in a terrain or its clones. We may thus conclude that it is not, visually speaking, the object or scene that has been broken-up but rather the breaking-up or the problematizing of the expectation that a perceptual engagement with a known familiar object will automatically generate a familiar image to perception. The break, therefore, has been inserted perceptually, so to speak, in the register of visual expectation and not by breaking-up the visual completeness of the initial generating object or scene. Thus the kaleidoscope's image is metaphorically appropriate by dint of the loss of visual familiarity and not because the generated image is some incomplete version of the original scene or object. The kaleidoscope simply breaks-up the familiar; or to put that another way, it images unfamiliarity.

Hence, the kaleidoscope's image is not like the concept fragmentation if the term "fragmentation" is understood to mean that an image can somehow be corporeally incomplete. Alternatively, the kaleidoscope's image is like the concept fragmentation if the term is understood in the sense of its Latin root to break. That is, with the breaking seen to be that of a breaking-up of visual familiarity - the generation of unfamiliarity through the process of multiplication or cloning qua reflection.

Thus, in comprehending the kaleidoscope as firstly, capable of imaging change in both its basic registers; and secondly, as capable, (within the prescribed etymological grounding of the term fragmentation), of generating a certain visual unfamiliarity, we are now in a position to examine the excess of meaning enfolded in the theoretical structure that grounds this instrument. To do so however we need but briefly recall the nature of traditional geometry.

The basic character of the discourse of traditional geometry is the conception of ideal reality and perceptual reality. This conception finally reaches its zenith in the expansion of nature into the ubiquitous lawful universe - that meta-ideality whose vast finitude is beyond all possible perception. Yet it is a universe whose laws we are able to bring down to earth, so to speak, in the form of ideal constructions. These ideal constructions reach forth for their concrete "reality" in the employment of graphic reductive forms that in their austerity have been thought to aptly overcome the vagaries and veils of appearances: forms with which to visualise the

overcome the figures and forms of appearances, forms that wish to fixate the lawful principles that are deemed to govern the universe. The truth of space becomes pure forms that sit below the level of the visual; that sit inside the realm of the ideal and that reach forth for their realisation in graphically reduced regular forms. Irregularity is displaced in favour of a graphic austerity; it is displaced by imagining that precise truth is more possible or has a higher value if associated with graphic reduction. The promise of the application of geometry is thus the extraction of this timeless truth.

It is worth noting that this should not be understood to mean that the world of appearances is an illusion. In traditional geometry ideal reality is not the opposite of the reality of appearances. Rather, appearances are merely a deficient reality in that they hide in their abundance or confusion, the eternal principles or laws that govern Nature. Geometry's promise is to simply overcome this deficiency and in so doing generate the condition of a divided graphic terrain: with truthful geometric austere imagery on one side; and natural or graphically excessive imagery on the other. As I have remarked elsewhere⁴, the relationship between austere imagery and geometric principles is axiomatic to geometry's claim of the separation of its eidetic reality from the abundant world of appearances and essential to the truth value it ascribes to its practice.

Returning to our main discussion, let us recall that the kaleidoscope was securely grounded in the ideal world of geometric principles, yet at the level of its production of images it could be manipulated by the observer to re-order visible nature into an unfamiliar image; a terrain visually re-arranged according to geometric-optic laws, but not however a visualisation restricted in its manifestation to traditional geometric forms. Moreover, the patterns generated by this apparatus divided yet further the already divided visual field demanded by traditional geometry. They did so in that the kaleidoscope, although enabling visible nature to be perceptually reconstituted and expressed in non-geometric forms, also reconstituted visible nature in such a way that it appeared even more chaotic or visually abundant than had been previously imposed upon the world of appearances; an imposition that was initially generated by the very conception of ideal reality and visible reality. Far from extracting the truth of space by the

employment of principle expressed in austere forms, what emerges through the use of the kaleidoscope is an image of nature that exaggerates nature's "messiness".

Furthermore, the observer can witness within the kaleidoscope the presence (simultaneously and interconnectedly) of both parts of the previously mentioned geometric graphic binary: the graphically austere and the graphically abundant. These disparate graphic elements achieve a form of marriage in the chaotic image of nature being wholly contained within the frame of one of geometry's oldest forms of graphic austerity: the circle that constitutes the extreme visual frame of this toy. To witness this marriage is to comprehend the image as an ordered disarray; nature re-ordered by geometry and encased in, encircled by, an austere geometric form. That is to say, a perceptual chaos framed by order; a re-arrangement that disassembles the familiar image of nature by multiplying it through a series of reflections into an unfamiliar pattern. As austere imagery is now co-joined with abundant imagery, with the latter gaining visual centre stage so to speak, the kaleidoscope can thus be thought as an apparatus that reverses geometry's binary structure. Chaotic nature no longer holds within its folds lawful principles expressed or represented solely by austere forms; rather, chaotic nature now takes up a visible residency inside principle qua graphic austerity. Visual abundance now lies inside the austere circle.⁵

From such a configuration it is easy to imagine that geometry completes a full circle and generates the very chaos that it initially sought to displace in order to establish the primacy of principle, the lawfulness of its own practice (a process made possible precisely because chaos is the already always enfolded-excess in traditional geometry). For can we not see clearly here, within this instrument, the very limits or edges of traditional geometry, its ability to make a mess of things; the announcement in this generated image of the limits of traditional geometry's eidetic reality in speaking the truth to space over and above perception? Indeed, through the employment of this instrument may not the observer gain the clear perception that lawful principle is in some sort of historic twilight and has become simply a generative force for visual unfamiliarity?

⁵ See also the discussion of the kaleidoscope in the context of the 'messiness' of nature in the following text.

We may with equal ease imagine that the vision afforded by this instrument heralds in at the level of its very ordinariness what we have been informed of late is geometry's interest in the lawfulness of messiness - I am referring here to Fractal geometry.⁶ This is also to understand the kaleidoscope as an apparatus that images the historic shift of power from one side of geometry's constituted binary to the other; a binary, we might note in summary, whose poles are already always demarked, both traditionally and contemporaneously, by the conception of order and chaos; the austere and the abundant; the regular and the irregular. And bear in mind as we have already discussed, that the sense of the kaleidoscope as metaphor is grounded in its ability to image change and fragmentation.

Alternatively, if we imagine ourselves as somehow oscillating (irreverently and forever tentatively) between these twin perceptions, between geometry constructing a mess and geometry's desire for messiness, we could with a certain irreverence construct the question that informs the thinking of the kaleidoscope as a problematic: the question of the origin of change as the geometric truth of space. In other words, will the kaleidoscope's image in its ability to announce both the closure of geometry's lawfulness and its re-birth - the shift from law-as-principle to that of law-as-process - will this image stand as some haunting presence insufficiently captured by geometry's historicisation of its own practice? Or more precisely, how in the light of the persistent presence of this nursery plaything may geometry historically locate with assured security the origin of its interest in lawful messiness, its interest in change: will it be in Fractals or in this philosophical toy; in the recent discovery of "nature's own geometry" or in the laughter of some child gazing at the visual ruins of geometry's promise of truth through the application of its principles?

And finally, by way of extending the life of this oscillation or tremor for just a moment longer, we need but recall Husserl's eloquent observation of the persistence of geometry in speaking the truth of space in all modalities and discourses; albeit a truth that forever ascribes different values to different modalities and to different discourses? For, after all, within the already prescribed all-encompassing claims implicit in the conception of "nature's own geometry" is not laughter itself finally open to geometricisation; open to being comprehended

as an iterative process that speaks, in some manner yet to be discovered by geometry, the truth of space? For:

Laughter manifests itself, each time a change in level suddenly occurs.... Laughter attains not only the peripheral regions of existence, and its object is not only the existence of fools and children ... through a necessary reversal, it is sent back from the child to its father and from the periphery to the center ... laughter traverses the human pyramid like a net-work of endless waves that renew themselves in all directions.

Laughter only assumes its fullest impact on being at the moment when, in the fall that it unleashes, a representation of death is cynically recognized.

[And] being itself ... is spasmodically shaken by the idea of the ground giving way beneath its feet. It is in universality ... that the necessity of engaging in a struggle, no longer with an equal group but with nothingness, becomes clear. THE UNIVERSAL resembles a bull, sometimes absorbed in the nonchalance of animality and abandoned to the secret paleness of death, and sometimes hurled by the rage of ruin into the void ceaselessly opened before it by a skeletal torero. But the void it meets is also the nudity it espouses ... and it is no longer, like the bull, the plaything of nothingness, because nothing itself is its plaything; it only throws itself into nothingness in order to tear it apart and to illuminate the night for an instant, with an immense laugh - a laugh it never would have attained if this nothingness had not totally opened beneath its feet. (Bataille 176-177)

Notes

1. See principally; Rev. James Wood, Elements of Optics. This work contains the basic optic theory specifically referred to by Brewster.

2. For a historical debate on the origins of the kaleidoscope see *Annals of Philosophy* etc., xi (January to June, 1818), 375-378, 451-452, and editor's comments 452. The first of these articles was by Roget of Thesaurus fame.
3. I refer here to Plato's utilisation in the *Meno* of graphic austerity as the tool to bring to the surface, literally and figuratively, the inherent presence of geometry in the mind of the slave.
4. See my "Critique and a Science for the Sake of Art".
5. We may readily see that geometry's austere imagery has always enclosed art, ie. rectangular frames and so on. However the point here is that, traditionally speaking, geometry has never claimed to have actually produced abundance qua art by the employment of the principle.
6. See B. Mandelbrot. According to Mandelbrot, the term "Fractal" incorporates the sense of breaking-up i.e., fragmentation (4).

Works Cited

- Bataille, Georges. "The Labyrinth". Trans. A. Stoek. *Visions of Excess, Selected Writings: Theory and History of Literature*, vol. 14. Minneapolis: U of Minnesota P, 1985. 171-177.
- Brewster, David. *Treatise on the Kaleidoscope*. London and Edinburgh: Printed for Archibald Constable & Co., and Longman, Hurst, Rees, Orme & Brown; And Hurst, Robinson & Co, 1819.
- Crary, Jonathon. *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. Cambridge: MIT P, 1990.
- Gray, Noel. "Critique and a Science for the Sake of Art". *Leonardo* 24,3 (1991): 317-320.
- Mandelbrot, Benoit B. *The Fractal Geometry of Nature*. New York: Freeman, 1983.
- Ricoeur, Paul. *The Rule of the Metaphor: Multi-disciplinary Studies in the Creation of Meaning in Language*. Trans. R. Czerny. London: Routledge & Kegan Paul, 1978.

Wood, Rev. James. Elements of Optics, Dsigned for the Use of Students in the University. Cambridge: J. Burgess, 1801.

New: Xmas Day, 1995 | Now: 22 March, 2015