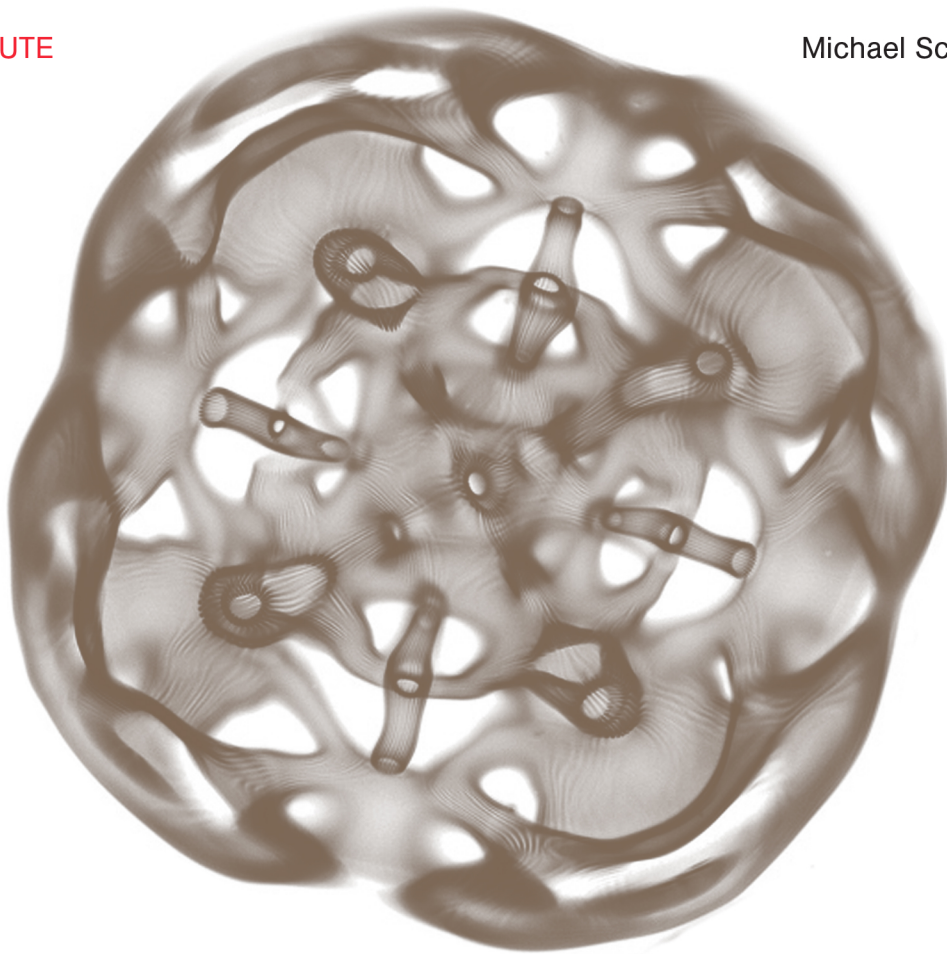


ORPHEUS

Experimental Systems Future Knowledge in Artistic Research

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Michael Schwab (ed.)



SERIES

Experimental Systems

Future Knowledge
in Artistic Research

Edited by Michael Schwab

Leuven University Press

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Cover image
Evan Grant, *Cymatics in water*.
www.evagrant.com / www.cymatics.co.uk

The research leading to these results has received funding from the European Union Seventh Framework Programme ([FP7/2007-2013] [FP7/2007-2011]) under grant agreement n° 313419.



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Universitaire Pers Leuven /
Presses Universitaires de Louvain.
Minderbroedersstraat 4
B-3000 Leuven (Belgium)

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ISBN 978 90 5867 973 4
D/2013/1869/43
NUR: 664



This book is published in the Orpheus Institute Series.

Criticism and Experimental Systems

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“How is Pure Natural Science Possible?” Kant asks in the second part of the *Prolegomena* (1783) (Kant 2004, 46). The key to his answer is the distinction between a posteriori judgements that are “merely subjective, if representations are related to one consciousness in one subject alone and are united in it,” and a priori judgements that are “objective, if they are united in a consciousness in general, i.e., are united necessarily therein” (ibid., 56). Scientific knowledge, which for Kant is knowledge *tout court*, is constituted exclusively by a priori judgements, so that the question becomes, essentially, how necessary and universal judgements can derive from contingent and particular judgements. Kant concludes that “the principles by means of which all appearances are subsumed under these concepts form a psychological system, i.e., a system of nature, which precedes all empirical cognition of nature and first makes it possible, and can therefore be called the true universal and pure natural science” (ibid., 57–8).

The “transcendental deduction” from phenomena to conditions of possible experience is not only at the core of Kant’s critique of metaphysics and justification of empirical science in the *Critique of Pure Reason*, but also forms the main strategy of argumentation pursued in the other two *Critiques* (Förster 1989). About judgements of taste, Kant asks in the *Critique of Judgement* (1790): “How is a judgment possible which, merely from *one’s own* feeling of pleasure in an object, independent of its concept, judges this pleasure, as attached to the representation of the same object *in every other subject*, a priori, i.e., without having to wait for the assent of others?” (Kant 2000, 168–69, typography regularised). The details of Kant’s standard answer,¹ its interpretation, and problematic relation to transcendental deduction are beyond the scope of this paper. What is crucial here is Kant’s formulation of the third *Critique’s* main question and the necessary relation it posits between aesthetic judgement and a priori knowledge. Further, by throwing a bridge between the realms of subjective “freedom” and objective “nature,”² Kant also assigns to criticism

1 See, for instance, “Deduction of Judgments of Taste” (Kant 2000, 170–71) and sections nine and twenty-two of “Analytic of the Beautiful” (Kant 2000, 102–4, 123–27).

2 See Introduction IX, “On the Connection of the Legislations of Understanding and Reason through the Power of Judgment” (Kant 2000, 80–83).

the paradoxical project that characterises its entire historical development to the present: finding a priori validity for its propositions, as the opening of Rosalind Krauss's *The Originality of the Avant-Garde* (1985) perfectly illustrates.³ At the round table "The Present Condition of Art Criticism" convened for the one-hundredth issue of *October*, Krauss recognises a moment of discontinuity in critical discourse (Baker et al. 2002, 204) and over the next decade, a debate upon the "crisis of criticism" (Berger 1998; Rubinstein 2003) spreads across the discipline, before disappearing quietly, almost without a trace (Elkins 2010). This debate is but the latest in a series of recurring cycles of a crisis overcoming criticism (e.g., Kaplan 1948; De Man 1967) and "new criticisms" emerging in response (e.g., Ransom 1941; Morris 1972), without any interest in its history and epistemology being sustained, any agreement upon its methodologies being reached, or any of its ontologies being taken too seriously.

Given the near absence of historiography, the crisis of criticism cannot be conclusively attributed to a paradigmatic shift. Nevertheless, since the *October* round table in 2002, empirical research seems to have intensified at the borders of criticism with other disciplines, effectively expanding its discourse.⁴ This process of disciplinary colonisation and creolisation of criticism responds to long-disregarded expectations for greater objectivity and social engagement (Eagleton 1984) but is incompatible with the Kantian paradigm outlined above. The end of the Culture Wars and the restructuring of higher education in Europe (Bologna Process) in the late 1990s facilitated an unprecedented application of scientific practices, techniques, and technologies to objects previously believed to be exclusive to critical enquiry. In this expansion of experiment-driven research into criticism, of which the new field of eHumanities is particularly illustrative, epistemologies of experimentation offer a valid alternative to the received epistemologies of criticism founded on psychological, historical, politico-economical, or linguistic a priors.

The interest of criticism in New Experimentalism (Mayo 1994) and Hans-Jörg Rheinberger's experimental systems is fairly recent, but the connection with experimentation actually predates the Kantian paradigm and, for instance, is already discernable in the Abbé Dubos's influential *Réflexions critiques sur la poésie et sur la peinture* of 1719. *Réflexions critiques*, which also introduces the "system of the arts" into criticism,⁵ is instrumental in David Hume's attempt to integrate

3 "Can it be argued that the interest of critical writing lies almost entirely in its method? Can it be held that the content of any given evaluative statement—'this is good, important,' 'this is bad, trivial'—is not what serious criticism is, seriously, read for? But rather, that such criticism is understood through the forms of its arguments, through the way that its method, in the process of constituting the object of criticism, exposes to view those choices that precede and predetermine any act of judgement" (Krauss 1985, 1).

4 Without claiming to be exhaustive, a few representative examples can be organised in six groups: (1) Cognitive aesthetics in psychology (Schellekens and Goldie 2011), in neuroscience (Chatterjee 2011), in evolutionary anthropology (Dutton 2009; Gotschall 2012), and in cultural anthropology (Davis 2011); (2) Sociology of art (Tanner 2003; De la Fuente 2007); (3) Art history and cultural studies (Latour and Weibel 2002; Elkins 2003, 2008; Belting 2003; Sachs-Hombach 2005; Probst and Klenner 2009; Frank and Lange 2010); (4) Cultural politics and law (Groys 2008; Throsby 2010; Nafziger, Paterson, and Renteln 2010; Nafziger 2012); (5) Art business and management (Frey 2003; Velthuis 2005; Towse 2010; Horowitz 2011); (6) Computer science and technology (Schreibman, Siemens, and Unsworth 2004; Manovich 2012; Moretti 2005).

5 Here I am simplifying: Charles Batteux's 1746 treatise *Les Beaux-arts réduits à un même principe* (The fine arts reduced to a single principle) is usually credited for introducing the system of the arts, but Dubos anticipates it according to Mace (1997).

criticism into experimental philosophy, within his wider programme of turning the Cartesian system of knowledge upside down.⁶ In Descartes's simile from *The Principles of Philosophy* (1647), "The roots are metaphysics, the trunk is physics, and the branches emerging from the trunk are all the other sciences, which may be reduced to three principal ones, namely medicine, mechanics and morals," which "presupposes a complete knowledge of the other sciences and is the ultimate level of wisdom" (Descartes 1985, 186). In contrast, the tree in Hume's *A Treatise of Human Nature* ([1739–40] 1961) has the "Science of Man" (psychology) as its trunk, from which understanding and passions branch out, corresponding to the content of the first two books. Sciences on the first branch are classified according to the relations between their ideas—mathematics, natural philosophy (including anatomy), and natural religion; sciences on the other branch are classified according to the relation of the passion with its cause—morals, criticism, and politics, with logic connecting the two branches (modified from Hazony 2009). Perception becomes Hume's "true Metaphysics" (Hume [1748] 1975, 12), and the entire science of man including criticism must thus be rooted in "observations and experiment."⁷

Introducing experimental systems, Rheinberger clearly distinguishes them from eighteenth-century philosophical and natural systems,⁸ yet they share much in common with "experimental philosophy" (Anstey and Vanzo 2012) in reacting to aprioristic epistemologies, such as those of Popper or Descartes.⁹ In the context of what Jonathan Israel (2001) terms "Radical Enlightenment," two oppositions historically define Hume's "complete system of sciences": at the one end, that of Descartes's speculative philosophy; and at the other, that of Kant's transcendental philosophy. From this second opposition a fault line

6 Thomas Huxley (1879, 11) commented that Hume "ruthlessly pruned away" the tree of philosophy and left "a pretty shrub enough."

7 "We must ... glean up our experiments in this science from a cautious observation of human life, and take them as they appear in the common course of the world, by men's behaviour in company, in affairs, and in their pleasures. Where experiments of this kind are judiciously collected and compared, we may hope to establish on them a science which will not be inferior in certainty, and will be much superior in utility to any other of human comprehension" (Hume [1739–40] 1961, 1:7–8).

8 For instance, in this passage: "In all these theoretical systems, their protagonists integrated observations and sporadically also experiments as additional arguments and evidences in favor of these systems. These observations and experiments, as a rule, were however not the driving forces for the establishment of the systems. At best, they strengthened their credit and plausibility. Two hundred years later, the situation is just the other way round. The guarantee for scientific coherence has been put upside down. *Experimental* systems—that is, material contrivances—govern the research fields, into which theories and concepts have to be fitted, at least if they want to earn scientific credit and have a real influence on a particular research trajectory" (Rheinberger 2011). As examples of eighteenth-century systems Rheinberger quotes Linné's categorial *Systema naturae* (1735) that Hume knew at least through Buffon; the "system of the earth" in Comte de Buffon's *The System of Natural History* (1749), of which Hume had at least two volumes in his library (Hume [1766] 1932, 2:82); the "system of the eggs" and "of the animalcules" in the *Système de la nature* (1751) by Maupertuis, where some mutual influence has been proved (Mossner 1980, 322; Malherbe 2005, 72–73; Knox-Shaw 2008); the *System of Nature* (1770) by Hume's friend and translator Baron d'Holbach (Hume [1769] 1932, 2:205; Mossner 1980, 475–76). William Harvey's "venous system" in the *Exercitatio anatomica de motu cordis et sanguinis in animalibus* of 1628 (Harvey 1970, 114) and Isaac Newton's "system of the world," the third book of the *Philosophiae naturalis principia mathematica* (Newton 1999), are additions to Rheinberger's list of particular significance to Hume's *Treatise*.

9 For a comment on Popper, see Rheinberger (1992, 24n13). Rheinberger also identifies with "non-Cartesian epistemology" (Bachelard 1984, chapter 6, quoted in Rheinberger 1995, 110). For Popper's "recontextualisation within a Kantian tradition," see Naraniecki 2010.

in criticism, dividing a posteriori and a priori paradigms, can be traced to the present day. On one side, because Hume's aesthetic judgements depend on a (complex) causal relation arising from aesthetic experience, the science of criticism is "experimental" and expands towards psychology and socio-historical fields.¹⁰ For Kant, on the other side, Hume's are only synthetic a posteriori judgements that do not constitute scientific knowledge.¹¹ Therefore, aesthetic judgements must precede, logically if not temporally, aesthetic experience (Kant 2000, 102–4) and be a priori grounded on "the play of the cognitive powers of the subject" (ibid., 107).

On several occasions, Rheinberger defines his experimental systems by characterising their structure, functionality, dynamics, and evolution:

First, such systems are the smallest integral working units of research. ... Second, experimental systems must be able to undergo series of differential reproductions, if they are to remain arrangements for the production of new bits of knowledge that lie beyond what one is actually able to conceive of and to anticipate. ... Third, experimental systems are those units within which the material signifying units of knowledge are produced. ... Fourth, and finally, conjunctures and ramifications of experimental systems can lead to ensembles of such systems, or experimental cultures. (Rheinberger 2004, 4–6)

In the next four sections, I will endeavour to examine each characteristic by cross-reading Rheinberger's experimental systems and Hume's science of criticism. This will enable me to explore the historical beginnings of experiment-driven research in criticism and to highlight some of its issues, already identifiable in Hume's main essay on criticism.

UNIT OF RESEARCH

"Of the Standard of Taste" (Hume [1757] 1993), published in *Four Dissertations* (1757) together with the related "Of Tragedy," is Hume's only and last word on criticism, completing the plan laid out almost twenty years earlier (Hume [1739–40] 1961, 1:2). In his tree of knowledge, criticism is midway between morals and politics, and between its two distinct historical influences: philosophical sentimentalism and social characterisations of taste in the first three-quarters of the seventeenth century.

As Shaftesbury ([1714] 1999, 179–80) had done before him, Francis Hutcheson, in the first book of *An Inquiry into the Original of Our Ideas of Beauty and Virtue* (1725), identifies among other inner senses (Hutcheson [1725] 2008, 25) "a natural power of perception or sense of beauty in objects, antecedent to all custom, education or example" (ibid., 70). Hume unifies Hutcheson's inner senses into a single sense responsible for both moral and aesthetic beauty (Hume [1739–40] 1961, 2:312). From this beauty he derives two complementary

¹⁰ For the first aspect, see "Of the Delicacy of Taste and Passion" (Hume [1741–42] 1993). For the second, see "Of the Rise and Progress of the Arts and Sciences" (Hume [1742b] 1993), "Of Refinement in the Arts" (Hume [1752] 1993), and Cunningham 2004.

¹¹ See how Kant "dispose[s] thoroughly of the Humean doubt" in the *Prolegomena* (Kant 2004, 62).

characteristics: first, in relation to its causes it is a mode, a dispositional unity of the ideas produced through the imagination by the impressions of an object (ibid., 1:24); second, in relation to self it is a calm passion, which those ideas produce when their reflective impression on the inner sense (sentiment) is accompanied by cognitive pleasure (ibid., 2:24–5). Since pleasure is the defining characteristic of beauty, criticism is the empirical science that studies its causes from its observable effects, that is, judgements of taste.¹²

On the other hand, it is the politics of taste that drives the discourse from the very beginning, as Joseph Addison’s article for the *Spectator* (no. 409, 19 June 1712) shows:

Gratian very often recommends the fine taste, as the utmost perfection of an accomplished man. As this word arises very often in conversation, I shall endeavour to give some account of it, and to lay down rules how we may know whether we are possessed of it, and how we may acquire that fine taste of writing, which is so much talked of among the Polite World. (Addison [1712] 1854, 6:315)

This quotation refers to Baltasar Gracián’s *El Oráculo manual y arte de prudencia* (1647), anonymously translated into English from the French translation as *The Courtiers Manual Oracle; or, The Art of Prudence* (London 1685). While Pierre Bourdieu (1984) reduces taste to power and George Dickie (1996) chooses to ignore its political dimension altogether, Hans-Georg Gadamer correctly points out, in *Truth and Method*, how from Italian courtly ideals and humanistic conceptions of *Bildung* (cultivation) *el gusto* develops into a distinctive “mode of knowing,” structuring the good society (Gadamer [1989] 2004, 32). In this tradition, the bourgeois public sphere that emerges in Britain after the Restoration institutes criticism with a censoring function of morals and taste (Addison [1711] 1854, 5:41) based on the authority of public opinion to which common sense lends philosophical justification (Habermas 1989, 93).

While philosophical legitimation and the political function of criticism pull Hume’s theory of taste in opposite directions, the declared task of the “Standard of Taste” is to avert the consequences of subjective relativism: “It is natural for us to seek a *Standard of Taste*; a rule by which the various sentiments of men may be reconciled; at least a decision afforded confirming one sentiment, and condemning another” (Hume [1757] 1993, 136). Hume resolves the problem by shifting it from epistemology to methodology and placing at the centre of criticism the ideal critic (Levinson 2002; *contra* Ross 2008), moulded on Addison’s “ideal spectator” (Pollock 2007). Equipped with a tuned sensorium, technical knowledge, and the correct socio-economic position (Hume [1757] 1993, 147), the ideal critic brings together sentimentalist theory and criticism’s political function, applying criticism both to itself (as a subject of critical evaluation and metacritical inquiry) and to the socio-historical milieu

¹² “Morals and criticism are not so properly objects of the understanding as of taste and sentiment. Beauty, whether moral or natural, is felt, more properly than perceived. Or if we reason concerning it, and endeavour to fix its standard, we regard a new fact, to wit, the general taste of mankind, or some such fact, which may be the object of reasoning and enquiry” (Hume [1748] 1975, 165).

that shaped it and the public taste that it shapes. If not interpreted literally as a physical person, but only as a situated arrangement of these heterogeneous elements, Hume's ideal critic is an "experimental system" which is criticism's "smallest integral working unit of research."

Rheinberger's dual concept of "epistemic thing" and "technical object" enables us to describe the structure of this situated experimental system. The task of the ideal critic is the aesthetic evaluation of objects. The process carried out in the experimental system begins from "that hardly definable something for the sake of which the whole experimental enterprise exists and around which it revolves" (Rheinberger 2011, 312). Rheinberger calls such objects "mandatorily underdetermined" (Rheinberger 2004, 4) "epistemic things"; and in Hume the expression "aesthetic things" may serve to designate natural or artificial objects conducive of beauty. Since "beauty is no quality in things themselves: it exists merely in the mind which contemplates them" (Hume [1757] 1993, 136), aesthetic things are not simply physical objects such as artworks that criticism accurately evaluates, but rather psycho-physically embodied and socio-historically embedded entities (Margolis 1974) that criticism contributes to construct. On the other hand, the equivalents of Rheinberger's "technical objects" that "bound and confine the assessment of the epistemic things" (Rheinberger 2004, 4) need not be limited to textual form but may also include material objects, such as artworks. These "cultural objects" form the specific "canon" (Levinson 2002; Mothersill 1989) with which experimental systems in criticism operate.

As the distinction between epistemic thing and technical object is for Rheinberger purely functional within the experimental system, so is for Hume the distinction between aesthetic thing and cultural object. More importantly, in relation to a posteriori paradigms in criticism, Hume does not philosophically distinguish criticism from art. Both are determined by the same sentiment of beauty and "rules of art," a probable association of sensorial impressions and sentiment discovered a posteriori "by genius *or* observation" (Hume [1757] 1993, 138, emphasis added).¹³ Just as Rheinberger (1997, 138) dissolves the distinction between context of discovery and context of justification, so Hume dissolves the hierarchical relations between art and criticism, opening both up to new possibilities through hybridisation. This in turn resolves the relation between artwork and theory from within, making criticism not only a tacit dimension but an integral component of the production and presentation of the artwork (Borgdorff 2011, 53–54). Further, by changing the relation between artwork and theory, experimental criticism avoids the difficulties of institutional theories variously recurring in philosophy of art, such as George Dickie's "artworld systems" (Dickie 1984).

13 "Genius" does not confer on the artist any special cognitive status. Hume's loose use follows Dubos's *Reflexions critiques* and simply indicates a higher degree of understanding, delicacy, or cultivation. It is quite different from Kant's definition: "Genius ... is a talent for *producing* that for which no determinate rule can be given, not a predisposition of skill for that which can be learned in accordance with some rule" (Kant 2000, 186, typography regularised, emphasis added; see also 219).

DIFFERENTIAL REPRODUCTION

Having described the structure of Hume's smallest integral working unit of criticism, I will now examine the functionality of the ideal critic's constitutive elements: the aesthetic thing, grounded on sentiment of beauty, and the cultural object, grounded on aesthetic judgement.

Statements of criticism of the form "X is beautiful" appear to be about objects and have a truth-value. For Hume, on the contrary, statements of criticism are of the form "X is pleasing" and are nothing more than expressions of feelings with no truth-value. By redirecting his enquiry in the "Standard of Taste" from critical judgements to ideal critics, Hume can transform expressions of feelings into statements of the form "C says that X pleases him or her." The ideal critic's statements thus become aesthetic judgements that are socio-historical "matters of fact" and have truth-value (Hume [1748] 1975, 25).¹⁴ The price for criticism becoming an empirical science is its conversion into metacriticism, a strategy adopted among others by Monroe Beardsley (1981, 1–4). While this analytic interpretation avoids more obvious contradictions (MacLachlan 1986, 18), it engenders a vicious circle between criteria for judging the critics and their critical judgements, as argued by Peter Kivy (1967).

This would be the case had Hume built a hierarchy of judgements (*contra* Levinson 2002) or separated criticism from other cognitive or social activities, but the complexity of the ideal critic and its openness to other systems prevents Kivy's vicious circle. The key lies in the relation of judgement and sentiment, a "reflective equilibrium," to use John Rawls's later expression (Rawls 1971, 20), but first described in "The New Riddle of Induction" by Nelson Goodman:

This looks flagrantly circular. I have said that deductive inferences are justified by their conformity to valid general rules, and that general rules are justified by their conformity to valid inferences. But this circle is a virtuous one. The point is that rules and particular inferences alike are justified by being brought into agreement with each other. A rule is amended if it yields an inference we are unwilling to accept; an inference is rejected if it violates a rule we are unwilling to amend. The process of justification is the delicate one of making mutual adjustments between rules and accepted inferences; and in the agreement achieved lies the only justification needed for either. (Goodman [1954] 2002, 322)

In the same way, ideal critics negotiate "mutual adjustments" between judgements and sentiments by recursive comparisons to the point of agreement—subjectively between sentiment and judgement and intersubjectively between judgements.¹⁵

¹⁴ "Matter of fact" is Hume's technical term for the probably true propositions of empirical science and history, as distinguished from the certain propositions of logic and from unjustified opinion. While this threefold distinction follows the *Port-Royal Logic* (1662), its strategic use in Hume should be brought in relation with Robert Boyle's experimentalism (Shapin and Schaffer 1985, 22) in the context of his general critique of Newton's apriorism (for an overview of Hume's Newtonianism / anti-Newtonianism debate, see Schliesser [2008]). Boyle's "matter of fact" also clarifies the relation of Hume's aesthetic judgements and Rheinberger's "facta" (see next section).

¹⁵ One may say that Goodman is further elaborating on Hume's critique of induction in the *Treatise*: "It is evident, that when an object is attended with contrary effects, we judge of them only by our past experience, and always consider those as possible, which we have observed to follow from it. And as

“The caprices of mode and fashion” (Hume [1757] 1993, 139) present a specific challenge to reflective equilibrium in criticism. On one side, sentiment is non-rational and any idiosyncratic judgement is legitimate; on the other, fashion is a pervasive socio-historical phenomenon that can pervert sentiment¹⁶ and that critics effectively reinforce because of the normative component present in every aesthetic judgement. It would follow that scientific reflective equilibrium would be indistinguishable from that established by social convention, so that the dialectic between aesthetic thing and cultural object is thrown into crisis. However, assuming human nature as relatively constant and cultural heritage as generally incremental, Hume can make the variability of aesthetic judgements mainly depend on varying socio-historical contexts and avert the risk of stasis by extending experimentation to universal history¹⁷ and applying to it the “Rules by Which to Judge of Causes and Effects.”¹⁸ In a similar way for Rheinberger, the “fragmentation of science into systems” produces in each system a variety of “internal times” marked by “continuing cycles of nonidentical reproduction”: the more “difference” (new findings) an experimental system produces, the further that system is from stasis and the more it is successful in its field (Rheinberger 1997, 68–69).

The characteristics of Hume’s ideal critic guarantee that aesthetic judgement is grafted on sentiment while their plurality offers a control of its ideal

past experience regulates our judgment concerning the possibility of these effects, so it does that concerning their probability; and that effect, which has been the most common, we always esteem the most likely. Here then are two things to be considered, viz. the reasons which determine us to make the past a standard for the future, and the manner how we extract a single judgment from a contrariety of past events” (Hume [1739–40] 1961, 1:134). Conceptual differences notwithstanding, the standard of taste and the standard of induction both depend on Hume’s law of causality and principles of cognition, and in both cases “standard” simply designates a regularity of pattern emerging from observation. Its respective function however, is somehow reversed: regarding judgements about matters of fact, it limits to probability inductive inferences about unobserved or future phenomena; regarding aesthetic judgements, it extends the application of induction, showing that the variety of sentiments is limited and does not imply arbitrariness.

16 For a perversion of natural sentiment, see for example, Hume’s *Enquiry concerning the Principles of Morals* (Hume [1751] 1975, 270).

17 “Mankind are so much the same, in all times and places, that history informs us of nothing new or strange in this particular. Its chief use is only to discover the constant and universal principles of human nature, by showing men in all varieties of circumstances and situations, and furnishing us with materials from which we may form our observations and become acquainted with the regular springs of human action and behaviour. These records of wars, intrigues, factions, and revolutions, are so many collections of experiments, by which the politician or moral philosopher fixes the principles of his science, in the same manner as the physician or natural philosopher becomes acquainted with the nature of plants, minerals, and other external objects, by the experiments which he forms concerning them” (Hume [1748] 1975, 83–84).

18 In particular, rules 5 and 6: “(5) There is another principle, which hangs upon this [sc. “same cause always produces the same effect”], viz. that where several different objects produce the same effect, it must be by means of some quality, which we discover to be common amongst them. For as like effects imply like causes, we must always ascribe the causation to the circumstance, wherein we discover the resemblance. (6) The following principle is founded on the same reason. The difference in the effects of two resembling objects must proceed from that particular, in which they differ. For as like causes always produce like effects, when in any instance we find our expectation to be disappointed, we must conclude that this irregularity proceeds from some difference in the causes” (Hume [1739–40] 1961, 1:171). A long genealogy connects these rules backwards to the Aristotelian method of division in the *Parts of Animals* (Aristotle 1984b, 1:994–96) through Francis Bacon’s “method of analysis by exclusion” (Sessions 1990, 141) and forwards, to John Stuart Mill’s *Method of Agreement and Difference* (Mill [1843] 1974, “Of the Four Methods of Experimental Inquiry”) and contemporary experimental biology (Weber 2005, 121; 2012).

status. Thus, the “true standard of taste and beauty” that consists in the “joint verdict” of the ideal critics (Hume [1757] 1993, 147) indicates synchronically the relation between embodied sentiment and embedded judgement and diachronically the relation between new aesthetic experiences and cultural tradition. When, on the other hand, aesthetic judgements disconnect from sentiment, the standard ceases to be a dynamic relation, becoming a socio-cultural norm for imitation. In the absence of new aesthetic experiences, ideal critics lose their function and the experimental system “dissipates” (Rheinberger 2008, 20:25). Thus, the description of the history of science as a museum of abandoned experimental systems may also apply to the history of criticism.

Before examining the sentiment of beauty as Hume’s equivalent of the trace, an important difference should be noted concerning the “experimental conditions” of reproduction in the experimental system. Rheinberger finds them in the “transcendent immanence” of technology,¹⁹ the laboratory equipment kept in a “hypo-critical” epistemic state and at the limit of its technical capacity (Rheinberger 2008). Hume relies instead on the uniformity and constancy of human nature: on one side, on the inner sense, ensuring *ceteris paribus* that the sentiment of beauty felt by each critic is commensurable; and, on the other, on sympathy, ensuring that sentiment is communicable through aesthetic judgement. Both Rheinberger and Hume construct their experimental systems as in Latour’s hybrid “double separation,” in which “Nature is transcendent but mobilizable (immanent)” and “Society is immanent but infinitely surpasses us (transcendent)” (Latour 1993, 41–43, 138–42); but mediation proceeds in opposite directions: Rheinberger technologises Nature, while Hume naturalises Society. Paradoxically, to some extent, these non-modern features (Aristotelian and humanistic)²⁰ profile the ideal critic as a paradigm candidate for criticism after modernity.

TRACE

Rheinberger’s “material” constructivism (Rheinberger 2010, xiv–xv) and historical epistemology come the closest²¹ to Hume’s sceptical realism (Wright 1983; Read and Richman 2000) and naturalised epistemology (Quine 1969, 75) on the notion of trace. For both, the task of science is not theoretical explanation but empirical representation, where representation does not semantically refer to an external reality and experimental systems are not the medium of that representation. Rather, reality is constructed as a “second order concept” from intersecting representations of different experimental systems (Rheinberger

19 “Immanente Transzendenz” (Rheinberger 2008, 39:35). Here Rheinberger quotes with approval Edgar Wind’s *Experiment and Metaphysics* (1934) but the oxymoronic expression “transcendent immanence” does not appear in that book. Unlike Kant, Wind does not draw a sharp distinction between “transcendent” and “transcendental” (Wind 2001, 48–49), and “transcendental immanence” may be more appropriate to Wind’s “concrete systematic study of art” (konkrete Kunstwissenschaft) (Latella 2009). Particularly relevant to Rheinberger’s experimental systems are Wind’s “investigative instruments,” summarised in Latella (2009, 9n53).

20 Cf. for instance the discussion on Hume’s “fluid self” contrary to my interpretation in Seigel (2009, 45–50).

21 For a possible intersection, see van Fraassen (1980; 1989; 2008).

2000, 245). Thus, strictly speaking, there is no input; something, the data, originates outside and then enters the system, but only by means of its operative tracing.²² Epistemic things are transformed into technical objects in a series of recursive “writings”: first the inscription of traces, then the transcription of traces into facta (data) and finally the translation of facta into models (Lenoir 1998). Hume’s formation of ideas²³ is equivalent to Rheinberger’s recursive writing: “impressing” from perception (physical stimuli) to sensation becomes “copying” or “representing” (Hume [1739–40] 1961, 1:11) from sensation to idea, and “reflecting” from idea to sensation. At each stage, the causal determination of the “genuine index” (Peirce [1896–99] 1955, 108; see the “mark” in Hacking 1992, 44) progressively and irreversibly gives way to semantic complexity and expressiveness, so that reflexive impressions, such as the sentiment of beauty, are already less a product of simple impressions than of habit and belief. The last extension of that same writing, where individual aesthetic judgements are represented in public discourse, is the cultural object.

It is now possible to explain how Jacques Derrida’s “arche-writing” especially connects Hume and Rheinberger. Hume constructs the aesthetic difference consistent with the relation between moral feeling and moral judgement.²⁴ The sentiment of approbation felt by the inner sense is *at the same time* the propositional content of moral and aesthetic judgements, and the entire natural-cultural hybrid of the ideal critic hinges on the instability of that association. In Derrida’s terms, Hume’s sentiment is a trace, the privileged term in the sentiment-judgement dichotomy that needs “erasing” (Derrida 1978, 403) and characterised by spacing and temporisation (Derrida 1982, 9). Sentiment is spaced in that it always refers to a system of differences, of aesthetic values that ensure the correct feeling is to be felt.²⁵ On the other hand, aesthetic judgements semantically depend on the sentiment they have

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- 22 “They [sc. material signifying units] are usually termed data, but they should be rather addressed as facta in the sense of primary products of the research process. They acquire the horizon of their possible meaning within spaces of representation in which material traces and inscriptions—graphemes in a very general sense—become recorded, articulated, dislocated, reinforced, marginalized, and substituted” (Rheinberger 2004, 6).
- 23 “An impression first strikes upon the senses, and makes us perceive heat or cold, thirst or hunger, pleasure or pain of some kind or other. Of this impression there is a copy taken by the mind, which remains after the impression ceases; and this we call an idea. This idea of pleasure or pain, when it returns upon the soul, produces the new impressions of desire and aversion, hope and fear, which may properly be called impressions of reflexion, because derived from it. These again are copied by the memory and imagination, and become ideas; which perhaps in their turn give rise to other impressions and ideas. So that the impressions of reflexion are only antecedent to their correspondent ideas; but posterior to those of sensation, and derived from them” (Hume [1739–40] 1961, 1:17).
- 24 “To have the sense of virtue, is nothing but to feel a satisfaction of a particular kind from the contemplation of a character. The very *feeling* constitutes our praise or admiration. We go no farther; nor do we enquire into the cause of the satisfaction. We do not infer a character to be virtuous, because it pleases: But in feeling that it pleases after such a particular manner, we in effect feel that it is virtuous. The case is the same as in our judgments concerning all kinds of beauty, and tastes, and sensations. Our approbation is implied in the immediate pleasure they convey to us” (Hume [1739–40] 1961, 2:179).
- 25 “Some species of beauty, especially the natural kinds, on their first appearance, command our affection and approbation; and where they fail of this effect, it is impossible for any reasoning to redress their influence, or adapt them better to our taste and sentiment. But in many orders of beauty, particularly those of the finer arts, it is requisite to employ much reasoning, in order to feel the proper sentiment; and a false relish may frequently be corrected by argument and reflection. There are just grounds to conclude, that moral beauty partakes much of this latter species, and demands the assistance of our intellectual faculties, in order to give it a suitable influence on the human mind” (Hume [1751] 1975, 173).

already displaced, and therefore sentiment is also temporised, indefinitely deferred to the convergence of judgements on a standard of taste.

Hume relies here on the embodiedness of sentiment and the embeddedness of judgement, but how do sentiment and judgement form a system in the first place and how does writing sustain that system over time? Gilles Deleuze clearly recognises the problem. Reversing the Kantian question, *Empiricism and Subjectivity* asks how the subject (human nature) is constituted within the given (Deleuze 1991, 22). In Hume-Deleuze there is no “pre-existing subject” and “empirical subjectivity is constituted in the mind under the influence of the principles affecting it” (ibid., 29). These principles form a “network of tendencies” (ibid., 25) that transforms by habit and belief the multiplicity of ideas into “what we call our Self” (Hume [1739–40] 1961, 1:238). This bundle theory of the self is a system in which natural, psychological, and social principles are identical (Deleuze 1991, 111–12) and entirely immanent, so that “nothing is ever transcendental” (ibid., 24), including the fiction of the subject. In a celebrated passage, Hume compares the mind to “a kind of theatre, where several perceptions successively make their appearance; pass, re-pass, glide away, and mingle in an infinite variety of postures and situations” (Hume [1739–40] 1961, 1:239–40).

When he describes experimental systems as “spaces of representation,” Rheinberger (1995, 114–15) too uses a theatrical analogy. Introducing the trace, he distinguishes three meanings that the German word for “representation” (*Darstellung*) synthesises: substitution (*Stellvertretung*), embodiment (*Verkörperung*), and realisation (*Realisierung*). Theatre actors are both the substitution of other actors performing the same role and the embodiment of a fictional character in a play (Rheinberger 2000, 235–36). Further, in this differential reproduction the actor’s enactment constitutes his or her fictional character as a quasi-subject, at least partially autonomous from the fictional character and from the actor. Rheinberger’s meanings of representation are also present in Hume, where substitution is realised by the copy principle at the level of impressions, and embodiment at the level of particular configurations of ideas by the “principles of union or cohesion” (Hume [1739–40] 1961, 1:21): resemblance, contiguity, and cause and effect. Finally, but without solution of continuity, the operations of association do not just put ideas together but also change their intensity (“liveliness”),²⁶ so that impressions and sentiments are “erased” while new properties emerge (“beliefs”).²⁷ As for Rheinberger, so for

26 “The distinct boundaries and offices of *reason* and of *taste* are easily ascertained. The former conveys the knowledge of truth and falsehood: the latter gives the sentiment of beauty and deformity, vice and virtue. The one discovers objects as they really stand in nature, without addition and diminution: the other has a productive faculty, and gilding or staining all natural objects with the colours, borrowed from internal sentiment, raises in a manner a new creation” (Hume [1751] 1975, 294).

27 “The first time a man saw the communication of motion by impulse, as by the shock of two billiard balls, he could not pronounce that the one event was connected: but only that it was conjoined with the other. After he has observed several instances of this nature, he then pronounces them to be connected. What alteration has happened to give rise to this new idea of connexion? Nothing but that he now feels these events to be connected in his imagination, and can readily foretell the existence of one from the appearance of the other. When we say, therefore, that one object is connected with another, we mean only that they have acquired a connexion in our thought, and give rise to this inference, by which they become proofs of each other’s existence: A conclusion which is somewhat extraordinary, but which seems founded on sufficient evidence” (Hume [1748] 1975, 75–76, italics removed).

Hume; reality is not what is left after purifying representations from experimental conditions, but what is produced by the socio-historical process of experimentation within and across experimental systems.

EXPERIMENTAL CULTURE

The last characteristic to be examined is how experimental systems form together “ensembles.” Rheinberger calls them “experimental cultures” and uses them to study the formation of scientific fields and disciplines.²⁸ Although he expresses caution about extending concepts from evolutionary biology, experimental systems show strong similarities to heredity in biological species, notably in the vertical transmission within experimental systems and in the horizontal transmission within cultures of experimentation, in which the technical object acts as replicator.²⁹

In support of his constructive empiricism, van Fraassen had already reversed the argument that “realism is the only philosophy that does not make the success of science a miracle” (Putnam 1975, 73), arguing that scientific theories are not successful because they are true but, instead, are empirically adequate because they have organically evolved in a process of scientific selection (van Fraassen 1980, 40). But Rheinberger goes further by constructing a historical-epistemic model of scientific research that reduces scientific communities to collectives (Latour 1993, 4) and excludes other contributing factors to scientific selection and epistemic success. Experimental systems are an epistemic “*machine* for making the *future*” (Rheinberger 1998, 288, emphasis added), but they also organise the social, economical, and institutional conditions of that production. They depend for this on other spheres of communication and interaction and compete against one another on both epistemic and social grounds, by means of which they succeed or fail in the process of scientific selection.³⁰ Therefore, it appears that Rheinberger’s material constructivism, coupled with strong relativism, also requires experimental systems to be autonomous.³¹ This raises a number of questions concerning the relation between

28 “Conjunctures and ramifications of experimental systems can lead to ensembles of such systems, or experimental cultures. Conjunctures and ramifications themselves are, as a rule, the result of unprecedented events within experimental systems, events that are often connected to the introduction of new technologies of representation. In the last instance, it is such experimental cultures that determine the contours of scientific disciplines, their emergence as well as their historical obsolescence. The concept of experimental culture as an articulated ensemble of experimental systems should allow to write histories of research fields without the burden of a disciplinary history. But this is not only a historiographical issue. The more basic argument is that experimental science does derive its dynamics less from the shaping of disciplinary boundaries and their social solidification than from the digressions and transgressions of smaller units below the level of disciplines in which knowledge is not yet labelled and classified, and in which new knowledge forms can take shape” (Rheinberger 2004, 6).

29 For an overview of cultural evolutionism, see Wheeler, Ziman, and Boden (2002). Sporadic examples of evolutionary interpretation of deconstruction are Spolsky (2002); Milburn (2003); Smith (2012).

30 See Hempel ([1978] 2001, 370). Epistemic success is the system’s “capacity to produce differences that count as unprecedented events and keep the machinery going” (Rheinberger 1997, 180). On the self-referentiality of experimental systems, see Bloor (2005, 309). For a further development of experimental cultures in sociology of knowledge, see “epistemic cultures” in Knorr Cetina (1999, 8).

31 Richard Burian (1995; 1997) convincingly reframes the trace as the production of variation in the evolution of complex systems. The questions then are whether experimental systems have the critical degree of complexity that allows autonomy and, conversely, whether enough synchronic variety and diachronic

Rheinberger's experimental systems and experimental cultures or society at large. For instance, if experimental systems only perform operations that maximise epistemic gain, then they are regulated by a dialectics of means (technical object) to ends (epistemic thing) and their autonomy would merely be negative. In this way, however, moral judgements about the outcomes of experimental systems can only be formulated in society as external limitations of their autonomy and hence of their epistemic function. Although the opposition of positive and negative autonomy in experimental systems³² exceeds our present subject matter, those questions become all the more pressing in criticism, where the sociological component more significantly affects its experimental systems, the critics.

Strong relativism is also a requirement for ideal critics; but whereas the technoscientific component determines the evolution of Rheinberger's experimental systems as well as the quality and increase of knowledge they produce, for Hume criticism is driven by a form of immanent ethics.³³ Only if critics are fully integrated in society can they perform their socio-historical function. This is not to say that Hume shares the optimism of his friends Turgot and Condorcet, as he rejects both historical teleology³⁴ and determinism.³⁵ Progress, stasis, or regress describe instead trajectories of socio-historical systems, such as taste, in which all individuals are immersed. In "Of the Rise and Progress of the Arts and Sciences," Hume argues that science and art flourish last, after social, political, and economical conditions are ripe, and wither first when they change, but only passions ultimately determine individual and hence collective behaviours (Hume [1742b] 1993, 67).³⁶

discontinuity is found in the history of science. For cultural evolutionism in epistemology, see Hull (1988). On discontinuity in Bachelard's philosophy of science compare Rheinberger (2005) and Young (2004, 84–89).

- ³² Isaiah Berlin distinguishes negative freedom (which addresses the question "What is the area within which the subject—a person or group of persons—is or should be left to do or be what he is able to do or be, without interference by other persons?") from positive freedom (which addresses the question "What, or who, is the source of control or interference that can determine someone to do, or be, this rather than that?" (Berlin 1969, 121–2). The de facto opposition he traces can be easily extended to autonomy.
- ³³ For the dependence of virtue on passion, see Hume ([1751] 1975, 277); Russell (2006). In the *Treatise*, philosophy in the literal sense of "love of knowledge" is assimilated to theoretical curiosity and compared to hunting: "I shall observe, that there cannot be two passions more nearly resembling each other, than those of hunting and philosophy, whatever disproportion may at first sight appear betwixt them" (Hume [1739–40] 1961, 2:159) and gaming "we may consider the passion of gaming, which affords a pleasure from the same principles as hunting and philosophy" (Hume [1739–40] 1961, 2:160). For "theoretical curiosity," see Zuss (2012); for curiosity and the birth of modern science, see Blumenberg (1985). For the notion of "immanent ethics" in Deleuze, here extended to Hume-Deleuze, see Jun (2011, 95).
- ³⁴ See part two of Hume's *Dialogues concerning Natural Religion* (Hume [1779] 1991, 97–113); for its likely antecedent, see Voltaire's "S'il y a un Dieu" (Whether there is a God), the second chapter of the *Treatise on Metaphysics* (written 1734–37) (Voltaire 1784, 19–33); for the seventeenth-century "intelligent design" debate, see Roger (1997, 331–33); for the modern "intelligent design" debate, see Dawkins ([1986] 1996).
- ³⁵ See Badía Cabrera (2001, 117). For example, Hume discusses classical revolutions and the possibility of universal decay in "Of the Populousness of Ancient Nations" ([1742a] 1993).
- ³⁶ For evolutionism in Hume see Dennett (1995, 28–34); for his influence on Darwin, see Huntley (1972); for his influence on Lamarck, see Sloan (1999); for Lamarckism in cultural evolution, see Kronfeldner (2007); *contra* Mesoudi (2011); in support of both Darwinism and Lamarckism in cultural evolution, see Hodgson and Knudsen (2006; 2010).

In particular, Hume identifies the passion causing the critic to ascertain true aesthetic sentiment with theoretical curiosity. Curiosity is both an epistemic virtue connecting subjective learning to moral sentiment and a social virtue connecting intersubjective understanding to moral sentiment via sympathy (Hume [1739–40] 1961, 2:77–78).³⁷ Here “It is natural for us to seek a Standard of Taste” clearly resonates with Aristotle’s “All men by nature desire to know” (Aristotle 1984a, 2:1552).

In Kant, a tension line divides sense from sensibility, and their harmony is the a priori condition for the “subjectively universal validity” of aesthetic judgement (Kant 2000, 100). In contrast, Hume’s Pleasure Principle creates an intensity gradient between one critic’s truthfulness to sentiment and her or his agreement with other critics (cf. Deleuze 1991, 44), thus giving to aesthetic judgement an indefinite range of possibilities. But although all aesthetic judgements are valid as expression of a sentiment, not all of them are correct. The “Polite and judicious conversation” in “Of the Delicacy of Taste and Passion” (Hume [1741–2] 1993, 10) represents neither a moral ideal of the critic nor a rhetorical apparatus for social validation but rather the “experimental culture” producing the standard of taste. As (metastable) reflective equilibrium, one standard of taste or another can always be identified in any experimental culture; but at the same time, the changing of standards shows a characteristic tendency of that experimental culture.³⁸ The virtue of curiosity operates in the gap between prevailing aesthetic judgements and the limit of sentiment, ensuring the critic’s continuing “production of difference.”³⁹ As Michel Foucault describes it:

Curiosity is a vice that has been stigmatized in turn by Christianity, by philosophy, and even by a certain conception of science. Curiosity, futility. The word, however, pleases me. To me it suggests something altogether different: it evokes “concern”; it evokes the care one takes for what exists or could exist; a readiness to find strange and singular what surrounds us; a certain relentlessness to break up our familiarities and to regard otherwise the same things; a fervor to grasp what is happening and what passes; a casualness in regard to the traditional hierarchies. I dream of a new age of curiosity. (Foucault [1997] 2000, 325)

That age may not be entirely new, as my cross-reading of Rheinberger’s epistemology of experimental systems with Hume’s science of criticism has tried to show; nor does the 2002 crisis of criticism necessarily mark its beginning.

37 Setting aside technicalities and limitations of virtue epistemology (for a recent overview, see Brady and Pritchard [2003]), epistemic virtues can be broadly defined as “qualities or character traits thought to be truth-conducive” (Montmarquet 1987, 482). Virtue epistemology is consistent with the Hume-Deleuzian subject outlined before; see Cohen (2000, 115).

38 In the literature, the relation of Hume and Mathematics is mostly ignored. However, discussing differentials in the *Encyclopédie* entry on “limit,” d’Alembert already says that: “One magnitude is said to be the limit of another magnitude when the second may approach the first within any given magnitude however small, although the first magnitude may never exceed the magnitude it approaches” (quoted in Suisky 2009, 140n101, italics removed). For an ethical interpretation of Kant’s ideal, see Hauskeller (2003).

39 For “creative difference” in contrast to Derrida’s “analytic difference,” see Deleuze (1994, 37–51), further elaborated as “desiring-production” in Deleuze and Guattari (1984).

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Nevertheless experimental systems in general, and criticism in particular, remain dependant on the society in which they are embedded; and curiosity, or critique, as Foucault also refers to this virtue,⁴⁰ still affords to criticism its only antidote against conformism and irrelevance.

40 “Critique only exists in relation to something other than itself: it is an instrument, a means for a future or a truth that it will not know nor happen to be, it oversees a domain it would want to police and is unable to regulate. . . . [Critique] brings not only some stiff bit of utility it claims to have, but also that it is supported by some kind of more general imperative—more general still than that of eradicating errors. There is something in critique which is akin to virtue” (Foucault 2007, 42–43). The criticism/critique distinction remains unclear in Butler (2002) or is reduced to historical periodisation in Rogoff (2006). For the impossibility of the task, see Benjamin (1996, 259); De Man (1983, 80). For Derrida’s aporetic ethics, see Zlomislić (2007).

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