

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/336059300>

Strata. Geophilosophical Notes on Sérgio Costa

Preprint · May 2016

DOI: 10.13140/RG.2.2.24719.94884

CITATIONS

0

READ

1

1 author:



Alexander Gerner

University of Lisbon

43 PUBLICATIONS 12 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Philosophy of Cognitive Enhancement [View project](#)



Cognitive Foundation of the Self [View project](#)

WHERE ARE WE NOW?

EARTH, 2016: THE YEAR THE PROFESSIONAL ORGANIZATION RESPONSIBLE FOR DEFINING THE EARTH TIMESCALE –THE INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS), DECIDED THE CHANGE IN THE ACTUAL OFFICIAL DESCRIPTION OF EARTH-TIME, LEAVING THE HOLOCENE BEHIND, A PERIOD STARTING AFTER THE LAST GREAT ICE AGE 11,700 YEARS AGO. MANY SCHOLARS TODAY ADVOCATE AN "ANTHROPOCENE" -OF ANTHROPOLOGICAL, "MAN" INFLUENCED EARTH-TIME, IN WHICH MAN IS –AMONG OTHER LONG LASTING EFFECTS- CAUSALLY PART OF MASS EXTINCTION OF ANIMAL AND PLANT SPECIES, POLLUTES THE OCEANS AND CHANGES THE CLIMATE AND ATMOSPHERE, THUS TRANSFORMING EARTH AS ITS NATURAL HABITAT. THIS BOOK TAKES UP ABSTRACT GEOLOGY AS A COMPLEMENTARY PERSPECTIVE TO THINK STRATA AS A CONCEPT DERIVED FROM GEOLOGY AND MADE OPERATIONAL IN THE HUMAN REALM IN ARTS AND KNOWLEDGE DEVELOPMENT. MORE THAN ANYTHING ELSE- THIS BOOK IS A SEVERAL YEARS LONG ENCOUNTER OF THE GERMAN THEATRE-MAKER AND PHILOSOPHER ALEXANDER GERNER WITH THE MOZAMBIQUE BORN VISUAL ARTIST SÉRGIO COSTA, BOTH BASED IN THE PORTUGUESE CAPITAL AND CULTURAL CONTACT ZONE LISBON. IN STRATA -GEOPHILOSOPHICAL NOTES ON SÉRGIO COSTA ALEXANDER GERNER PRESENTS AN ATLAS OF FRIENDSHIP BETWEEN PHILOSOPHY, SCIENCE, ART AND HUMAN TECHNOLOGY BY TAKING AS A STARTING POINT AN OBSERVATIONAL PROGRAM PRESENTED IN THE PAINTING SERIES "STRATA" AND OTHER WORKING IMAGES OF THE ARTIST SÉRGIO COSTA.

*

Alexander Gerner is a theatre-maker and currently a Post-Doc researcher in philosophy at the Center for Philosophy of Science of the University of Lisbon (CFCUL) with a FCT grant on >Philosophy of Cognitive Enhancement< (SFRH/BPD/90360/2012). He is head of the research line >Philosophy of Human Technology<. In 2012 he received his PhD in History and Philosophy of Science at the Science Faculty of the University of Lisbon with a thesis on >Philosophical Investigations of Attention<. He is author of theater-plays such as >Trance< (1997), >Zap Through my Life< (1999), >Cut< (1999), >Os Cães< (2011) and co-editor of books such as „Abduction and the Process of Scientific Discovery“ (Lisbon 2007); „Diagrammatology and Diagram Praxis“ (London 2010). „Altered Self and Altered Self Experience“ (2014).



STRATA

ALEXANDER GERNER

ALEXANDER GERNER

STRATA



GEOPHILOSOPHICAL NOTES
ON SÉRGIO COSTA



STRATA - Geophilosophical Notes on Sérgio Costa is a publication of
„Philosophy of Human Technology“ (PhilHumTech) and “Science Art Philosophy Lab“ (SAPLAB)
of the CFCUL
with the support of the Portuguese Foundation for Science and Technology
FCT - Fundação para a Ciência e Tecnologia

All images and their photographic reproductions -if not indicated otherwise inside the book- are
authored by Sérgio Costa©, and are kindly given legal allowance for this publication
Cover-diagram adopted from: John Mac Culloch "Sketch of the Mineralogy of the Sky"

In: *Transactions of the Geological Society, 1815*

Typeface: Corbel and Goudy Old Face

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any
form, or by any means, electronic, mechanical, photocopying, recording or otherwise without prior
permission, in writing to the author.

Author, Concept and Coverdesign: Alexander Gerner

Bookdesign: Alexandra Padinha

Printed in Germany

FCT SFRH/BPD/90360/2012

FCT
Fundação para a Ciência e a Tecnologia
INSTITUTO DE INOVAÇÃO E CIÊNCIA



CFCUL
Centro de Filosofia das Ciências
da Universidade de Lisboa
<http://cfcul.fc.ul.pt>



SAP
LAB
Science Art Philosophy Laboratory

ARTEART PRIZE
LAGUNA 14.15

(=Philosophy of Human Technology; Vol.1)



Alexander Gerner

STRATA → Geophilosophical Notes on Sérgio Costa

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie;
detailed bibliographic data are available on the Internet at <http://dnb.dnb.de>

©2016 Alexander Gerner
Herstellung und Verlag:
BoD- Books on Demand, Norderstedt

ISBN 9783837075007

“A book is a paper strata” Robert Smithson

[1]

FROM FOSSIL SHARK TEETH AND GEOLOGICAL STRATA TO
BENEATH THE STRATA AND BEYOND THEM → 9

[2]

STRATA OF EXPERIENCE → 31

[3]

AGAINST AND BEYOND STRATA: TRYING TO CLIMB ABOVE THE
HISTORICAL AND KNOWLEDGEABLE STRATA IN ORDER TO
BREATHE → 49

[3.1] What does the *line of interstice* in Sérgio Costa’s painting
series “Strata” think it is? → 56

[3.2] *Strata* as a heuristic, abductive or absolute metaphor? → 63

[3.3] History (of science), anyone? Strata as knowledge
organization system → 67

[3.4] Stratified medicine or stratifying medicine? Strata between
techné and bios → 86

[3.4.1] Stratification Medicine: Strata as Big Data Integration → 89

[3.4.2] Stratification in pharmacogenomics: the strata of drug
response as example of strata *for* and *from* science → 94

[3.4.3] Preventive Stratification as Risk-assessment → 96

[4]

SÉRGIO COSTA: STRATA SERIES → 97

[4.1] Principles of Painting Strata → 98

[4.2] In the vapor of concepts: Clouds and sfumato → 99

[4.3] Notes on *>fucking hazziness<*: Sérgio Costa’s “Strata-
Sampling Puzzles” (2015) → 103

[4.3.1] Strata Working-Images as Observational Program → 104

[4.3.2] Experiments in matter behavior → 106

[4.3.3] Vapor of the events → 107

[4.3.4] Explosive geo-sampling → 111

[4.4] Strata: Grid & Map → 117

[4.4.1] Territory and Map - Thinking as reaching out for the non-
stratified → 119

[4.5] Strata of Affect (Parastrata) - The sky is not the limit: spacing
out → 122

[5]

FROM SEDIMENTATION AND STRATIFICATION TO FORGETTING
STRATA: STRATA AS HISTORICAL EROSION → 131

[5.1] Leaps in the Logic of the Earth → 133

[5.2] Eroded Strata → 136

[6]

"STRATA": UNGROUNDING AND VIRTUALIZATION IN
SÉRGIO COSTA'S 'WUNDERKAMMER' → 141

[6.1] Exhumation vs. Strata Relics: Virtualizing Plotholes
in 3D → 142

[6.2] #Ungrounding Strata# → 148

[6.3] Debris – gestures: Strata Rests → 150

[6.4] #Strata Wunderkammer# → 159

[7]

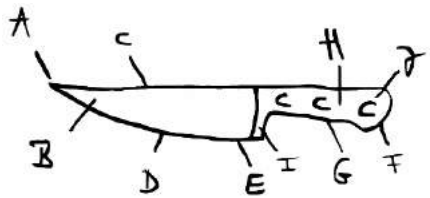
FLOATING HIGHER THAN STRATA? WHAT STAYS AND
PERSISTS? BECOMING ATMOSPHERIC STRATA? → 161

[7.1] You are here, now! What stays and persists in the changing
strata of earth of the Anthropocene today? → 163

[8]

LINES THAT DESIRE A >GROUNDING ONTO AN ATMOSPHERIC
BODY<. ON SÉRGIO COSTA'S STRATA SERIES >GROUND< (2015)
→ 173

(A) for Mariana
 B) who (C) makes me laugh (D-E) about
 >geophilosophical onions< (F)
 in their infinite-continuous (H-I) peel



→ „Gli domandai: – Non avete molto da arrotare, in questo paese?
 – Non molto di degno, – l’arrotino rispose. (...)
 – Non molto di degno, – disse. – Non molto che valga la pena. Non molto che faccia piacere.
 – Arroterete bene dei coltelli. Arroterete bene delle forbici, – dissi io.
 E l’arrotino: – Coltelli? Forbici? Credete che esistano ancora coltelli e forbici a questo mondo?
 E io: – Avevo idea di sì. Non esistono coltelli e forbici in questo paese?
 Scintillavano come bianco di coltelli gli occhi dell’arrotino, guardandomi,
 e dalla sua bocca spalancata nella faccia nera la voce scaturiva un po’ rauca,
 d’intonazione beffarda. – Né in questo paese, né in altri, – egli gridò. – Io giro
 per parecchi paesi, e sono quindici o ventimila le anime per le quali arrotò;
 pure non vedo mai coltelli, mai forbici.
 Dissi io: – Ma che vi danno da arrotare se non vedete mai coltelli, mai forbici?
 E l’arrotino: – Questo lo domando sempre loro. Che mi date da arrotare?
 Non mi date una spada? Non mi date un cannone? E li guardo in faccia, negli occhi,
 vedo che quanto mi danno non può chiamarsi nemmeno chiodo.
 Tacque, ora, smettendo anche di guardarmi; e si curvò sulla ruota, accelerò sul pedale,
 arrotò furiosamente in concentrazione per più di un minuto. Infine disse: – Fa piacere arrotare una
 vera lama.
 Voi potete lanciarla ed è dardo, potete impugnarla ed è pugnale. Ah, se tutti avessero sempre una
 vera lama!
 Chiesi io: – Perché? Pensate succederebbe qualcosa?
 – Oh, io avrei piacere ad arrotare sempre una vera lama! – l’arrotino rispose “
 Elio Vittorino (1966[1938-39]). *Conversazione in Sicilia*. Einaudi: Torino ←

¹ see: Hsu, Kuang-tai. (2009). "The path to Steno's synthesis on the animal origin of glossopetrae". *Memoirs*, 93; cf. Seifert, H. (1954). "Nicolaus Steno als Bahnbrecher der modernen Kristallographie". In: *Sudhoffs Archiv für die Geschichte der Medizin und der Naturwissenschaften* 38, 29-47; Hsu, Kuang-tai (1992). Nicolaus Steno and His Sources: The Legacy of the Medical and Chemical Traditions in His Early Geological Writings. Ph.D. Dissertation, University of Oklahoma; Herries Davies, G.L. (1995). "The Stenonian Revolution". In: G.Giglia, C. Maccagni, N. Morello (eds.) *Rocks, Fossils and History*, Florence: Edizioni Festina Lente, 45-49; Kardel, T. (1994). "Steno: Life, Science, Philosophy." *Acta Historica Scientiarum Naturalium et Medicinalium* 42, 1-159

² Steno later unfortunately abandoned his career as a medical antonomist and geologist/naturalist and become a catholic priest and bishop - even Leibniz at his time tried to convince him otherwise see: Waschkies, H.J. (1999). "Leibniz' geologische Forschungen im Harz". In: Herbert Breger & Friedrich Niewöhner (eds). *Leibniz in Niedersachsen*, Stuttgart, 187-212, cit. in: Bredekamp, H. (2004). *Die Fenster der Monate*. Gottfried Wilhelm Leibniz Theater der Natur und Kunst. Berlin: Akademie Verlag, 116 - 128 cf.: For a more unifying view of geological scientist and man of religious faith e.g. see: Cioni, R. (1962). "Niels Stensen: Scientist-Bishop. Trans. By Genevieve Camera. New York: Kenedy & Sons

³ Kircher, A. (1665). *Mundus subterraneus* (...) 2 Vol, Amsterdam cit in Bredekamp 2004, 116, cf. Kelber, K-P. & Okrusch, M. (2002). "Athanasius Kircher retrospektiv: Pendelschläge geowissenschaftlicher Erkenntnis, In: H.Beinlich, H.-J. Vollrath, K. Wittstadt (eds.). *Wege zu Athanasius Kircher*, Dettelbach 119-134

[1]

From fossil shark teeth and geological strata to *beneath* the strata and *beyond* them

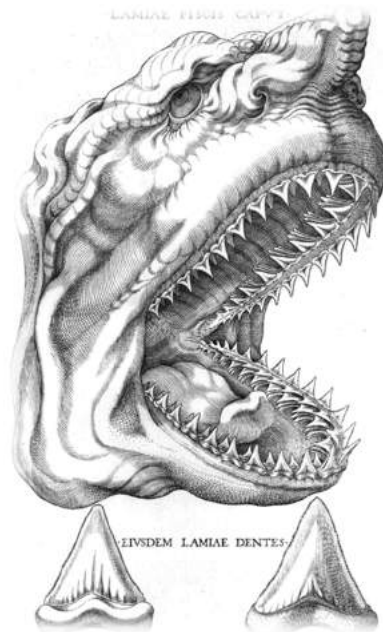
In the seventeenth century a long term controversy among naturalists about the status of stones or stone objects that looked like little tongues and had been called as "tongue stones" (*Glossopetrae*) was cleared in a scientific form for the first time. The Danish naturalist, anatomist and medical doctor as well as pioneer of paleontology and geology¹ Niels Stenson (Nicholas Steno² 1638-1686) was not the first to formulate that the curious "tongue stones"- or >glossopetrae< - were actually fossils of former real shark teeth and not artifacts (for example of a *creationist* "lussus naturae" evoked by a stoning juice ("succus petrificus") as conveyed by Kircher³ in his time) but Steno was the first to show in a novel way the solution to the riddle at hand, how solid bodies get inside other solid bodies, starting by the anatomical method of *dissection* and visual display of a dead shark. Steno gave way to a proof of the anatomical characteristics of a shark and how the form of a shark tooth could resemble these stones (see his paper of 1665 "The Head of a Shark Dissected"). This pushed Stenos ideas into a direction that is well described by Stephen Jay Gould:

→ "Posing a problem in startling and novel way is the virtual prerequisite of great science. Steno's genius lay in recognizing that a solution to the general problem of how solid bodies get inside other solids might provide a criterion for unraveling the earth's structure and history. But Steno did not formulate his problem by rational deduction from his armchair. As so often happens in a human world, he drifted toward it after an accidental



beginning.(...) In October 1666, during Newton's great year, or *annus mirabilis*, and a month after London burned, Steno received for study the head of a giant shark (...)In examining the teeth of his quarry, Steno recognized that he had accidentally bought into one of the major scientific debates of his age, the origin of *glossopetrae*, or tongue stones.(...) They are identical to the teeth of modern sharks in outward form and detailed structure and chemical composition - therefore they cannot be anything else but shark teeth (Even our antediluvian creationists today do not deny it). Yet the identity in form that makes us so certain led to another potential interpretation in Steno's time - for God, the author of all things, often created with striking similarity in different realms to display the order of his thoughts and the glorious harmony of his world.(...) After all, the *glossopetrae* came from rocks and rocks were created as we find them. If the tongue stones are shark's teeth, how did they get *inside* rocks?" (Gould 1981⁴, 20) ←

⁴ Gould, Stephen Jay (1981). "The Titular Bishop of Titiopolis. The posing of a problem in a novel way is a virtual prerequisite of great science". *Natural History* 90, 20-24

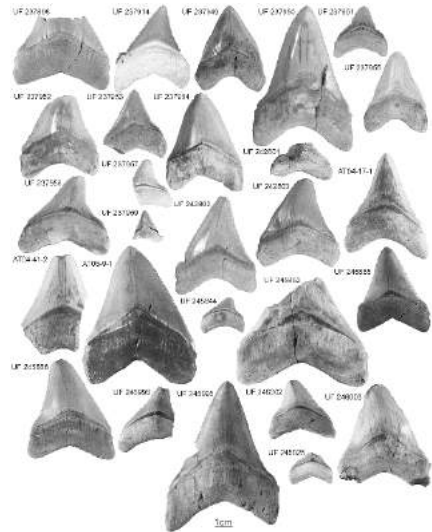


→ Diagram from: Steno, Nicolaus; *Elementorum Myologiae Specimen, seu Musculi descriptio Geometrica. Cui accedunt Canis Carchariae Dissectum Caput, et Dissectus Piscis Ex Canum Genere.* 1st edition, Ex Typographia sub signo Stellae, 1667. Quarto, large paper copy, pp. (viii), 123, and 7 plates (3 woodcut and folding, 4 engraved), other woodcut illustrations in the text.

Image: Megalodon teeth collection: from: Catalina Pimiento, Dana J. Ehret, Bruce J. MacFadden, Gordon Hubbell - Pimiento C, Ehret DJ, MacFadden BJ, Hubbell G (2010). "Ancient Nursery Area for the Extinct Giant Shark Megalodon from the Miocene of Panama". PLoS ONE 5(5): e10552. doi:10.1371/journal.pone.0010552.g002
Source: Wikipedia: http://en.wikipedia.org/wiki/Megalodon#cite_note-D-8 ↓

⁵ Cf. Scherz 2013, 168: "The fossil problem had interested researchers for centuries. The natural explanation of fossils as earlier forms of life already arose in antiquity and further developed in the sixteenth century by men like Girolamo Frascatore (c. 1478-1533) and Bernard Palissy (c. 1510-1590). Fabio Colonna (1567-1640) was the first scientist to demonstrate in 1616 that "glossopetrae" are shark teeth and, with his dissertation *De glossopetris dissertatio*, paleontology had made the first steps to a position as an independent discipline of natural science./ The fossils of sea-animals found far away from the sea, even in high mountains, were an essential problem. Most scientists firmly kept to the conceptions of miraculous intervention of the strong hand of God in such absurdities of nature. In the manuscript by Michele Mercati, from which Stenson took the illustration of the head of a shark, the author warns against explaining glossopetrae as being shark teeth." Cf. Scherz, G. (1969). Niels Steno's geological work, 21. In. Scherz, G. (ed.) Steno's geological papers. *Acta Historicae Scientiarum Naturalium et Medicinalium*, v.15, 9-86

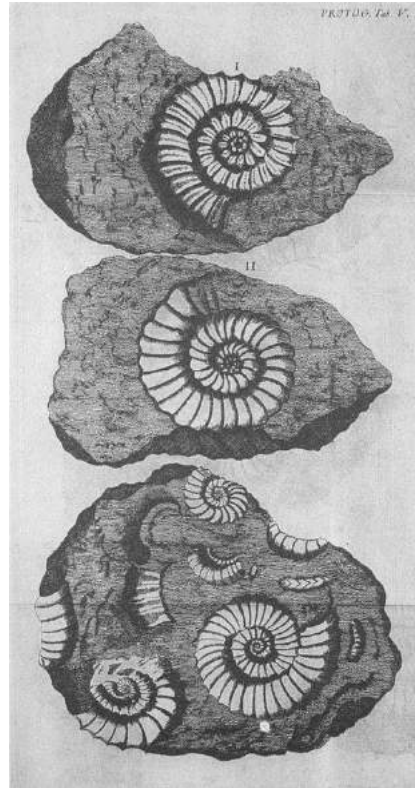
⁶ Scherz, G. (2013). "Biography of Nikolaus Steno", translated by Paul Maquet. In: T.Kardel, P.Maquet (eds.). *Nicolas Steno: Biography and Original Papers of a 17th century scientist. Part I*, Heidelberg: Springer, 7-338



Fossil was not a term that the baroque century had already understood as we do today as preserved remains or traces of once living animals (zoolites), plants and other organisms, that after they died had become petrified or contained in the planet's rock formation and sedimentary layers, the geological strata (of earth). Therefore Steno was the first to help us understand what a fossil actually is by providing an interpretation of the *glossopetrae* as actual petrified shark teeth. The interpretation of the former being of organic origin, "based on his examination of layers of the earth in which fossils are found. He thus set the basis for further studies, which has led him to be named a founder⁵ of geology" (Scherz⁶ 2013, 168). Leibniz in his negation of the autosuggestion of imagination of an animistic theory of nature – that would supposedly play wonderful games – as in the 17th century conveyed by Kircher and Becher- provides a first insight of cutting loose from animistic and miraculous medieval ideas: Leibniz shows himself as inclined towards early modern rational and scientific principles when rejecting miraculous games of nature:

“Who believes the opposite, was seduced by the fairytales {narratiunculis seducuntur}, that are ornamented within Kircher or Becher or other gullible {genus credulous} of this kind or vain writers {vanus scriptores} about miraculous games of nature and a formative force {de miris naturae lusibus et vi formatrice} magnificently illustrated with words.”⁷

⁷ Leibniz 1949,94, cit in: Bredekamp 2004, 121. My translation into English



↑ Nikolaus Seeländer, in: Leibniz⁸, Protogaea 1749, Tafel III, Tafel V.

Steno made relevant observations for the principles of geological stratification and sedimentation processes, with his gaze trained by observing anatomical bodies. Steno was assisted by his “Augenmerk” (Rheinberger⁹ 2005), that is: his experienced attentive habit of noting regular forms and recurrent morphological patterns in nature by a habitualized eye-gaze, training him for discoveries beyond the field of anatomy.

⁸ Leibniz, G. W. (1993[1749]). *Protogaea*, Toulouse: Presses Universitaires du Mirail. Cf. Bredekamp 2004, 121, Abb 56script.

⁹ Rheinberger, H.-J. (2005). “Augenmerk”. In: H.-J. Rheinberger. *Iterationen*. Berlin: Merve Verlag Berlin, 51-73



→ Title page of Nicolai Steno's *De Solido intra solidum naturaliter contento*, reproduced from the University Library Bologna cit. in Yamada¹⁰ 2006, 72

One of the moments in which Sérgio Costa's painting series >Strata< triggers in the attentive observer is exactly this: *the sharpening of one's experiential attention, the "Augenmerk" for having new discoveries in regular patterns of stratified rocks beyond the actual painting series, the attentional (sharpened) regard to "bite" into the strata, until they show fissures and cracks and start to destratify or restratify into something else "unthought" of before.*

The *Augenmerk* of Steno was molded by his categorical, taxonomic insights that he developed in his preliminary short dissertation of 1669 entitled "*De solido intra solidum naturaliter contento dissertationis prodromus,*" or: >Preliminary discourse to a dissertation on a solid body naturally contained within a solid< (see: Steno 1918)

¹⁰ Yamada, T. (2006). "Kircher and Steno on "geocosm," with a reassessment with the role of Gassendi's work". In: Gan Battista Vai & W. Glen E. Cadwell (eds). *The Origins of Geology in Italy*. Geological Society of America, special Paper 411, Boulder: GSA Books, 65pp. The complex view of the continuous formation of knowledge in geology from knowledge not only of direct observation of the earth and its phenomena but as well by "collateral knowledge" (Peirce) developed, for instance, by Stenos direct and indirect knowledge in anatomy in the 17th century - and additionally the debate and differentiation from the animistic earth theory of Kircher - is given by the Japanese scholar Yamada: "Examining the works of Athanasius Kircher and Nicolaus Steno allows similarities and differences to be drawn between their paying particular attention to the role of the French atomist Pierre Gassendi. With his friend Nicolas-Claude Fabri de Peirese, Gassendi had a significant impact on Kircher's career and his

thinking, and his work was read and noted by Steno in his student years in Copenhagen. Later, in the 1667 treatise *Canis*, Steno also appraised Gassendi's idea on the origin of stones. Kircher's experiences of vulcanism and earthquakes, gained during his expedition into southern Italy in 1637-1638, let him to formulate his theory of Earth in the early 1940s, when his *Magnes* was to be published. Completion about his theorizing about Earth was delayed, however, until publication of *Mundus subterraneus* (1665), in which he developed his concept of the "geocosm". Steno probably met Kircher in 1666, and they are known to have corresponded on theological topics. In his *Prodromus* (1669), Steno criticised Kircher's idea of the

"organic" growth of mountains. Steno adopted Descartes' idea of "collapse tectonics" and the formation of strata. Kircher's influence on Steno should not be neglected, however, given Steno's substantial excerpts from Kircher's *Magnes* in his manuscript. In fact, although Steno rejected the idea of plastic force in his *Prodromus*, he may as well have used Kircher's idea on magnetism to explain the growth of mineral crystals. Thus, given the usual wide acceptance of Cartesian influence on Steno, the historiography of geosciences may be appropriately and usefully revised by considering the role of the works such figures as Gassendi and Kircher." Yamada 2006, 65

Steno in the *Prodromus* proposed principles of the formation of strata that are still relevant for stratigraphy, paleontology and archeology today.

Concerning this *first view of strata as archives of captured nature*, Steno inferred that a real animal body (tooth) had existed before the actually found “tongue stone”. The fossil of the shark tooth had thus been formed by no miraculous act of creation (or nature as an artist) of a metaphysical entity, nor had it fallen from the stars of the sky as Greek thinkers had believed, but was formed by a natural earthly geological process of actual sedimentary accumulation and inclusion of the animal body part inside the body of the sediment stone layer at the bottom of the sea. The strata containing fossils had been formed—according to Steno—by *aqueous deposits*. By assuming that these “tongue-like” bodies finally did *not just convey similarities to shark teeth* but were actual petrified remains of ancient shark teeth, found on land in Tuscany, he inferred that they had been formed originally by means of horizontal sedimentary deposition on a former seafloor. Therefore the ancient shark tooth preceded the dug up petrified stone formed by sedimentation of strata in time, and all this happened parallel to the horizon. This is today referred to as the principle of *>original horizontality<* that sedimentary rock strata form in horizontal positions in which layers of sediment are originally deposited horizontally under the action of gravity, so that the younger the layer is, the more up it appears.

→ “As regards form, it is certain that the time when any given stratum was being produced its lower surface, as also its lateral surfaces, correspond to the surfaces of the lower substance and lateral substances, but that the upper surface was parallel to the horizon, so far as possible; and that all strata, therefore except the lowest, were bounded by two planes parallel to the horizon. Hence it follows that strata either perpendicular to the horizon or inclined toward it, were at one time parallel to the horizon.” (Steno 1916[1669], 230) cit in: Sengör, A. & Sakiñç, M. (2001). “Structural Rocks: Stratigraphic Implications. In: U.Briegel & W.Xiao(eds). Paradoxes in Geology. Amsterdam: Elsevier, 131-228 here: 147 ←

The basic *principle of horizontality of stratification* also gives us a second insight on strata: strata are always relating to two planes parallel to the horizon, with exception to the *lowest strata*.

A difference is already introduced by Steno between the lowest stratum that we could call a *singular plane facing the non-stratified* on one facie and the stratified on the other as well as the parallel strata bounded always by a pair of planes. Steno assumed that any deviations from horizontality had been subjected to disturbances in the earth's crust. The discontinuities between strata or inside a stratum, the appearing of cracks, breaks and fissures - that for Steno had all been caused by the influence of fire or water- show temporal leaps or lags and spatial shifts of the horizontal stone layers. (*If we would see habits and consciousness as such stratifying horizontality that builds layers, then attention would be the non-stratified that break up fissures inside the plane of horizontality*).

▪

Steno is the first to explore **geological Stratification principles**:

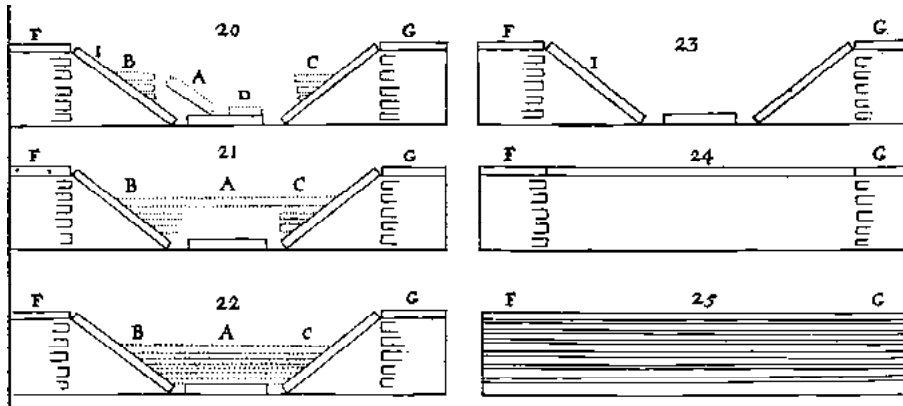
[1] Steno observed sedimentary rocks and formulated three basic principles of historical geology, which are commonly referred to as "Steno's Laws." The first of which is called the basic *principle of horizontality of stratification* and the fissures inside the plane of horizontality (folds): Sediments are deposited in flat, horizontal layers. Steeply dipping or folded rock layers indicate tectonic disturbance after deposition. Fissures indicate folds inside the plane of

immanence or the *Principle of Original Horizontality*

[2] *Principle of Superposition*: Oldest rocks can be found on the bottom, younger rocks on top

[3] *Principle of Original Lateral Continuity*: Sediments are deposited over a large area in a continuous sheet. Rock layers extend continuously in all directions, until they -at the edge- thin out of the depositional basins, or grade into a different type of sediment

[Superposition of strata at origin (25) and “back-stripping” a landscape in Tuscany to present days (20), from the Prodomos on a solids, OPH II, 226” cit. in: T.Kardel, P.Maquet (eds.) (2013). Nicolas Steno: Biography and Original Papers of a 17th century scientist. Heidelberg: Springer, 212]



→ “The last six diagrams, while indicating how six distinct aspects of Tuscany may be inferred from its present appearance, at the same time serve to make more intelligible those things we have stated above about the strata of the earth. The dotted lines represent sandy strata of the earth, so called from their main constituent, although various strata of stones and clay are mixed with them; the remaining lines represent rocky strata, likewise so called by their chief constituent, although sometimes other strata of softer material are situated among them. I have explained the letters of the diagram in the dissertation itself, in the order of which the diagrams follow each other: here, I shall review briefly the order of change. Diagram 25 shows a vertical section of Tuscany at the time when the rocky strata were still complete and parallel to the horizon. (...)” Steno, N.(2013). “The Prodomus to a Dissertation on the Solid Naturally Contained Within a Solid” In: T.Kardel, P.Maquet (eds.) (2013). Nicolas Steno: Biography and Original Papers of a 17th century scientist. Heidelberg: Springer, chapter XXVII, 659 ←

¹¹ Krämer, S. (2010). „Epistemology of the Line,“ in: O.Pombo, A.Gerner (eds). Diagrammatology and Diagram Praxis (=Logic and Cognitive Systems 24) London: College Publications, 13-38

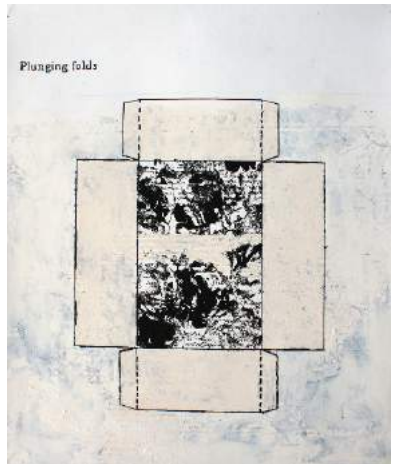
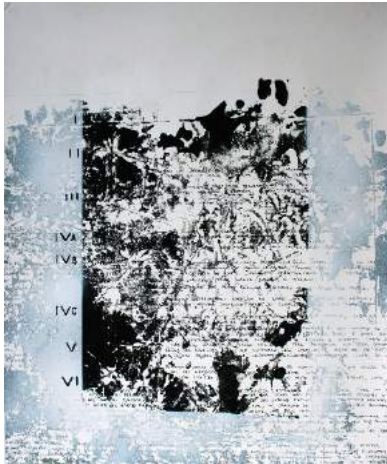
■

In the “Strata” series Costa introduced an almost invisible difference line of experience in between the two images that could pass unnoticed as an illusion of unity of being one and the same image. By the introduction of the fine separation line, the lineature (Krämer¹¹ 2010), experience breaks into the reality of the presented image sujets of the “strata”, and cracks up into two images-samples. This, however, not only opens up the image as such to aesthetic experience but also properly virtualizes the image and makes it a thinking image about stratification, destratification and re-stratification in which attention partakes. The question raised by Costa’s art is: how do attentional habits partake in aesthetic experience, and how might they partake in the introduction and production of the *new* on the plane of the image. This means that strata become multiple means of expression, not only linked to one medium, as the oil painting series proposes, but as well can be found in Sérgio Costa’s drawing series “Strata and Diagrams” as in the landscape exhibition of 2014 at the Bangbang Gallery in Lisbon:

→



Strata and diagrams | exhibition view | Bangbang Gallery, Lisbon | 2014



Sérgio Costa's *Strata #4* (2008) is composed by four horizontal discontinuities in the upper image and three horizontal discontinuities in the lower part. At the same time the upper part of the same painting shows clearly in the second strata on the left side one vertical crack and another vertical rupture that prolongs, dislocates and unites the rock layers vertically from the second to the third, →



Strata #4 | 2008 | oil on canvas | 144x120cm

If strata, as Sérgio Costa's paintings apparently show, are ordering principles of (rock-) bodies, then a assumed plane of consistency as horizontality - as well as the principal that the lower the strata, the older the time, and the higher the strata, the younger- are orientation principles that are deeply questioned in Sérgio Costa's work on the cracks and fissures of long term experience as they focus on the virtual horizontal interstice line that in Strata #2-18 –with exception of Strata #5- break with a representative depiction of mere archive paintings of historically lawfully constituted strata of nature as rock layers. This gets clear by the rehearsing principle that Costa applies in his paintings in which for example the curved crack running through the first strata on the lower half of strata #4 (2008) rehearses a new connection on the fourth strata of the upper part of strata #12 (2011). The same happens at the painting event of rehearsing parts of strata #5 in strata #13 →



Strata #5 | 2008 | oil on canvas | 130x160cm

Therefore, we are **not** dealing in Sérgio Costa's >Strata< series with a collection of representative depictions or illustrations of scientific sedimentary rock samples in which the principle of original horizontality holds, but with a de-stratifying assemblance machine of stratification in which horizontality is deeply questioned as a principle of composition, collection and/or systematic tectonics (e.g. stratification (diagram fixture in knowledge construction). What is as well questioned is the **Principle of Superposition** where the oldest rocks layers would be found on the bottom, and a principle of older „original“ layer would be created.

The basic *principle of horizontality of stratification* gives us an insight on strata: *strata are always relating to two planes parallel to the horizon*, with exception to the lowest strata and we can add, and the strata facing the non-strata in general according to Deleuze/Guattari.

A difference is already introduced by Steno between the lowest stratum that we could call a *singular plane, facing the non-stratified* on facie, and the stratified on the other, as well as the parallel strata bounded always by a pair of planes. Steno assumed that any deviations from horizontality had been subjected to disturbances in the earth's crust. The discontinuities between strata or inside a stratum, the appearing of cracks, breaks and fissures - that for Steno had all been caused by the influence of fire or water- show temporal leaps or lags and spatial shifts of the horizontal stone layers.

Strata come at least in a pair, in a double bound, or in multiple bands and layers and are in themselves double or better multiple. One stratum therefore serves the others as a "*substratum*" (Deleuze/Guattari, *A thousand Plateaus* (ATP¹²), 40). Strata-layers can be rigid or twisted, elastic or tense; in any case, strata move, can be moved, and are not timeless, even that we -as humans within our limited lifespan- might observe them as relatively stable: strata are already part of a *time lag* and a *local shift*, as are strata of experience, or attentional strata. Strata stratify, cement, fold and erode or crack up and slide. Stratification occurs in three double steps stratification, de-stratification and re-stratification. Stratification happens all the time as

¹² Deleuze, G., Guattari, F. (1987). *A Thousand Plateaus. Capitalism and Schizophrenia*. Transl. and forward by Brian Massumi, Minneapolis/London: University of Minnesota Press

does building of rests. The surfaces are what rest us, and the interstices make us act and move. These strata-surfaces can be seen as a "machinic assemblage"(ATP, 40) that either faces their proper layers as a relation between strata (the assemblage of a "*interstratum*") or face something else as the assemblage of a "*metastratum*"(ATP 40), that Deleuze/Guattari call the "plane of consistency" (ATP 40).

Form can be seen therefore as semiotic involving not only coding and recoding but also decoding.

The double articulation of strata - the double images of Costa's paintings involve, however, not only a kind of code or any kind of language phenomena but as well *territoriality*, and these strata territories are introduced by the *segmentation lines of interstice* that make the parts of the upper and lower images open up to a game of multiple Combinatorics, of countable finite structures that can be found also in between the layers of strata "(...) constituting an overcoding (...), phenomena of centering, unification, totalization, integration, hierarchization, and finalization. " (ATP, 41)

There is, however, always one or more relevant interstice line(s) that separate and open up the strata inside the image and its intrinsic doubles almost all the pictures in themselves are present as two pictorial strata. Strata are in fact plural phenomena, excluding the possibility of a unified or "the" one and only strata. Strata are phenomena that have to be explained in their cause of their residual stratification and Deleuze/Guattari explains this by conceiving them as **double articulations**. In *A thousand Plateaus* (ATP) they are distinguished in a first articulation - **analog to geological stratification-** as ***sedimentation*** and a second as ***folding*** (and not as in geological strata *compression* or *densification*).

Therefore the Strata #1 is missing! No original painting no original layer of the world as represented, that means we are not dealing in Sérgio Costa's >Strata< series with a collection of representative depictions or illustrations of scientific sedimentary rock samples in which the principle of original horizontality holds, but with a de-stratifying assemblance machine of stratification in which

horizontality is deeply questioned as a principle of composition and or systematic tectonics (e.g. stratification of knowledge construction) not only of the image in itself but also of thinking in general as strata of orientation and its orientation of the non-stratified. Sérgio Costa in his painting series "Strata" from Strata#2(2008)-Strata#14 (2011) applies the following principles:

[1] Costa stratifies by taking photos of stratified Calcium rock formations and sedimented stone layers at the Algarve region around Tavira

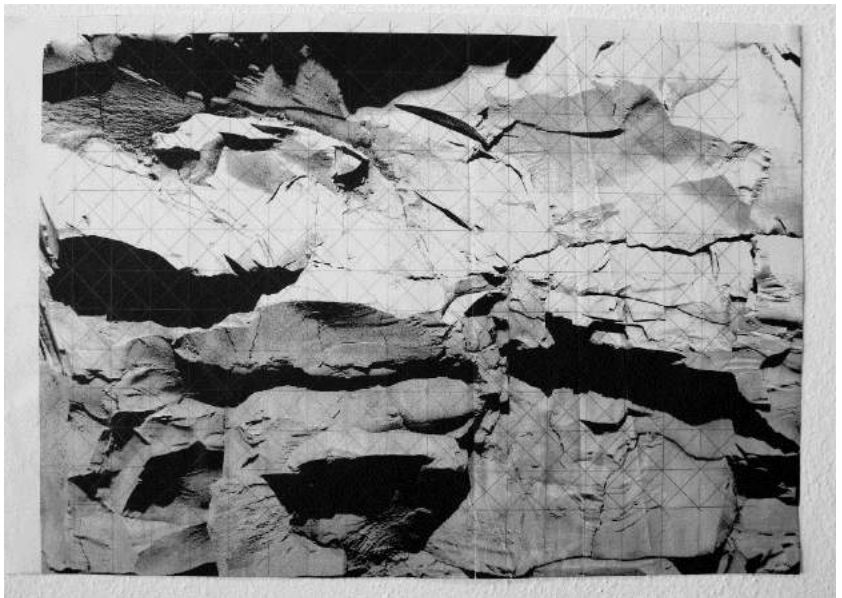
[2] He de-stratifies the quality of the image by forcing the contrast to extremes of pure black areas, and then marks the dark areas (I call this **attentional contrast stratification** that is also a diagrammatization process). This is achieved by photocopying processes of the photography to push contrast levels

[3] Creation of the First Map/grid de-stratifying and geometrization of the painting plane

[4] Plane of painting (second map composed of two image strata. First working on the shadows, and within a limited parameter of color modulation of four color qualities: only a) sepia, b) cobalt blue, c) raw umber brownish, d) titan white (that gains a higher opacity than zinc white)



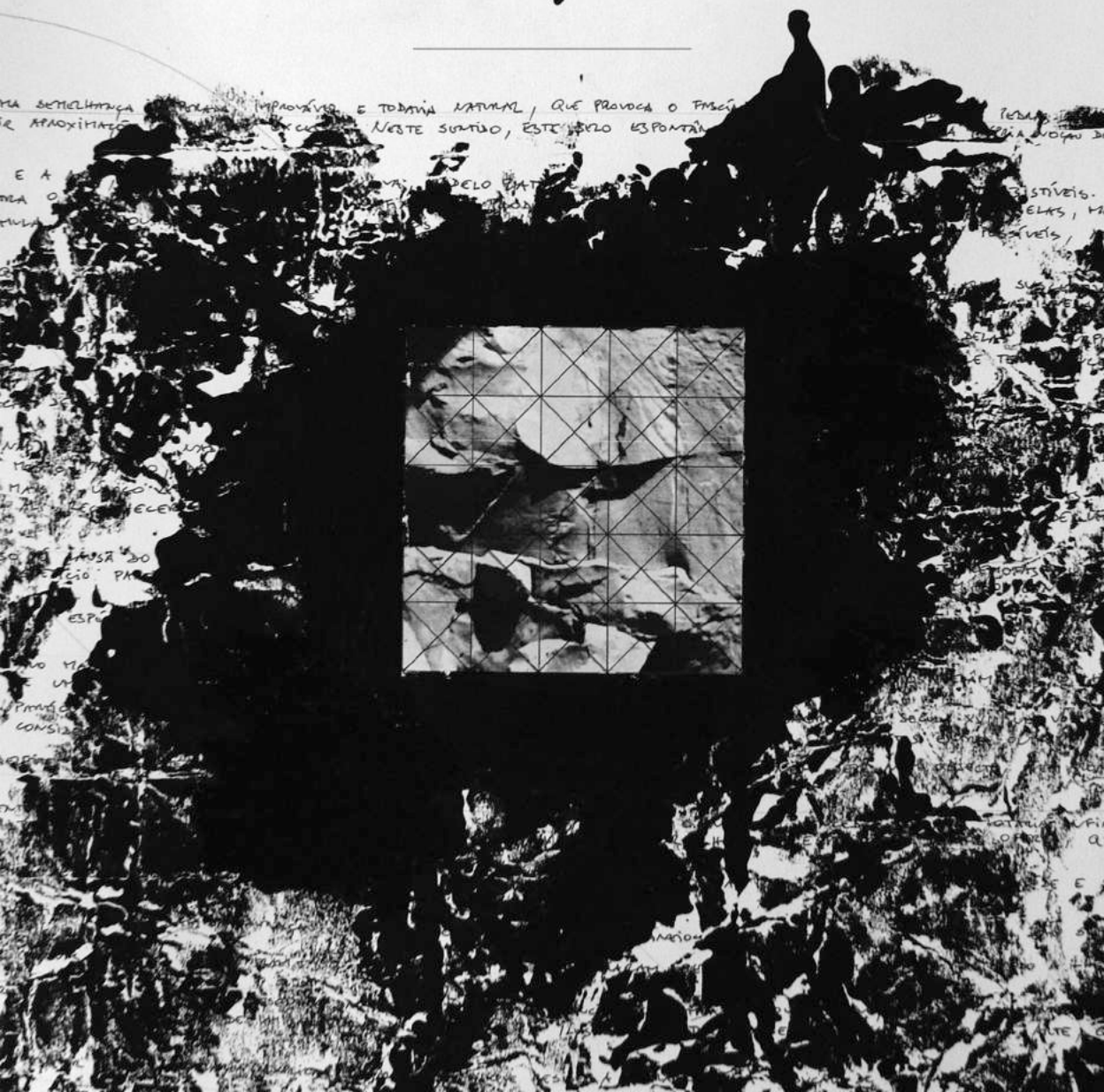
Stratification phase #1
Printed photography of one of the images in use for the Strata series (38x25cm)
used in Strata #5 and #13



Stratification phase #2
Image of the photocopy (50x30cm) with the amplifying grid tool.
This corresponds to the superior part in Strata #6

→
Other parts of the photocopy/grid are refolded into the drawing series
Landscape (2014):

Strata and diagrams c1 | 2014 | pencil, enamel, marker and collage on paper | 60x50cm



[2]

Strata of Experience

Let's look at attention and how it stratifies and de-stratifies. Attention is a *double event* (Waldenfels, B. (2004). *Phänomenologie der Aufmerksamkeit*. Frankfurt: Suhrkamp), the double potentiality of a fold of actively being captured and to capture, and of negative potentiality of not being captured.

¹³ Husserl, E. (1989). "Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy. Second Book Studies in the Phenomenology of Constitution. (=Hua III/2) Translated by Richard Rojcewicz and Andre Schuwer. Dordrecht: Kluwer

Husserl in Ideas II¹³ reminds us of the possibility of attentional modification and its manifold eidetic possibilities in which an attentive regard

→ "passes through the intensive strata to the "materially determined affair" and the material moments- resulting in an interrelated system of modifications which we already know as lower level; but the regard then is also directed to the values, to the constituted determinations belonging to a higher level, by passing through apprehensions constituting them; then <the attentive regard is directed> to the noemas as noemas, again, to their characteristics or, in the other reflection, to the noeses - and all of this in the specific modes of attending to, marginal observing, non-observing or the like."(Hua III/2, 278) ←

Showing strata is showing how the world is constituted in a layered manner. Understanding strata is understanding how the world is given a sense progressively by sedimentation, or the other way round how we can escape historical strata and look at strata as power relations in knowledge development. Strata are not the molecular singularities but the composed molar pluralities



that are being constructed or sedimented by the constitution of things (Aufbau).

If strata are real things found in nature as solid bodies for instance geological layers of granite, then strata should share with all other natural phenomena that they are constituted by three basic substrata:

Strata of nature - for Husserl – are threefold – not three >things< (res).

[a] STRATA TEMPORALIS - that is: everything is extended in time, with a duration and also with a "place" or >position< in objective time that can be measured. Strata of things of nature are also co-apprehended by

[b] STRATA EXTENSA. For Husserl in Ideas II his so called "*res extensa*" are substratified in lower extension substrata - that is *spatial form* (=figure and place), as well as the upper substrata of extension, that is *spatial content* (=roughness, colour, shadow / light contrast, etc.). Spatio-temporal form together with its content build

the "*phantom*"¹⁴ or schema, that independently¹⁵ of its materiality is given and can be transformed¹⁶ as well is co-apprehended and articulated with

[c] STRATA MATERIALIS, the third, >thingness<, that physical sciences study. The "*res materialis*" again is subarticulated in two substrata, the essential properties of material *substantial* substratum and the *relational* causal substratum that relates things to other things by their material properties (viscosity, weight, fluidity, density; Hua III/2, 59)

¹⁴ "It should now be emphasized at once that the concept of schema (the concept of phantom) is by no means restricted merely to a single sense-sphere. A perceived thing also has its tactual schema, which comes to light in tactual grasping. In general, there are precisely as many strata there to be distinguished in the full schema as there are to be found classes of sensuous data which are spread over the spatial extension (appearing as something identical) of the thing. Yet the schema does not become multiple on account of this manifold filling. The sensuous qualities fill the one, absolutely identical, spatial corporeality and do so on several strata which, because of this identity

and because of their essential inseparability from extension, cannot, in principle, disperse into further distinct schemata." Hua III/2, 41

¹⁵ "It is now the time to repair a deficiency, i.e., to take up the presupposition we have been allowing. Up to now we have taken the thing in isolation. But it is in relation to "circumstances" that the thing is what it is. If we juxtapose the change of a phantom and the change of a thing, then we see clearly that these two are not the same and that they are not to be distinguished from each other by means of sheer content, which, under the title,

materiality, in the one case would belong and in the other would be lacking. It is obvious that changes in a thing can occur while the sensuous schema does not change at all, and conversely, the thing can remain unchanged while the schema changes." (Hua III/2, 46)

¹⁶ "Phantoms, too, (in the sense specified of pure spatial givenness without the stratum of any apprehension of materiality) can move, deform themselves, and change qualitatively in color, brightness, sound, etc. Again, therefore, materiality can, from the outset, be co-apprehended and yet not co-given." Hua III/2, 41

Important in this idea of Husserlian strata, is the idea of lived bodily experience and the ontic strata of synthetic-schematic apperception of a perceptual manifold of sense-strata:

→ "Each stratum is in itself homogeneous, pertaining to one sense; it is a matter of one apperceptive perception or a perceptual manifold which homogeneously runs its course and continues. Every perception (and series of perceptions) of that kind has its complements of parallel apperceptions of other strata¹⁷, which constitute a "cogiveness" (not an actual givenness) making possible a subsequent fulfilling in actual perception. The given optical fulfillment of the visual schema refers to the tactual side of the schema and perhaps to the determined fulfillment of it. (...)I see the front side of the schema, and much remains indeterminate in the back. But a back side it certainly does have. In a like manner, the body also has a tactual side (or stratum); it is just that it is still undetermined. The body is a unity of experience, and it lies in the sense of this unity to be an index for a manifold of possible experiences in which the body can come to givenness in ever new ways. Therewith, we have first taken the body as independent of all causal conditioning, i.e., merely as a unity which presents itself visually or tactually, through multiplicities of sensations, as endowed with an inner content of characteristic features. Some of the examples chosen (the apperception of the mechanical qualities) have, however, already gone beyond this restriction." (Hua III/2, 43) ←

¹⁷ In a footnote Husserl questions the possibility of speaking of different constitutive strata in relation to different sense-modalities as in "visual space" or "tactual space": "To be sure, the expressions "visual space" and "tactual space" are quite problematic, however common they might be. The space, the one space, presents itself and appears both visually and tactually. The question is how we are to understand the identity and to what extent we can speak of strata here." Hua III/2, 41, n. 1

For Husserl in his "Constitution of material nature" still the possibility of experience to "recognize" new fulfillments apprehended by one single stratum (Hua III/2, 43) is given, but this, nevertheless, does not mean that we have to adopt a historicistic perspective if we look at strata of experience: attentional strata. As the backside for Husserl is not being able to be apprehended at the same time materially this opens up the importance for a synthetic apprehension of a unity of the body derived from a manifold of possible experience:

→ “The body is a unity of experience, and it lies in the sense of this unity to be an index for a manifold of possible experiences in which the body can come to givenness in ever new ways”(Hua III/2, 43) ←

▪

For Deleuze the point is another, as he clarified in relation to Foucault and the power of knowledge: thinking is defined by reaching, *not* the constitutive strata of experience, but by *striving for the non-stratified* in order to get in between the layers, to reach the *interstices* and the *>beyond< the strata*. Thinking is not an “act” of recognizing the natural constitution of the world as it is supposed to be, but is given in a *becoming of thought*. Thinking takes place not between Cartesian subjects or object of nature, but thinking shows itself between territory and map, earth and territory, the stratified earth and de-stratified atmospheric or fluid bodies¹⁸.

▪

The *beyond the strata* and the interstice show up in Costa’s painting series in a difference line of experience, in between the two images that could pass unnoticed as an illusion of unity of being one and the same image.

By the introduction of the fine separation line, the lineature (Krämer 2010), or the fold-experience gets explicit by the opening of a chiasmus between *mathema* and *poesis* in which the topos of the infinite enters the image by the introduction of the *in-between* of the interstice line into those image samples. This instice opens up our poetic possibilities in thinking strata beyond the finite constraints of painting on a plane and beyond any mathematical optimization strategy of combinatorics. Therefore *>Strata<* not only open the image as such to aesthetic experience, but properly virtualize the material and concrete strata depictions of the image sujet of rock-configuration, and thereby transform Sérgio Costa’s painting series into *thinking images* on geo-philosophical

¹⁸ Husserl himself gets to this point when he understands that a liquid body cannot be analyzed as he did with examples of solid bodies and that gives the modalities of different states of aggregation a special importance in thinking strata and thinking as such, as fluid bodies cannot be perceived the way solid can : “If we take into consideration the possibility of a fluid body, then we have to say that such a thing cannot be perceived originally but can only be acquired by means of indirect processes of experiencing and thinking“ (Hua III/2, 57)

principles of stratification, de-stratification and re-stratification.

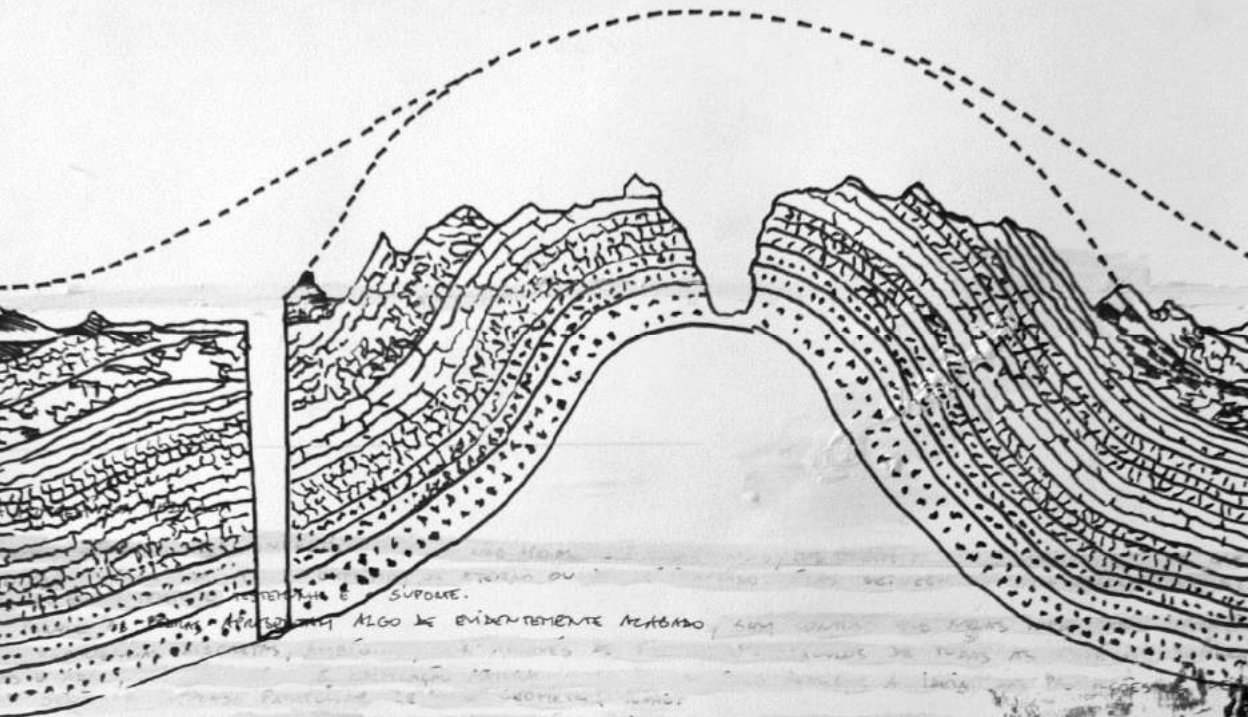
Strata appear not necessarily as rock layers, and stratification does not equal petrifications, but strata can - as in the image sujet of Sérgio Costa's paintings - show up as layers of rock, not only densified by pressure, and broken up, but also can be refolded or even transformed into smoke and clouds. On the other hand strata can appear as layers of two images on the two sides of an interstice line. Even that they are assemblages of a *metastratum* they make us believe that they are one and the same and thus merely assemblages of *interstrata*. Costa therefore does not dissolve the difference that Deleuze and Guattari try to convey between inter- and meta-strata in *A thousand Plateaus*, but makes us realize, how his paintings show more than just an internal relation between layers of rock, layers of the image, in which the inter and the metastrata are itself the double face of a higher strata that he paints in his geo-pictorial collection, as if painting Möbius bands in which the inside and the outside are twisted and relinked into each other, on the unity of the different that can be both.

¹⁹ Mersch, D. (2014). "Die Zerzeugung. Über die >Geste< des Bildes und die >Gabe< des Blicks," in: Ulrich Richtmeyer, Fabian Goppelsröder, Toni Hildebrandt (eds). *Bild und Geste. Figurationen des Denkens in Bild und Kunst*, Bielefeld: transcript, 15-44

Sérgio Costa's >Strata< show themselves as *rests* not as material ones, but as practice of thinking constituents in the sense of Dieter Mersch's concept of the self-reflective act of >showing<- opposed to propositional and logical >saying<, in which the gesture of the image *gives*¹⁹ us the possibility *at hand* of a reflective gaze:

→ "Art portrays, exhibits, presents and performs, but the decisive epistemic modus of these varying practices is always *showing*(...)the portrayal of a performance, the exhibition of an exhibition, the performance of a portrayal, the exposition of an exhibition, etc. Showing thus becomes a continuous act of 'showing asunder' (*Zer-zeugung*). This is what is meant by 'aesthetic reflexivity'(...) *Zer-zeugung* happens through the constitution of those practices that are condensed in contrasting constellations, medial paradoxes or chiasmic contradictions, and have the peculiarity of showing that they show themselves."²⁰ ←

²⁰ Mersch, D. (2015). *Epistemologies of Aesthetics. (=Think Art)* Zurich Berlin New York: Diaphanes, 14-15



Folded Strata

O TERMO MINERAL.

...RESPONSÁVELS PARA ...
OU DIÁMETROS DE ...
...PUREZA DO ...
OU DE ...
...LEV ...
...OS ...
...M ...
...DE MEMORIAS ...
...SOS ...
...X ...
...QUE ...
...A ...
...B ...
...T ...
...R ...
...S ...
...A ...
...C ...
...D ...
...E ...
...F ...
...G ...
...H ...
...I ...
...J ...
...K ...
...L ...
...M ...
...N ...
...O ...
...P ...
...Q ...
...R ...
...S ...
...T ...
...U ...
...V ...
...W ...
...X ...
...Y ...
...Z ...

...ONCEMA ...
...S ...
...M ...
...P ...
...Q ...
...R ...
...S ...
...T ...
...U ...
...V ...
...W ...
...X ...
...Y ...
...Z ...

²¹ see as well: Bonta, M., Protevi, J. (2004). *Deleuze and Geophilosophy*. Edinburgh: Edinburgh University Press, 150-153

²² according to Bonta and Protevi *epistrata* in non-organic strata are *stable states*, in organic strata - a) Genes and Proteins b) organic systems as the nervous, endocrine, digestive systems *epistrata* are *stable intermediate states below thresholds* that regulate relations "(1) between exterior milieu and interior elements; (2) between elements and compounds; (3) between compounds and substances (4) between substance of content and substance of expression. *Epistrata* form the thresholds and patterns of organs and thus establish the qualitative internal differences in the internal milieu. *Epistrata* are established by the ratio of relative deterritorialization and reterritorialization." In the social strata type *epistrata*, according to Bonta and Protevi, are "tolerated variations of behavior" Bonta and Protevi 2004, 152)

²³ *Parastrata* for Bonta and Protevi in Deleuze/Guattari in the inorganic realm are "opportunities of expansion", while in the organic realm are seen as "affects of an organism or the capacities to form assemblages or associated milieus"(ibid). Three subtypes of *parastrata* in the organic realm are visible for Bonta and Protevi "(1) respiration or capture of energy sources; (2) perception or discernment of material; (3) reaction or fabrication of compounds. *Parastrata* are established by coding / decoding / transcoding and are responsible for the distribution of traits or organic forms in a population. Thresholds of *parastrata* establish events of speciation."(ibid.) In the realm of the organic - according to

The folding strata of a mountain range is a rest of the force that molded the strata into a mountain. Strata seem leftovers of thought and earthly configurations. Strata might as well be by-products of something that changes. "Überbleibsel", crumbs that stayed behind as stains in a kitchen towel and unwashed dishes from a long night with friends. Costa in his overpaintings in the drawing series for the collective exhibition "Landscape" (2014) mixes text, drawing and geological strata diagrams. Machinic assemblages of writing, drawing and whitening, overpaint that seems to destratify concrete expressions and leads to "forgetful" *parastrata* affectively open for new possibilities.

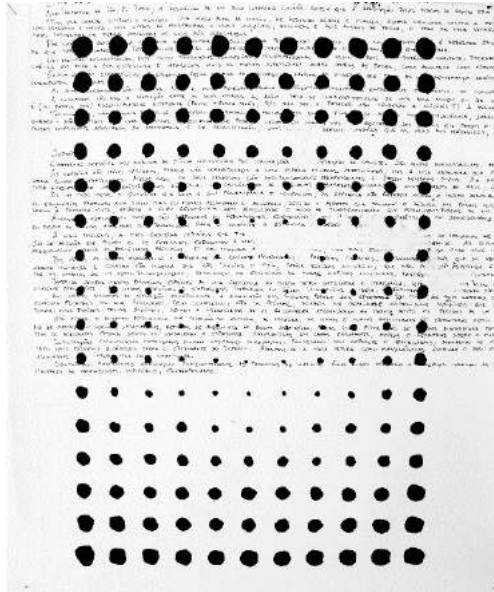
Deleuze and Guattari in ATP distinguish three different types²¹ of strata: 1) non-organic strata 2) organic strata and 3) social alloplastic strata (social machines) and two modes of stable *epistrata*²² and expansive *parastrata*²³. *Epistrata* as well as *parastrata* are double articulated in forms and substances of content as well as forms and substances of expression. This idea is derived from Hjelmslev, that Deleuze and Guattari's conceptual personae *Challenger* in *A thousand Plateaus* cites as his friend:

→ "Challenger took offense, preferring to cite his friend, as he called him, the Danish Spinozist geologist, Hjelmslev, that dark prince descended from Hamlet who also made language his concern, precisely in order to analyze its "stratification." Hjelmslev was able to weave a net out of the notions of matter, content and expression, form and substance. These were the strata, said Hjelmslev. Now this net had the advantage of breaking with the form-content duality, since there was a form of content no less than a form of expression. Hjelmslev's enemies saw this merely as a way of rebaptizing the discredited notions of the signified

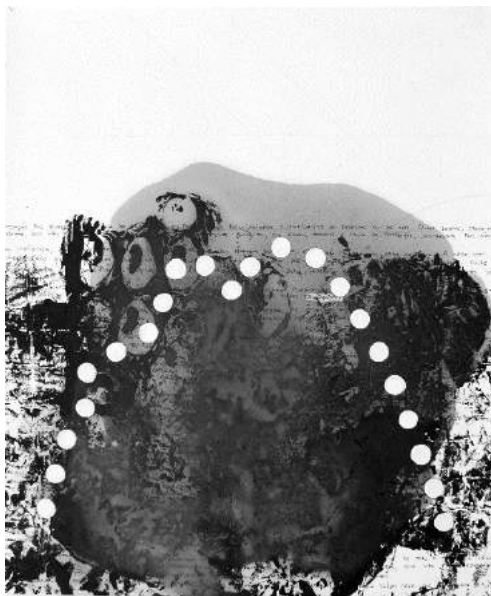
deLanda complimenting Deleuze / Guattari reproductive communities have to be considered as well as "species", in the social *parastrata* we can see in Deleuze and Guattari

"affects of the social assemblage". Thus in *Parastrata* we are confronted with expansion and affect (organic and social assemblages).

Strata of attention



Strata and diagrams a3 | 2014 | pencil, oil, enamel and marker on paper | 60x50cm



Strata and diagrams b1 | 2014 | pencil, oil, enamel and marker on paper | 60x50cm

if language has a specificity of its own, as it most certainly does, that specificity consists neither in double articulation nor in Hjelmslev's net, which are general characteristics of strata." (Deleuze & Guattari, ATP, 43) ←

Attention often is only captured by events, objects, contrasts, and regions in space or atmospheres that have been stratified in the principle of taking habit as one of the universal methods of nature (beside change). But sometimes the rehearsal of attention does not catch anything, not because it principally can't, but because it is stuck with the habits or strata of experience. Attention runs through strata and catches nothing. Attention may be captured in Sérgio Costa's paintings by perceptual objects, such as the image sujet of rock layers and their architectonics. Attention maybe captured by structural schemata, the layering and their ruptures, cracks and fissures of the strata and their different substrata. However, the question „bites“ me: what is the role of attention in stratification, de-stratification and re-stratification? How will they transform into the non-stratified? *How can we run through the strata with attention in order to breathe?*

▪

Certain properties of capture have the characteristics of a shark bite. >Strata<, however happens, not in a sensationalist sense of something passive in which we are put under pressure of exploding forces that absorb our attention in automatically capture images, but as strategic "acts of capture"(Deleuze & Guattari ATP, 40) and as such might be compared as Deleuze/Guattari do to "occlusions striving to seize everything that comes within their reach"(ATP, 40), in order to bite it. Let me experiment constructively with Sérgio Costa's paintings in relation to how they capture the viewer's attention: The act of capture in the case of the meditative images of >Strata< seem more in the characteristics of a mosquito sting than a violent shark bite.

First, the capture is non-notable, in its arising event. We get fascinated - the case of attentive capture from the >strata< of attention (Auffallen) in a non-intentional attentionality.

Second, a sudden feeling of being attracted by the strata in the noting event (the event of the attentive contrast capture that gets noted (*Aufmerken*), triggered by the black and dark shadow fields that stand in stark contrast to the grayish, and brownish areas of the bright rock formations, an event of contrast or double difference (black/white- brightness/darkness).

Third, >distractive strata< capture attention in the event of *Bemerken*, of me being captured in percepts and concepts, and imagery in reaction to the attention capture events. For instance, the dry atmosphere let us imagine a livable protected dark area where we have no actual visibility, the dark areas let us imagine a virtual transformation of the rock strata out of its skeleton-like remains. Especially in Strata #3, #6, #7, #9-12, the act of capture is dissiminated and strayed, as there is no attention and noting without its founding principle of *Streuung*, *Zerstreuung*... *sternere*²⁴ (stratum): A distraction that abstracts: Becoming attentive is impossible without a constitutive abstractive distraction (Gasché 1998)²⁵.

²⁴ Giorgio Agamben in (1999, 297) - Potentialities. Stanford: Stanford University Press - notes an interesting connection of strata and spatial extension coming from an etymological observation of strata from the latin word 'sternere' and in relation to Heideggers 'Dasein' alias transcendental dispersion / dissemination: "If one considers that the word *Streuung* derives from the same roots as the Latin *sternere* (stratum) which refers to extension and horizontality, it is possible to see in this ursprüngliche *Streuung* one of the reasons for the irreducibility of *Dasein*'s spatiality to its temporality(...)"note 32, 297. cf. Derrida, J. (1983). "Geschlecht, sexual difference, ontological difference". *Research in Phenomenology* XXIII, 65-83

²⁵ Gasché reads Kant's anthropologic account of attention anew. In the reading of Kant's anthropology (especially chapter 44 on distraction [*Zerstreuung*]) Gasché in "On looking aside. Attention and abstraction in Kant" [Über das Wegsehen. Aufmerksamkeit und Abstraktion bei Kant; 1998, 129-159] evokes abstractive distraction as the necessary condition of the appearance of the phenomenon of attention. Gasché notes that a "distraction that abstracts" [*abstrahierende Zerstreuung*; Gasché 1997, 151] is different from mere distraction, the evasion of attention, as well as it is different from non-attention or inattention (Gasché 1997, 152). The abstractive distraction is a deviation from an actual attention but as such not only an event but a proper method of attentiveness to become in the first place by the constitution of another attention as an activity of tangential

interruption or marginal interruption. Abstractive distraction for Gasché "in its mode" is neither a faculty or *capac[weder ein Vermögen noch ein Akt*; Gasché 1997, 152], but for Gasché a characteristic or sign of deviation [*Ablenken*, Gasché 1997, *ibid.*] or a directing away from something [*Abwenden* (von etwas); Gasché 1997, *ibid.*]. As attention as directing towards is founded on the abstractive distraction or a directing away from means that the double movement of directing towards and abstracting from or directing away touches on a transitoricity of consciousness without hitting the target in a final position of the anterior attention that it transforms, or modifies in its distribution and aggregation. This makes attention a phenomenon of instability in a consciousness in between a diffuse world of empirical affection and a world of complete abstraction.



Strata #6 | 2008 | oil on canvas | 200x162.5cm



Strata #7 | 2008 | oil on canvas | 200x162.5cm



Strata #8 | 2009 | oil on canvas | 144x120cm



Strata #9 | 2009 | oil on linen | 200x162.5cm

It seems a first phase of anesthetic neutrality, samples of a quasi-scientific status, that have been ordered in a collection and the logic is left for the viewer to be discovered and constructed (in my case I make A3 reprints and hang them on the wall for several weeks, making them act on my attention without wanting anything functionally from them, without a main objective or almost task-less, making use of a divergent and lateral attention. Habitualizing with the images as a landscape that surrounds me, that co-inhabits my place. In a second phase I start to notice that I get attracted as if being bitten, on several planes and areas and some of the paintings more than others, they "sting me" the interstice line notable in the majority of the paintings irritate me, I hear a buzzing sound that I am forced to get back to, a spider web within which I am caught and bounce back to, bitten and stuck by the urge to see, listen or feel more. They put their sharp ends deeper into the flesh of the observer, the closer and longer he looks: until bones show up, until I understand something of the relation of strata and the body of all things, animated and non-organic layers, folds, cracks and fissures as well as shadowy caverns.



Alexander Gerner's working lab with Sérgio Costa's >Strata< series, Lisboa (Rossio), Portugal, August 2012, photo: A.Gerner

Strata attract the observer's attention and confront the observer with a basic necessity of investigation starting with stratified rock layers. >Strata< evoke the desire to understand rock samples and the history of the morphology of the earth, its geologic stratification and its *geophilosophical* thought, its nature (Physis) and its thinking (Nous). The observation of strata is part of a *study in basic stratigraphy of the unity of thinking, the body, and becoming and in what the lowest or highest stratum is in relation to non-thinking, the non-strata*. Strata in Costa's work appear as hyperrealistic fragmentary samples of overlaid rock layers, that our gaze has the urge to map, to touch and take notice by feeling the roughness or smoothness of the surface of the broken strata, to find an orientation inside their contrast of bright almost high noon lighted layers and the strong shadowy cavern structures, the dark areas that Costa paints first. Strata urge to investigate the logic of the crack between strata, the internal fissure and the rupture and brokenness of the plane of discontinuity introduced by Costa and its possible plane of immanence or all-oneness, that calls the attention of the observer. What machinic assemblages are the lines of rupture, the inter- and metastrata?



Strata #2 | 2008 | oil on canvas | 144x120cm



[3]

Against and beyond strata: Trying to climb *above the historical and knowledgeable strata* in order to breathe



Strata come at least in a pair, in a double bound or in multiple bands and layers and are in themselves doubles or multiples. One stratum therefore serves the others as a “*substratum*” (Deleuze/Guattari, *A thousand Plateaus* (ATP), 40) - and one might add - as double pinchers of a lobster (Deleuze/Guattari’s image of strata), earthly rock layers, or atmospheric strata as well the stratified peel of an onion. Strata-layers can be rigid or twisted, elastic or tense; in any case strata move, can be moved and are not timeless, but on the contrary, even that we as humans might observe them as relatively stable, *strata are already part of a time lag and a local shift*, as are strata of experiences, or as we call them here: attentional strata. Strata stratify, cement, fold and erode or crack up, are perforated, decompose and may slide away. For Deleuze & Guattari strata in the first place come as a double articulation a) a sedimentation that produces strata layers in a “statistical order” (ATP, 41) whereas b) the second articulation is a *folding of strata* effectuating the transition of sediments to “sedimentary rock” (ATP 41) and not as in geological strata by compression or densification. However, the double articulation of the strata is not located in between substance and form as for Deleuze/Guattari in ATP “substance is nothing other than formed matter” (ATP, 41). Form can be seen therefore as *semiotic* involving not only coding and recoding but also *decoding*. The double articulation of strata as in the double images of Costa’s paintings involve, however, not only code or language phenomena but also *territoriality*, and



this territoriality is introduced by the *segmentarity lines of interstice* that make the parts of the upper and down images open to a game of multiple combinatorics, that can be found also in between the layers of strata "(...) constituting an overcoding (...), phenomena of centering, unification, totalization, integration, hierarchization, and finalization."(ATP, 41)

→
Strata #10 | 2009 | oil on linen | 200x162.5cm





Strata #11 | 2009 | oil on canvas | 144x120cm



Strata #12 | 2011 | oil on canvas | 142x118cm

Stratification, according to Deleuze / Guattari, occurs in three double steps: stratification, de-stratification and re-stratification. Stratification happens all the time as does building of rests. The surfaces rest, while the interstices make us act and move. These strata- surfaces can be seen as a "machinic assemblage"(ATP, 40) that either faces their proper layers as a relation between strata (the assemblage of a "*interstratum*") or face something else as the assemblage of a "*metastratum*" (ATP 40), that Deleuze / Guattari call the "plane of consistency" (ATP 40).

In *A thousand Plateaus* (ATP) they are distinguished in a first articulation - analog to geological stratification - as *sedimentation* and a second as *folding*.

There is, however, always one or more relevant interstice lines that separate(s) and opens up the strata inside the image and doubles almost all the pictures in itself as two pictorial strata.



Strata #13 | 2011 | oil on canvas | 142x118cm

[3.1]

What does the *line of interstice* in Sérgio Costa's painting series "Strata" think it is?

Is the interstice just a geological necessary by-product of the tension of movement and fixation and thus a plane of consistency? Can we construct strata (stratification de- and re-stratification) as a valid model not just for a geopictorial view but also a general geo-attentional view derived from Costa's work?

▪

→ *"We immerse ourselves from stratum to stratum, from band to band; we cross the surfaces, scenes and curves; we follow the fissure, in order to reach an interior of the world: as Melville says, we look for a central chamber, afraid that there will be no one there and that man's soul will reveal nothing but an immense and terrifying void (who would think of looking for life among the archive?) But at the same time we try to climb above the strata in order to reach an outside, an atmospheric element, a 'non-stratified substance' that would be capable of explaining how the two forms of knowledge can embrace and intertwine on each stratum, from one edge of the fissure to the other."* Deleuze, G. (1988). *Foucault*. Transl. and edited by Seán Hand. Forward by Paul Bowé. Minneapolis: University of Minnesota Press, p.121 ←

Are the interstice lines of Sérgio Costa's Strata this empty infinite horror vacuo of a search for a central chamber, the central onion peel? That means do we by contemplating strata fall into a void, a clueless "eternal pause" (Heiner Müller) or an *earthless infinite ocean where the land has broken up behind us* as in Nietzsche's infinity

horizon? I don't think so. So let us contemplate on strata and the institution of the historical formation of knowledge according to Deleuze's vision of Foucault in his chapter: "Strata or Historical Formations: The Visible and the Articulate (Knowledge)," instead: For Deleuze, Foucault shows us that wherever knowledge is stratified, archived or strictly segmented we are on the other hand as well dealing with a power that is diagrammatic or a non-stratified mapping, mobilizing non-stratified matter and functions (an abstract machine), again a double articulation. Thus, according to Deleuze, the genealogy of knowledge is dislocated onto the plane of geology and geography of knowledge or simply on the plane of geo-philosophy in which thinking takes place "in between territory and earth". The visible content and the articulable discursive expression together form what can be called the double articulation of *strata of history and episteme* in proximity to Foucault:

Strata articulate na >interstie mode< of a) territorializing as non-discursive (visible) and b) discursive (sayable), coding.

→ "Strata are historical formations, positivities or empiricities. As 'sedimentary beds' they are made from things and words, from seeing and speaking, from the visible and the sayable, from bands of visibility and fields of sayability, from contents and expressions. (...)Just as penal law as a form of expression defines a field of sayability (the statements of delinquency), so prison as a form of content defines a place of visibility ('panopticism', that is to say, a place where at any moment one can see everything without being seen)." (Deleuze, Foucault, 98) ←



Strata #14 | 2011 | oil on linen | 200x162.5cm

According to Deleuze knowledge as praxis is given in the unity of strata by the function of staking up of thresholds in between the layers as a mechanism of practical statements and positive visibilities.

→ *"Knowledge is the unity of stratum which is distributed throughout the different thresholds, the stratum itself existing only as the stacking-up of these thresholds beneath different orientations, of which science is only one. There are only practices, or positivities, which are constitutive of knowledge: the discursive practices of statements, or the non-discursive practices of visibilities. But these practices still exist beneath archaeological thresholds whose shifting points of demarcation constitute the historical differences between strata."*(Deleuze, Foucault, 102) ←

²⁶ Warburg, A. Notizblatt mit Stratigraphem. In: Zettelkasten 43 ("Archeologie"), WIA3.243/023256 and WIA3.243/023256 cit in Hensel, T. (2011, 148). *Wie aus der Kunstgeschichte eine Bildwissenschaft wurde.* Aby Warburgs Graphien. Berlin: Akademie Verlag, 148. „Aby Warburg (1866–1929) created his photographic collection in Hamburg as a research tool. As new documents now reveal, in the late 1920s, a first system, focused on “subject matter,” was planned for the *Bildersammlung* (image collection) of Warburg's library. The origin of the current iconographic arrangement has been dated to after the Institute's move from Hamburg to London in 1933. The new source discussed here adds some elements to this story: the first step of the iconographic turn that occurred in London was initially designed by Fritz Saxl (1890–1948) in Hamburg within the context of work for the atlas *Mnemosyne*. “Mazzuco, K. (2014). „(Photographic) Subject matter. Fritz Saxl indexing *Mnemosyne*. A stratigraphy of the Warburg Institute Photographic Collection's System,” *Visual Resources* 30/3, 201-221

For Deleuze in order for the non-discursive articulation of the visible not to slip away, a third informal dimension beyond the two forms of strata-determinable/determination, visible/articulable - has to be introduced. Besides a place of opposing confrontation implying a non-place bearing witness that both opponents do not belong to the same place/form, but to an operational third, “operating either beyond or this side of the two forms”, Foucault needs a third tool of agency:

→ *"Foucault needs a third agency, to co-adapt the determinable and determination, the visible and the articulable, the receptivity of light and the spontaneity of language, operating either beyond or this side of the two forms. It is for this reason that Foucault said that the grappling implies a distance across which the adversaries 'exchange their threats and words', and that the place of confrontation implies a 'non-place' which bears witness to the fact that the opponents do not belong to the same space or rely on the same form."*(Deleuze, Foucault, 68) ←

This operational third is as well given in Warburg in his “Querverbindungen”: Warburgs *Memnosyne Atlas* and Warburgs strata-diagrams, the *stratigraphem*²⁶ (Hensel

2011, 146-7) in the archaeology of comparing images confronts us with achronic organized strata and their *lateral relations* or "**Querverbindungen**". The purpose of Warburg's cultural diagrammatic strata method as indicated in the introduction of the **Mnemosyne Image Atlas** is to climb down to the stratified matter of the depth of the human spirit (Warburg, 4), to achieve an *archeology of image knowledge*.

▪

This third is also an interstice strata effect in the words of the German writer Uwe Johnson that states on his main character: *Aber Jacob ist immer quer über die Gleise gegangen*. But Jacob has always passed the tracks against the grain, resisting and persisting the linear, the planed interstice between two defined strata. Sérgio Costa's painting series does this: walking the track against the grain.

▪

Robert Smithson in „A sedimentation of the mind: Earth Projects“ assumes a *geophilosophical thinking and mind*:

→ „The earth's surface and the figments of the mind have a way of disintegrating into discrete regions of art. Various agents, both fictional and real, somehow trade places with each other - one cannot avoid muddy thinking when it comes to earth projects, or what I will call „abstract geology“. One's mind and the earth are in a constant state of erosion, mental rivers wear away abstract banks, brain waves undermine cliffs of thought, ideas decompose into stones of unknowing, and the conceptual crystallizations break apart into deposits of gritty reason. Fast moving faculties occur in this geological miasma, and they move in the most physical way. This movement seems motionsless, yet it crushes the landscape of logic under glacial reveries. This slow flowage makes one conscious of the turbidity of thinking. Slump, debris slides, avalanches all take place within the cracking limits of the brain. The entire body, the cerebral sediment, where particles and fragments make themselves known as solid consciousness. A bleached and fractured world surrounds the artist. To organize this mess of corrosion into patterns, grids, and subdivisions is an aesthetic process that is scarcely touched.“ Smithson, R. (1968). „A Sedimentation of the Mind: Earth Projects. In: Jack Flam (ed). Robert Smithson: The Collected Writings, Berkley and Los Angeles: University of California Press 1996, p.100-113, here p.100 ←

→ „(...)if we consider the earth in terms of geologic time we end up with what we call fluvial entropy. Geology has its entropy too, where everything is gradually wearing down. Now there may be a point where the earth's surface will collapse and break apart, so that the irreversible process will be in a sense metamorphosed, it is evolutionary, but it's not evolutionary in terms of any idealism. There is still the heat death of the sun. It may be that human beings are just different from dinosaurs rather than better. In other words there just might be a different situation. There's this need to try to transcend one's condition. I'm not a transcendentalist, so I just see things going towards a... well it's very hard to predict anything; anyway all predictions tend to be wrong. I mean even planning. I mean planning and chance almost seem to be the same thing.“
Smithson, R. (1973).“Entropy made visible“. Interview with Alison Sky, from: Selective interviews with Robert Smithson, online retrieved: www.robertsmithson.com/essays/entropy.htm ←

²⁷ Blumenberg. H. (2010 [1960]). *Paradigms for a Metaphorology*. Translated and with an afterword by Robert Savage. (=signale) Cornell University Press. Ithaca/New York

²⁸ The German debate of a methodology of the history of concepts (Begriffsgeschichte) that emerged at the same time as Blumenbergs here preferred "metaphorological" account, often assumed the lack of a clear cut methodological reflection of the relation of concepts and metaphors in philosophical language (see: Mende, D. (2009). "Technisierungsgeschichten. Zum Verhältnis von Begriffsgeschichte und Metaphorologie bei Hans Blumenberg". In: *Metaphorologie. Zur Praxis von Theorie* (eds. Anselm Haverkamp & Dirk Mende. Frankfurt: Suhrkamp, 86-90. The historical encyclopaedia of philosophical concepts edited by Joachim Ritter, as the longtime collaborator Magarita Kranz explained, refused a methodological debate of avoiding a metaphorological approach towards philosophical concepts out of "pragmatic reasons" (Kranz, M. (2005),33), or as I would say because of the more complex relations that a synoptic and synthetic approach of concepts and metaphor pose for a philosophical method. The clear-cut separation or the complete conflation of metaphorology and conceptual history are both misleading, as the idea to include some philosophical verbal language metaphors in a historical encyclopaedia, without reflecting its methodology of metaphorology would actually make no difference. This stands against the view of Joachim Ritter (Ritter, J. (1971)>Vorwort< in: Ritter (Ed.). *Historisches Wörterbuch der Philosophie*, Vol.1 Darmstadt, p. VIII) who in his preface explained

[3.2]

Strata as a heuristic, abductive or absolute metaphor?

→ "(...) *metaphorology seeks to burrow down to the substructure of thought, the underground, the nutrient solution of systematic crystallizations; but it also aims to show with what 'courage' the mind preempts itself in its images, and how its history is projected in the courage of its conjectures.*" ←

Hans Blumenberg 2010 [1960], *Metaphorology*, 5

If we take on Hans Blumenbergs²⁷ notion of the absolute metaphor in account for Sérgio Costa's Strata series, we have to consider the following: Can science and art fundamentally convey truth or understanding without certain body techniques of imagination, imagery or of language?

A merely formal, computational, non-intentional or informational science and art approach without involving thought, perception, inference or imagination and its forms of sensory expression such as visual or conceptual metaphors is possible or become mere *empty* abstractions? Is there a heuristics of the image and of metaphor in science and in art as conveyed by strata in Sérgio Costa's painting series? Do we think with or in background metaphors, such as strata/stratification?

It seems to me that metaphors used consciously or unconsciously and their formulation in a metaphorology²⁸ (Blumenberg 2010 [1960]; Gerner²⁹ upcoming) can help us clarify still very vague concepts or topoi in art and science that might still seem not consistent. How can we distinguish merely illustrative or seemingly analogical metaphors (as the hippocampus "strata" metaphor in brain anatomy) from heuristic strata metaphors and even see strata as "absolute metaphors"³⁰ (Blumenberg 2010[1960])

or see the potential of thinking strata further as abductive function to introduce new thoughts and ideas as expressed by C.S. Peirce: “[Abduction] is the only logical operation which introduces any new idea” (Peirce 1903, CP 5.1.71)

As metaphors can be seen to reach to the “subsoil” or the lowest strata of thought, we can properly apply the absolute metaphor of strata as a thinking image of time and sediment-memory and sediment-theory. For Haverkamp³¹ (2012) Blumenberg exactly points to the erosion of continuity of concepts in our tradition by his metaphorology, an archaeology of metaphors that does not present itself *sub specie aeternitatis* but works through the sediments of the history (of philosophy) finding the persistence of ambivalences within the basic terms of philosophical tradition and reminds its trade and us of an inherent “contingency consciousness” in our endeavors.

The absolute metaphor of constitutive strata in Husserl

The phenomenological tradition around Husserl draws habitually on geological metaphors such as stratum, level, layer [Schicht] and as well as sedimentation in a model of progressive layers of logical-ontological constitution of the world and sense:

→ “Thus stratification means the ordered arrangements in levels (structure) and the process of its formation (genesis) all together. And what is presented through such arrangements, i.e. the correlative “objectivity,” can thus be called a “sedimented” sense.” (Rabanaque³² 2010, 78) ←

Rabanaque reminds us on different meanings of the model of stratification used in Husserl:

→ “In static phenomenology, ‘stratum’ (level, layer) describes objective constitution as a whole, whose moments are arranged in a hierarchical order of foundation. In genetic phenomenology, ‘stratum’ (level, layer) names orders of foundation of time, that is, orders of sense institutions and sedimentation.

the absence of philosophical metaphors in his historical encyclopaedia of conceptual terms. For Ritter the “areas” or “fields” of concepts and metaphors lies beside one another. Mende (2009) is right to interpret this approach of Ritter in which metaphor and concept are supposedly not connected as a *two independent fields approach* (Mende 2009, 88) of metaphor and concepts. Similarly, as Mende shows, but on the opposite side of only reflecting metaphors, the approach of Ralf Konersmann’s (2007), dictionary of philosophical metaphors supposedly a homage to Blumenberg is flawed - but the other way round- by repeating the “systematic separation” of the “two areas” of metaphor or concepts.

²⁹ Gerner, A. (upcoming). Philosophical Investigations of Attention. (=SAPERE). Springer: Heidelberg

³⁰ Thus we can distinguish with Blumenberg I) Mere additional rhetoric metaphors, easily being substituted by descriptive language or formalizations II) Metaphors as an indicator of “unclear concepts” or an emerging shifting catalytic knowledge “field” (with all its positive heuristic aspects) and important for attention theory formation III) Absolute founding metaphors of thought presented in the research of attention as a signal of in-conceptuality (Unbegrifflichkeit) of attention IV) And we can add to Blumenberg a Peircean perspective on metaphors as *abductive perceptive-imaginative destabilizers of installed orders*.

³¹ Haverkamp, A. (2012). “The Scandal of Metaphorology”. *Telos* (2012), 158, 37-58.

³² Rabanaque, L.R. (2010). “Percept, Concept and the Stratification of Ideality”. In: Thomas Nennon, Philip Blosser. *Advancing Phenomenology. Essays in Honour of Leister Embree*, Heidelberg: Springer, 71-86

The stratified structures disclosed by static analysis are indices of their genesis in temporal strata, and the latter culminate in those forms described by static analysis, so that both dimensions imply one another." (Ibid, 79) ←

If we adopt the metaphorology of strata for Sérgio Costa's painting series *Strata*, the following becomes clear: Sérgio Costa not only develops static layers of strata that are ordered in a hierarchical schema, but actualizes time-chunks that might even float in his images instead of becoming sedimented as do geological strata.

As sense-making of strata in Husserl includes 'multilayered object constitution' it becomes synthetic in experience in which some new thing or body appears that was not present in the synthesized members. A unification of noetic multiplicities involves ontological change from parts to whole(s). "This organization of parts within wholes is constitution" (Ibid). This process of constitution reflects back on the material, physical or noematic counterparts of the stratification process. Nevertheless for Husserl it seems important to distinguish the two processes of stratification as in his *Ideas* §151 in which he explains that self-givenness of the physical things happens in original experience in "different levels (Stufen) and strata (Schichten) such as incasement-in-one-another (Ineinerschachtelung), pictures within pictures, rememberings with rememberings or as he expresses it in his "Formale und Transzendente Logik": "Perceiving is the consciousness that gives the thing itself, but this self-givenness has levels and strata." (Husserl *Hua* XVII, 449).

Another example in which this overlaying of conscious experience is given synthetically, is described by Husserl in the following as in the synthetic experience of continuous overlapping in apperceptive strata:

→ "If I cross my eyes, or I cross my fingers, then I have two 'things of sight' or two 'things of touch', though I maintain that only one actual thing is present. This belongs to the general question of the constitution of tightly unity as an apperceptive unity of a manifold of different levels which themselves

are already apperceived as unities of multiplicities. The apperception acquired in relation to usual perceptual conditions obtain a new apperceptive stratum by taking into consideration the new 'experience' of the dispersion of the one thing of sight into a pair and of the fusion of the pair in the form of a continuous overlapping, and the convergence [einer kontinuierlichen Zusammenschiebung und Deckung] in the regular return to the former perceptual conditions. (Husserl³³, Ideas II, 66,) ←

³³ cit in: Costello, P. (2012). Layers in Husserl's Phenomenology. On Meaning and Intersubjectivity, University of Toronto Press: Toronto, 91

For Husserl not the singular stratum counts but the interrelation and the "Zusammenhang" of strata, or the holistic binding structure, or sometimes expressed in the absolute metaphor of the "bridge" as relational strata that as substrata are combined in consciousness and that intersaturate each other, penetrate-one-into-the-other (*durchdringen sich*) and impregnate one another (*durchtränken sich*) (Hua XVI, 75, cit in Rabanaque 2010, 79)

Interesting is Husserl's stratified account of the living body as a subsoil or founding strata of spiritual life, as exemplified in his Ideas II (Hua IV,334) in which the lower stratum, named "aesthesiological body" (Hua IV, 284) where the living body is an *organ of perception* a "bearer of sensations" including sensation "fields", sensed affects (*sinnliche Gefühle*), drives (HUA – Mat IV, 183), that is primary passivity governed by a lower stratum of associative synthesis, and co-layered with an upper stratum where this body is an *organ of movement*, accompanied by a *volitional body* (HUA IV,284). *The living body comprises both strata of sensibility and strata of movement*. Contrasting to this formation as a constitution of order and form in Husserl, Deleuze proposes a Nietzschean undoing of formation or fixation of order in Deleuze's concept of the *Body without Organs*, "a mechanism, a procedure, for undoing the strata that binds us" (O'Sullivan³⁴)

³⁴ O'Sullivan, S. (s.d.) "From Geophilosophy to Geoaesthetics: The Virtual and The Plane of Immanence vs. Mirror Travel and The Spiral Jetty" <http://www.simonosullivan.net/articles/geophilosophy.pdf>

³⁵ This is an inversion of a (in)famous “last” phrase “Philosophy, anyone?” of the article of Lorraine Daston on - not only- the difficult relation between relativist approaches to science - as often found in science studies and in relation to Bruno Latour’s famous article from 2004- Bruno Latour, Why has critique run out of steam? From matters of fact to matters of concern, *Critical Inquiry* 30 (2004), 225-248 - and the realist tradition of the factual science as it happened view in history of science in: Daston, L. (2009). *Science Studies and the History of Science*. *Critical Inquiry* 35, 798-813, in which Daston looks out for a possibility of a new form of interdisciplinarity based on “historicized history of science”: “As of yet, a new vision of what science is and how it works has yet to be synthesized from the rich but scattered and fragmented materials gathered by some twenty years of historicized history of science. The very practices that made that history possible militate against such a synthesis coming from the history of science itself. Science studies seems a still less likely candidate for the task. A new form of interdisciplinarity must be forged. “Philosophy, anyone?”” Daston 2009, 813

³⁶ The metaphor of Strata are not merely rhetorical ornamentations or illustrations easily being substituted by better description or formalized terminology, but in the sense of Hans Blumenberg in his “Paradigms of Metaphorology” - alias absolute metaphors - strata are *foundational elements* [Grundbestände] of philosophical language, in the sense of being original “translations” that resist being converted back into authenticity and logicity. If it could be shown that such translations, which would have to be called ‘absolute metaphors’, exist, then

[3.3]

History (of science), anyone?³⁵ Strata as knowledge organization system

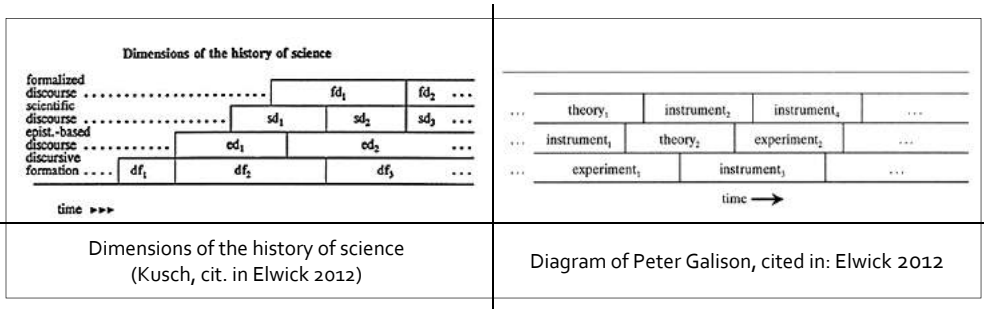
Here we stand at the crossroads of a disciplinary tension that could be made fruitful: A growing field of scattered-detailed partial-fragmented- and micro-history [of science] and its actual avoidance of “absolute” (Blumenberg) or ‘big picture’ metaphors such as *stratification*- and philosophy [of science] on the other hand as the proposer of thinking images, conceptual personae (Deleuze/Guattari), as well as absolute metaphors of stratifications, such as stratifications of discursive formations as in Foucault, or ontological-logical strata as in Husserl. For the idea of an “architectonic of thinking” and its sedimentations in historical terms of absolute metaphors³⁶ – in the sense of Hans Blumenberg and as such has a proper history of its pragmatic thinking function- inquiries in strata become inquiries in a necessary “nutrient solution”³⁷ of thought. Strata

one of the essential tasks of conceptual history (in the thus expanded sense) would be to ascertain and analyze their conceptually irredeemable expressive function. Blumenberg, H. (2010[1960]). *Paradigms for a Metaphorology*. New York: Cornell University, 3. The absoluteness of the strata as historical founding metaphor does -according to Blumenberg, however, not imply that these metaphors could not as well one day be replaced by another absolute metaphor: “That metaphors are called absolute, just means, that they are resistant against the terminological quest, and thus cannot be dissolved in conceptual structures (Begrifflichkeit). This,

however, does not mean that they are not being able to be substituted or eliminated by another metaphor or being corrected by a more precise metaphor. Therefore also absolute metaphors have a history.” Absolute metaphors are dated, have a history and can be substituted by another absolute metaphor thinking, or thinking image. The foundational metaphor of strata and stratification can erode over time.

³⁷ “Metaphorology reaches out for the substructure of thinking, at the subsoil [Untergrund], to reach the nutrient solution [Nährlösung] of systematic crystallisations” (Blumenberg 1998 (1960), 13)

pragmatically used and observed as absolute metaphor of grounding and temporal antecedents -for Kusch in *history of science*- develops layers of discursive formations (df₁, df₂, df₃...), that then turn out to be stratified into higher strata of epistemology based discourse (ed₁, ed₂, ed₃...) from there on a higher strata the scientific discourse (sd₁, sd₂, sd₃...) is built "breathing beyond the strata", on which on a higher strata level formulized discourses (fd₁, fd₂, fd₃...) are built.



→ “Kusch’s diagram nicely clarifies the purpose of the archaeology of knowledge: to uncover ‘deeper’ synchronic levels such as the discursive formation. He likens archaeology to ‘vertical’ history, where a stratum is the basic unit to be reconstructed (Kusch 1991, p. 9). Understanding a stratum as a condition of possibility, and that a level’s relative height indicates how dependent it is on other levels for its existence, reminds us to study the layers as a set.” Elwick³⁸ 2012, 622 ←

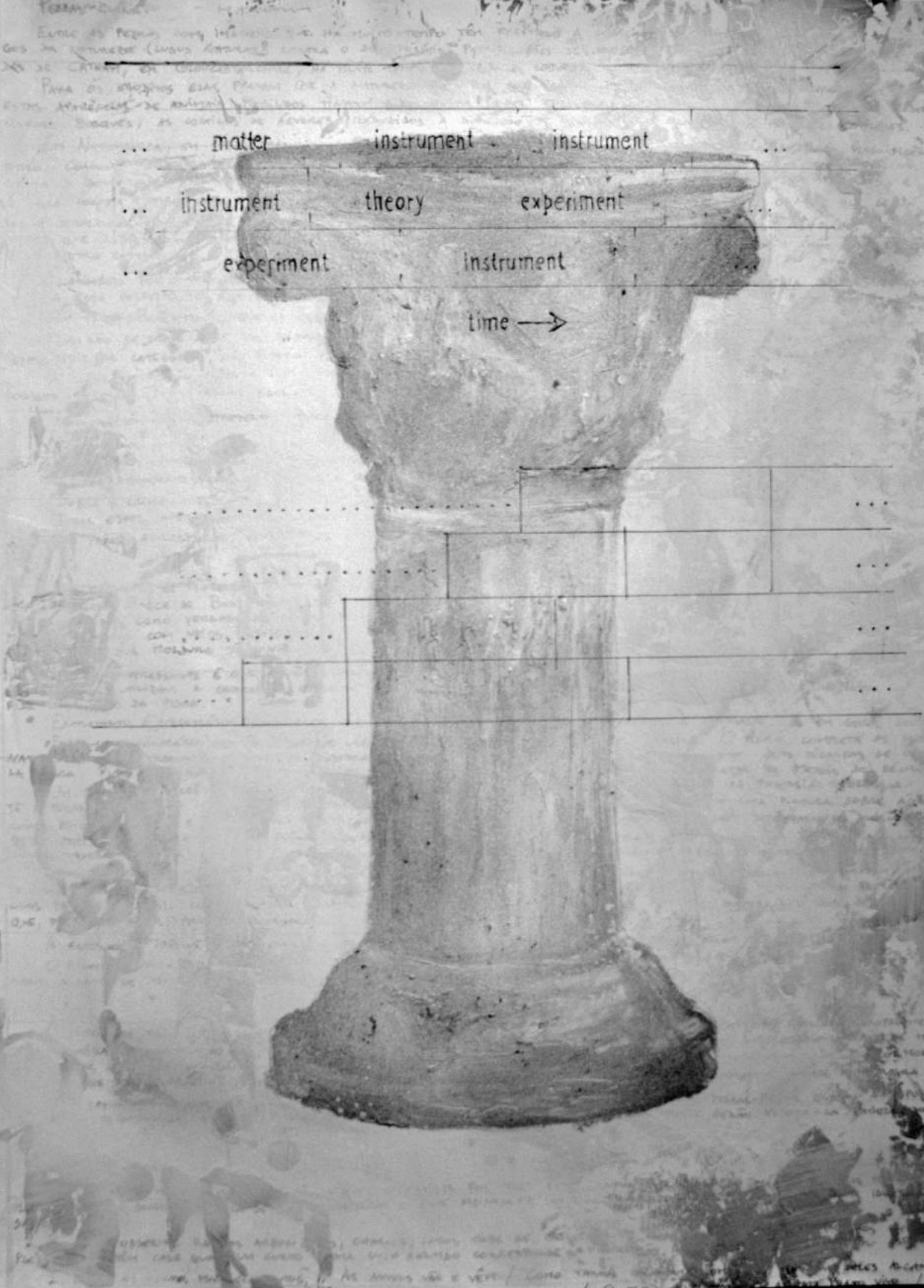
³⁸ Elwick, James. 2012. Layered history: Styles of reasoning as stratified conditions of possibility. *Studies in History and Philosophy of Science* 43, 619-624

Another example that Elwick rightly notes is Peter Galison’s (Galison, 1988, p. 209), strata diagram of scientific activity between a) theory formation, b) instrument development and c) experiments.

For Elwick the metaphor of stratification orients us in big pictures in the sense of our conditions of possibility:



Strata and diagrams a2 | 2014 | oil, enamel and marker on paper | 60x50cm



... matter instrument instrument ...
... instrument theory experiment ...
... experiment instrument ...
time →

				...
				...
				...
				...

→ “The stratigraphic metaphor makes easier our description of relationships of dependence and independence between different levels of conditions of possibility. It acts as shorthand. Thus we usually find strata-talk used to discuss conditions of possibility” Elwick 2012, *ibid* ←

Costa in his work >Strata and diagrams a2 | 2014< transforms both diagrams (Kusch’s and Galison’s into one diagram drawing, while he suspends Kusch’s dimensions of the history of science and lets the diagram blank of any concepts such as discourse formation, formalized discourse etc. he uses the diagram of Galison almost in its entirety, but with one slight difference: Instead of theory1 Sérgio Costa introduces *matter*. For Costa matter seems equivalent with the unstable material world from which his thoughts and observations are manipulated into painting and drawing. Thus a material epistemology in permanent development without a fixed theoretical grounding is proposed, instead of a theory-driven method. Costa also integrates these historical „theory „strata“ diagrams onto a plane that is based on the Latin *spolia* (spoils), a column or building part of previous (theoric/artistic) constructions or obsolete structures and underground foundations, that enable new constructions similar to common practice in Late antiquity, and fosters constructive strata as thinking structures and recombinatorial art pieces of re-appropriation of reuse values (see: Brilliant, R. & Kinney, D. eds. (2011). *Reuse Value. Spolia and Appropriation in Art and Architecture from Constantine to Sherrie Levine*. Farnham: Ashgate). The metaphor of historic architecture and the material Greek-Roman culture as a building block of Costa’s episteme becomes clear. The diagrammatic representation is not grounded, but under- and overlaid by semitransparent diagrams as a way of historically erodible try outs over time. For the *information organization* specialist Tennis³⁹ (2013) this confronts us with the meaningfulness or meaninglessness of the strata of time and the problem of infrastructure and scale in time/change organization: the more strata by updating of information we introduce the less we are able to apply constant formal categories to its distinguishing layers.⁴⁰

³⁹ Tennis, J.T. (2013). Metaphors of time and installed knowledge organization systems: Ouroboros, Architectonics, or Lachesis? *Information Research*, 18(3) paper C38. Online: <http://InformationR.net/ir/18-3/colis/paperC38.html> see as well: Tennis, J.T. (2010). “Measured Time: Imposing a Temporal Metric to Classificatory Structures.” *Proceedings of the 11th International Conference for Knowledge Organization*. (Rome, Italy). *Advances Knowledge Organization* vol. 12. Ergon: Würzburg: 223-228

⁴⁰ “Boydens and van Hooland posit how we might handle change an information system - that it be constantly updated even a complex multi-strata conception of time scales. (...)If we are constantly updating the database then there is no past or future meaning. However, as they observe, this requires a particular perspective on and analysis of information systems. Likewise the design requirements they offer for information systems to accommodate the need for this constant update of the semantics are specifically creating partial or preliminary and less formal categories. This may only work for some kinds of information systems, and might not work for very formal information retrieval systems.” Tennis 2013

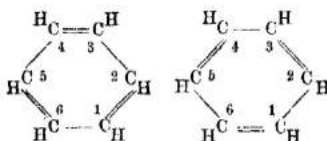
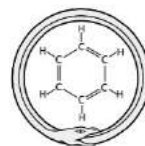
⁴¹ Tennis, J.T. (2012). "The Strange Case of Eugenics: A Subject's Ontogeny a Long-Lived Classification Scheme and the Question of Collocative Integrity." *Journal of the American Society for Information Science and Technology* 63(7): 1350-1359.

⁴² Tennis (2013): "So meaning is recreated with a tie to the past. Metaphorically this is like the ouroboros, the serpent eating its own tail. (...). This metaphor implies that not only is something new constantly emerging from old, and that it too will end. It also signifies that this process of almost immediate semantic shift will never end. This is not unlike [the, A.G.] description of unlimited semiosis (...)." Cf. Peirce CP 1.339: "The easiest of those which are of philosophical interest is the idea of a sign, or representation. A sign stands for something to the idea which it produces, or modifies. Or, it is a vehicle conveying into the mind something from without. That for which it stands is called its object; that which it conveys, its meaning; and the idea to which it gives rise, its interpretant. The object of representation can be nothing but a representation of which the first representation is the interpretant. But an endless series of representations, each representing the one behind it, may be conceived to have an absolute object at its limit. The meaning of a representation can be nothing but a representation. In fact, it is nothing but the representation itself conceived as stripped of irrelevant clothing. But this clothing never can be completely stripped off; it is only changed for something more diaphanous. So there is an infinite regression here. Finally, the interpretant is nothing but another representation to which the torch of truth is handed along; and as representation, it has its interpretant again. Lo, another infinite series".

According to Tennis⁴¹ (2012) "classification schemes are built at a particular point in time; at inception, they reflect a worldview indicative of the time. This is their strength, but results in potential weakness as worldviews change (...) Understanding a subject's ontogeny leads us a long way towards understanding the power of collocation through representation, and the weight of meaning in the value added through classification and indexing".

In the direction of Blumenbergs account, Tennis distinguishes three metaphors of time structure and change inside knowledge organization systems that "can be used as lenses to analyze extant or newly designed knowledge organization systems" (Tennis 2013): (1) Ouroboros⁴², similar to a tail devouring snake or a *circular* infinite structure – and not a linear string structure – as described for example by Kerkulé's abductive collateral observation moment of the discovery⁴³ of the closed-ring structure of the chemical Benzene molecule:

Diagram composition taken from wikipedia:
http://upload.wikimedia.org/wikipedia/commons/4/4e/Benzene_Ouroboros.png



Benzene Formulae Diagram of Kerkulé, taken from:
[https://en.wikipedia.org/wiki/Ouroboros#/media/File:Historic_Benzene_Formulae_Kekulé_\(original\).png](https://en.wikipedia.org/wiki/Ouroboros#/media/File:Historic_Benzene_Formulae_Kekulé_(original).png)

⁴³ "During my stay in Ghent, I lived in elegant bachelor quarters in the main thoroughfare. My study, however, faced a narrow side-alley and no daylight penetrated it(...) I was sitting writing in my textbook, but the work did not progress; my thoughts were elsewhere, I turned my chair to the fire and dozed. Again the atoms were gambling before my eyes. This time the smaller groups kept modestly in the background. My mental eye, rendered more acute by the repeated visions of this kind, could now distinguish larger structures of manifold conformations; long rows

sometimes more closely fitted together all twinning and twisting in snake-like motion. But look! What was that? One of the snakes had seized hold of its own tail, and the form whirled mockingly before my eyes. And as if by a flash of lightning I awoke; and this time also I spent the rest of the night in working out the consequences of the hypothesis" (Kerkulé, cit in: Weisberg, R. (2006). *Creativity. Understanding Innovation in Problem Solving, Science, Invention and the Arts*. Hoboken: John Wiley & Sons, 76.

(2) Arquitectonics⁴⁴ as *foundational* metaphor and applied in Husserl's strata concept and (3) Lachesis⁴⁵ in which old concepts are not revised but new are added to a knowledge organization we suppose is correct. These three metaphors help us evaluate and theorize knowledge organization system accounting for change⁴⁶ and time. Important is to note the classifications in which strata have infiltrated the description of our body and anatomy. Two examples may be found for instance in the *Strata of the skin* and strata of the hippocampus or *memory strata*⁴⁷ a double concept of an embodied notion of stratification and that has to be complimented today with the question of how the re-adapting plasticity of networks have changed the meaning of strata, as in neural networks, or how conceptual clusters in the internet work in a adding rhizomatic way, meaning to existing terms that is nor pre-directed or intentional as in ideas of foundation and architectonics nor repetitive and cyclic as in circular knowledge organization metaphors.

⁴⁴ "(...) architectonic means systematic, designed, and formalized meaning progressing through time. This metaphor assumes that meaning is discrete from edition to edition, and that knowledge organization system are potentially ruptured through the change that results a new edition. We can contrast this with more incremental architectonic time where we do not issue editions, but rather revise piecemeal one concept at a time, without the declaration of a new edition." (Tennis 2013, *ibid*)

⁴⁵ "The lachesic metaphor of time we assume that once knowledge organization system is correct its only change is to add concepts and relationships that did not exist before. There is no commitment evidenced the literature that practitioners must

use older concepts. Having said that, older concepts are not revised the lachesic models of change knowledge organization system. Domain analysis a lachesic model would only introduce new concepts and relationships. It would not revise old concepts." Tennis 2013

⁴⁶ A "three-strata metaphor for change" (Tennis 2013) is often applied in data organization: "a) long-term, mid-term and short-time change (cf. Boydens, I. & van Hooland, S. (2011). "Hermeneutics Applied to the Quality of Empirical Databases." *Journal of Documentation* 67(2): 279-289

⁴⁷ Eroded Strata, or as the art of remembering what is already not there anymore, in the line of thought that Biceaga (2010) proposes in relation to Husserl's preoccupation with *sedimentation* as being a *form of conservation and forgetfulness*:

"Memory and habitus produce strata of sedimented synthetic results, thereby expanding the context within which reflective activity is performed. Husserl has (...) worries about the effects of sedimentation. (...) while making inactual contents available for consciousness, sedimentation is prone to associating items belonging to disparate strata, thereby causing misrecognitions and recall-failures. Consequently, sedimentation is just as much a form of conservation as it is a kind of forgetfulness." Biceaga, V. (2010). *The concept of Passivity in Husserl's Phenomenology*. Heidelberg, Springer, xviii

In the architectonic thinker - Edmund Husserl - the most important founding father of phenomenology, besides C.S. Peirce proper "phenescopy"- in his *Prolegomena of the Logical Investigations* the *foundational thinking image of strata* is of highest importance not in a historical but in a logical and ontological perspective as his *logical-formal architecture* builds on various stratified levels of mathematical and logical knowledge and ontology. Husserl distinguishes a *first logical- mathematical stratum*, which contains meaning categories (morphology of meaning and how meaning shape propositions). This first stratum is ruled in a law-like fashion by *apriori* laws and *apriori* or "pure" grammar that specify the rules for meaningfulness in its most general terms, a formal ontology⁴⁸ (the theory of any object of whatever general type or derived concrete form) of pure possibility that needs to meet formal apophantics in order to be consistent. Mathematically- as logical correlates in this first stratum-level according to Husserl we can avoid non-sense by finding formal –objectual categories such as numbers, sets, relations, mereology (whole-parts logic), operating on *apriori* rules and that provides us with a "morphology of meanings": a morphology of formal-ontological categories. This can be seen as a doctrine of the laws of combination of primitive apophantic logic (Greek-*apophansis*: judgment or assertion) and of formal ontological categories. On top of the first- for Husserl- lies a *second logical -mathematical stratum* organized in a deductive manner and according to forms of simple syllogisms (Modus Barbara etc.) embracing not only logic but as well Arithmetic. In the third stratum up the other two we are dealing with a metastratum in which laws are formulated to prevent contradictions by true judgments and propositions. Besides syllogisms in this same stratum Husserl considers logic of truth in relation to the propositions and its rules of transformation. This example shows a paradox of the principle of thought- stratification in the sense of instilling hierarchies of thought for evolving higher complexity. However as islands in a sea of entropic decomposition, erosion and rupture that attract each other and by that build spatio- logically onto each other within a mainly unreflected earth-time condition *Newtonian „fundamental" strata-force of gravity* (1687) could not only

⁴⁸ "Taken in its original sense, formal logic is *not only* that; for in a fully developed formal logic, i.e. in a logic which, as formal *mathesis universalis*, includes formal mathematics, formal apophantics is the counterpart of formal ontology, the theory of something in general and of its derived forms, thus of concepts like 'object', 'property', 'relation', 'plurality', and the like." Husserl, E. (Landgrebe, E.) (1997). *Experience and Judgment*. Northwestern University Press, 11

be transformed into an *Einsteinian geometric-strata description of curvature bending of space-time* (1916) by unequal distribution of mass and energy-resulting in dilatation of time- and tides of thought. This might probably not be the end point of thinking strata, their formations and entrophy, further, but might actually lead us to the idea that strata might be defined by a thermodynamic *entropic force*, once emerged as might space-time geometry have emerged, in which- when something emerges and grows and evolves- something else must become smaller, must decay and erode. Erik Verlinde⁴⁹- in the end of his article „On the Origin of Gravity and the Laws of Newton“- *heuristically*, puts forward an emergent gravity model for general matter distribution, in which gravity would be a consequence of the universe striving to maximize *entropy* and would come into existence because of a difference in concentration of information in the empty space between two masses and their surroundings, while concluding: „we are entering an unknown territory in which space does not exist to begin with“ and in which not only the erosion of strata would become virtual by the thinking image of *holographic strata of unpredictable informational density*; a new door of perception is opened up before our astonished eyes, facing a holographic space-time from which strata could emerge...

▪

The strata as the *vertical history of science* “shouldn’t be drilled” as the Historian of Science David Knight in 1975 remarked:

→ “Historians have tended to drill a small hole down from the present through the strata of history, they would be well advised instead to look much more closely at the contents of one particular stratum.” Knight⁵⁰, D. 1975, 25-26 (see: Kusch 1991, 10) ←

This quote leads us to the tension of two possibilities of epistemological strata:

⁴⁹ Verlinde, (2010[2009]). “On the Origin of Gravity and the Laws of Newton,” arXiv:1001.0785v1 [hep-th] 6 Jan 2010

„Gravity has given many hints of being an emergent phenomenon, yet up to this day it is still seen as a fundamental force. The similarities with other known emergent phenomena, such as thermodynamics and hydrodynamics, have been mostly regarded as just suggestive analogies. It is time we not only notice the analogy, and talk about the similarity, but finally do away with gravity as a fundamental force./Of course, Einstein’s geometric description of gravity is beautiful, and in a certain way compelling. Geometry appeals to the visual part of our minds, and is amazingly powerful in summarizing many aspects of a physical problem. Presumably this explains why we, as a community, have been so reluctant to give up the geometric formulation of gravity as being fundamental. But it is inevitable we do so. If gravity is emergent, so is space time geometry. Einstein tied these two concepts together, and both have to be given up if we want to understand one or the other at a more fundamental level./ The results of this paper suggest gravity arises as an entropic force, once space and time themselves have emerged. If the gravity and space time can indeed be explained as emergent phenomena, this should have important implications for many areas in which gravity plays a central role. It would be especially interesting to investigate the consequences for cosmology. For instance, the way redshifts arise from entropy gradients could lead to many new insights.“ Verlinde 2010, 22

⁵⁰ Knight, D. (1975). Sources for the History of Science 1660-1914. Studies in the Uses of historical Evidence. London: The Trinity Press

a] the immanent strata, as Knight proposed and the thought image of the possibility to permanently stay on a particular stratum, or fix a stratum as such, and

b] the project of a genealogy and development of epistemic concepts and practices over time, where the proper stratum is in movement and in morphological development.

The former project to stay on one stratum in Deleuze and Guattari's term is already obliged to admit that it is a paradoxical task to research on the one and only or any type of "**central stratum**":

→ "It would be a mistake to believe that it is possible to isolate this unitary, central layer of the stratum, or to grasp it in itself, by regression. In the first place, a stratum necessarily goes from layer to layer, and from the very beginning. It already has several layers. It goes from the center to the periphery, at the same time as the periphery reacts back upon the center to form a new center in relation to a new periphery." ←

The later project of a genealogy of strata is again affected by a tension of a divide: First as a philosophical genealogy of concepts that in its early form according to Martin Kusch is necessarily –maybe not only- "imaginary" or defined by "just so stories" (Kusch⁵¹ 2008). This imaginary "genealogy" can be found for example in the imaginary project of strata as the fictious "genealogy" of Deleuze & Guattari's history of the adventures of the world told in *A Thousand Plateaus* that attributes to the chapter on strata a date- "10.000 years before Christ". This datum or givenness is however dislocated from *actuality* of time and *reality* of occurred history: we are thrown into a multiplicity of plateaus and their "imaginary datum" *besides* spatial planes not *after* hierarchical temporal and successive events of a genealogy of the other. We are being inscribed in a plane of phantasy and science fiction of a 'conceptual persona' (WP⁵²) as a character of a series of stories of Sir Arthur Conan Doyle, called *Prof. Challenger*, who in a 1000 plateau's also transforms a stratified "*real historical genealogy*" into a de-stratifying *imaginary fictious "philosophical geology"* and presents us with its operative

⁵¹ Kusch, M. (2008). "Social Epistemology: Five Answers". In V.C. Hendricks and D. Pritchard (eds.), *SOCIAL EPISTEMOLOGY: FIVE QUESTIONS*, Automatic Press

⁵² see: Deleuze, G, Guattari, F. (1994[1991]). *What is Philosophy?* New York: Columbia University Press, 61-84

principle: **stratification** operating by (a) codification and (b) territorialization:

→ “The same Professor Challenger who made the Earth scream with his pain machine, as described by Arthur Conan Doyle, gave a lecture after mixing several textbooks on geology and biology in a fashion befitting his simian disposition. He explained that the Earth—the Deterritorialized, the Glacial, the giant Molecule—is a body without organs. This body without organs is permeated by unformed, unstable matters, by flows in all directions, by free intensities or nomadic singularities, by mad or transitory particles. That, however, was not the question at hand. For there simultaneously occurs upon the earth a very important, inevitable phenomenon that is beneficial in many respects and unfortunate in many others: stratification.” (ATP 61) ←

The second project of genealogies- based on historical records- is found in *actual* historians of science⁵³ that can be called “real” genealogies as -for instance in the *epistemology of the concrete*⁵⁴ in Hans-Jörg Rheinberger, a biologist, Philosopher and Historian of science, following a program that aims to show that key epistemological concepts—like *evidence*, *objectivity* or *proof*—have a contingent history, [thus are stratified over time; A.G.]; that nothing about these concepts is or was inevitable or permanent.” (Kusch 2008, emphasis A.G.)

But let’s stay one more moment with the idea of strata as layered alias stratified temporal history in which the underlying layers sustain the upper one’s and as such looking out for *founding strata*:

→ “*Hacking*⁵⁵, as well as other scholars, depicts these myriad relationships of possibility, necessity, and dependence by using the metaphor of layers. Multiple conditions of possibility form strata. How high a particular condition of possibility sits as a layer indicates how much it requires other condition-layers for its very existence: ‘higher’ strata are made possible by ‘lower’ ones. This can again be expressed

⁵³ See: Daston, L. and P. Galison (2007). *Objectivity*, New York: Zone Books

⁵⁴ Rheinberger, H.-J. (2008). *Epistemologie des Konkreten. Studien zur Geschichte der modernen Biologie*. Suhrkamp: Frankfurt; Rheinberger, H.-J. (2003) “Präparate- >Bilder< ihrer selbst. Eine bildtheoretische Glosse”. In: *Bildwelten des Wissens. Kunsthistorisches Jahrbuch für Bildkritik* (2), 9-19

⁵⁵ “The stratigraphical metaphor was probably one of Foucault’s major influences on Hacking. After all, Hacking uses strata-talk to discuss styles as well as Foucauldian archaeology. Thus Hacking notes how Foucauldian *savoir*, “depth knowledge”, configured the possible ways in which *connaissance*, “surface knowledge” emerged. Apparent rivals such as the taxonomy of Linnaeus and the Method of Adanson actually shared common qualities because they were governed by the same “underlying” rules of formation (Hacking, 1979, pp. 89–91; 1981, p. 77; see also Foucault, 1972, translator’s note 2 on p. 15). Foucault himself explained archaeology in terms of strata—an obvious point when the word itself means to dig downward through various layers of earth and rock in order to uncover hidden things.” Elwick 2012, (see: Foucault, M. (1972). *The archaeology of knowledge*. New York: Pantheon Books; Hacking, I. (1979). *Michel Foucault’s immature science*. In: *Historical ontology*. Cambridge, MA: Harvard University Press, 178–199)

Deleuze in relation to his view of Foucault’s main axes of thinking distinguishes three topics in Foucault strata concept- 1) strata as historical formation (archeology) 2. The outside as beyond (stratigraphy) 3. The inside as substratum (Genealogy)- and therefore formulates “Strata” as

“historical formation”: “Strata are historical formations, both empirical and positive. They are made of words and things, seeing and speaking, the visible and the utterable, planes of visibility and fields of legibility- content and expression. (...) Foucault will draw his conclusion in Archeology of Knowledge, where we find a general theory of the two elements of stratification: the forms of content, or non-discursive formations, and the forms of expression, or discursive formations. In this sense, that which is stratified constitutes Knowledge (the lesson of things and the lesson of grammar) and is subject to archeology. Archeology does not necessarily refer to the past, but to strata, such that our present has an archeology of its own. Present or past, the visible is like the utterable: it is the object not of a phenomenology, but of an epistemology.” from the chapter: „Strata or Historical Formations: The Visible and the Articulate, Deleuze, G. (1988). Foucault, p 47-69

negatively: remove the lower level conditions of possibility, and the upper level conditions that depend on them must also disappear. Layered history may cause philosophical concerns. An obvious one is that this model seems deterministic. Wasn't Marx's now-discredited historical materialism a form of layered history? Didn't it ignore agency and contingency by depicting economic forces of production as the 'base' for political and intellectual 'superstructures' such as ideologies, theories, or political relations—the lower ones thereby causing the upper ones. (...) Such concerns about determinism and reductionism arise because the relationship between different layers often goes unarticulated. One can allay these worries by claiming that a lower layer does not cause a higher one, but instead makes it possible. Work in philosophy of biology, on levels of organization, suggests better ways to think about possibility in layered history. (Rigby, 1998, p. 180)?” Elwick 2012, 620 ←

Strata combine both a) *imaginary genealogies* as the science *fiction* of geology and b) the science history of the genealogy of concrete material things - so called “*real genealogies*”- in which knowledge becomes displayed or visible. This is the specific case of the real as in prepared things, a preparation (Rheinberger 2006; 2003). It seems that the use of the *imaginary* – that might be easily discarded by historians of science, actually need the self-preparation of the concrete things to stratify the *real*. Human-made (artistic as well as scientific) preparations- for instance Sérgio Costa’s claylike molds- and natural petrification of for example shark-teeth have in common the relative preservation over time, while the imaginary is needed to fix the image in a concrete preparation.

This brings us back to a parallel of Costa’s artistic and Steno’s geological principle of molding of strata as expressed well by Gould in relation to Steno:

→ “It is founded upon two great taxonomic insights: first, the basic recognition of solids within solids as a coherent category for study, and second, the establishment of subdivisions to arrange solids within solids according to the causes that fashioned

them. Steno used two criteria for his subdivision (They were blessedly obvious once you state the problem, but Steno's revolution is the statement itself.)

First, in what might be called the **principle of molding**, Steno argues that when one solid lies within another we can tell which hardened first by noting the impress of one object upon the other. Thus fossil shells were solid before the strata that entomb them because shells press their form into surrounding sediments just as we make footprints in wet sand. But surrounding rocks were solid before the calcite veins that run through them because the calcite fills preexisting channelways just as jello matches the flutes of a mold. The principle of molding allows us to establish the temporal order of formation for two objects in contact. In a world still regarded by many of Steno's contemporaries as formed all at once by divine fiat, this criterion of history struck a jarring chord and eventually forced a transposition in thought." Gould 1981, 23-4 (my emphasis) ←

Human stratigraphy is meaning bound and in this sense attributes meaning to the layering process of up-down, down-up and in-between strata. Geological strata, even though we interpret them in a genealogical and material development over time, lack these attributed logics of meaning. What if strata can be recombined and the older can appear on top or besides the younger or earlier strata? Time is out of joint. This then is our modern Shakespearian condition. How do we get rid of the heaviness of the logic of stratification and reach the non-stratified?

▪

Strata as "actualized systems with homogenized components operating at or near equilibrium/steady state/stability" (Bonta and Protevi 2004: 150)⁵⁶ are biunivocal or polyphonic, complex.

⁵⁶ Bonta, Mark and Protevi, John. 2004. *Deleuze and Geophilosophy: A Guide and Glossary*. Edinburgh: Edinburgh University Press

▪

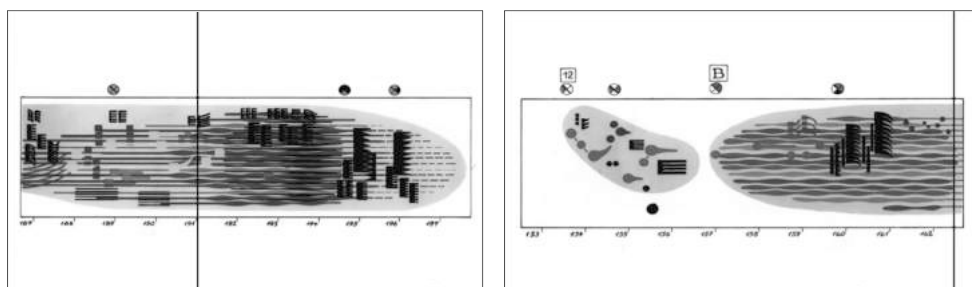
In music, one of the composers who tempted the non-stratified is György Sándor Ligeti especially in his "atmospheres", breathing non-stop soundspheres of

chords, in which the distinction of back- and foreground disappear, no strata can set, rest - just a floating of soundscapes is shown: a flying or breathing soundsphere.

On the other hand Ligeti's work "Artikulationen" experienced a visual diagrammatic re-stratification in the sense of the introduction of a metaphoric kinaesthetic synthesis in between music and visual arts in the chart of a non-orthodox attentional iconic notation of a music piece. The Visual Chart of Rainer Wehinger of György Ligeti "Artikulation" shows hereby the legend of the map that Wehinger in the 70's developed in order to escape the conventions of standardized notational strata of regularity on metric and harmonic style and approximates himself to the work of Ligeti by colors, shape, extension and position. This system distinguishes new modes of visual stratification: color to express pitch and tone. Even a column in the legend indicates forms of noise, a second column from left to right in the form of a comb indicates the harmonic and sub-harmonic specters, as the points hint to filtered or unfiltered impulses, and the length of the visual object indicate duration.⁵⁷

⁵⁷ See:

http://www.youtube.com/watch?v=71hNL_sktZQ

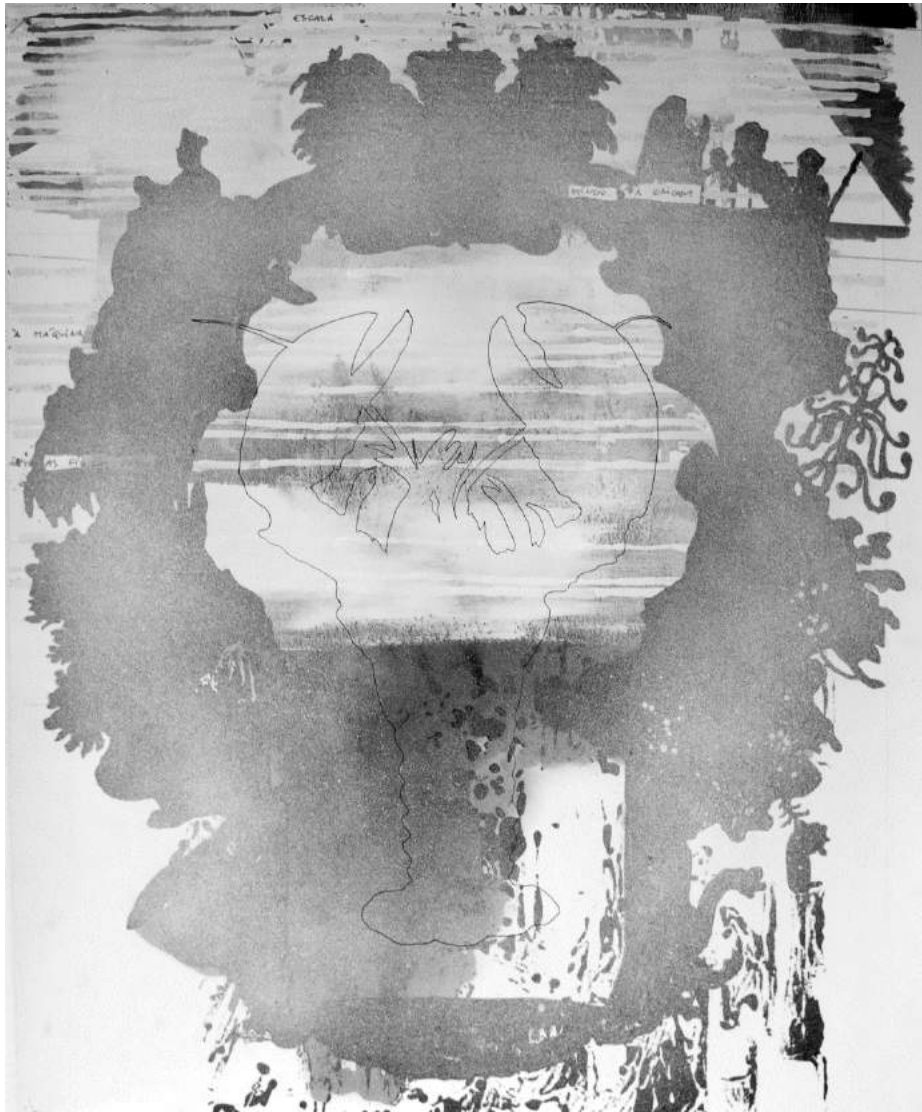


"The Visual Chart of Rainer Wehinger of György Ligeti "Artikulation" show the legend of the map that Wehinger in the 70's developed in order to escape the conventions of standardized notational strata of regularity on metric and harmonic style and approximates himself to the work of Ligeti by colours, shape width and position.

We have to be careful not to be deceived by Sérgio Costa's 2008 exhibition title "Strata: a geopictorial collection", as these impressive oil on canvas paintings that supposedly show stone layers of frozen or concealed consistent strata of rocks might be more than photorealistic geologic snapshots of the earth outer crust. Sérgio Costa is a *geo-pictorial collector*. He is an observer of geological and experiential strata, and a geo-philosophical investigator of the image, and of attentive experience. He uses a diversity of tools. Besides his search and selective observation, he intensifies his attention with a digital camera, a photocopy machine, the pencil - here also as a mapmaking tool to design a grid over the photocopied photography and a dense logic of color combination of sepia, cobalt blue, raw umber brownish and titan white to approximate phenomena of strata.



Strata #3 | 2008 | oil on canvas | 144x120cm



Strata and diagrams f3 | 2014 | oil, enamel and marker on paper | 60x50cm | “Deleuze Double Pincer”

The double pincer. Strata as double bind:

“God is a lobster, or a double pincer, a double bind. Not only do strata come at least in pairs, but in a different way each stratum is double (it itself has several layers). Each stratum exhibits phenomena constitutive of *double articulation*. Articulate twice, B-A, BA. [...] Both articulations establish binary relations between their respective segments. But between the segments of one articulation and the segments of the other there are biunivocal relationships obeying far more complex laws” [ATP 40-41].

▪

If concepts are *metastrata*, and thus in the words of Deleuze/Guattari in "What is philosophy"(WP) "a skeletal frame"(WP,36) or a "spinal column"(ibid.) or a "archipelagos" (ibid) then the plane is an image of thought or the "breath that suffices the separate parts"(ibid). If the breathing is crystalized, it might become strata of ice. If the magma is made consistent by cooling down it might become strata of volcanic stone. But the plane of immanence is the whole and one that strata don't achieve. It is a singular wave that is difficult to attend to.

It is the singular configuration and the problem of induction from the particular towards the universal that is difficult to attend to without diagrammatically or schematically grasping its universal make-up at the same time, as explained in perfection by Aristotle:

→ „This means that in the act of perceiving a singular thing, we must not only perceive that which makes it particular, unique, and different from other sensible individuals, but also that which makes it an instance of a universal.“ Aristotle Posterior Analytics II.19, Chapter 2 From Sensation to Experience⁵⁸ ←

⁵⁸ Aristotle (2004). Posterior Analytics II.19, Introduction, Greek Text, Translation and Commentary Accompanied by critical Analysis by Paolo C. Biondi, Saint-Nicolas (Québec): Les Presses De L'Université Laval, p.188

▪

Concepts can be called strata of thinking. They are as Deleuze and Guattari say, "arquipelagus" and this tension-movement to assent on strata and to flee them is at the same time a movement that turns towards strata, while equally trying to avoid strata. This is expressed by Deleuze/Guattari in "What is philosophy?" in relation to the plane of immanence:

→ "To turn towards does not imply merely to turn away but to confront, to lose one's way, to move aside" (Deleuze/Guattari, 38). ←

What is it that in >attending< confronts us, to lose the way of intentional action, and to essentially disorientate- loose the map on which our attentional habits work?

▪

And, to what do we turn to, and at the same time let go, when we lose our way and move beside or climb above the strata?

▪

Strata as stratified rocks can include an element that was not inside the strata before, as in the movie >128hours< in which a climber falls into a fault and gets stuck with one of his hands in between two strata of rock; in the end he decides not to become rock himself but to sacrifice his hand and cut off the in-between strata-hand for the sake of "climbing above the strata in order to reach an outside" (Deleuze, Foucault 99).

Strata orient towards the atmospheric and tend to reach an "outside", or better: a virtual of strata. Deleuze therefore describes a triple movement of

- a] the immersion of stratum to stratum,
 - b] the life inside the fissures, the crossing from surface of stratum to another stratum surface and
 - c] the movement of the virtual of the outside of the stratum to reach a non-stratified and "non-interstratum", a kind of substance resisting stratification: an atmospheric element- *a sphere to breath*.
-

Breathe in – Breathe out. How? Beyond the stratum and its in-between.

▪

Or expressed as a method of producing yourself as a breathing machine from the stratum:

→ "Lodge yourself on a stratum, experiment with the opportunities it offers, find an advantageous place on it, find potential movements of deterritorialization, possible lines of flight, experience them, produce flow conjunctions here and there, try out continuums of intensities segment by segment, have a small plot of new land at all times. It is through a meticulous relation with the strata that one succeeds in freeing lines of flight,

causing conjugated flows to pass and escape and bringing forth continuous intensities for a BwO. Connect, conjugate, continue: a whole 'diagram,' as opposed to still signifying and subjective programs. We are in a social formation; first see how it is stratified for us and in us and at the place where we are; then descend from the strata to the deeper assemblage within which we are held; gently tip the assemblage, making it pass over to the side of the plane of consistency. It is only there that the BwO reveals itself for what it is, connection of desires, conjunction of flows, continuum of intensities. You have constructed your own little machine, ready when needed to be plugged into other collective machines."

Deleuze and Guattari, *A Thousand Plateaus*, "How Do You Make Yourself a Body Without Organs?", 161 ←

In the case of the ongoing oil painting on canvas series "Strata" 2008-(2014) the first paintings that vary in between two formats (200x162,5cm and 144x120, except Strata #5 130x160cm) started in 2008 #2-7(2008). The paintings # 8-11 were collected in a pictorial fashion in 2009 and #12-16 have been painted in 2012. In its majority the oil on canvas of Strata are composed of at least two parts that sometimes we perceptually unify automatically at first sight- the exception hereby are Strata #5, the anaglyphic Strata #19, #20, #21 and the cloud strata from Strata#22-#27(2015). Therefore the line in between the two strata of the image are sometimes more (#2, #6,#8-11, #13-14, #16) sometimes less(#3, #4, #7, #12) visible *interstice* lines between two parts depicting stratified calcium formations on the oil painting.

Costa deals therefore at least with two types of strata:

[1] The geological formations of rocks of the outer earth crust within its relative stability of fixedness and its possible dissolution of questioning of the principle of horizontality

[2] The attentional destratification, atmospheric attention and the strata of the image that I would call here the double strata of the phenomena in themselves.

The pair of types of strata let us think on what the strata could be and why we need a geo-philosophical approach to understand the geo-pictorial collection of Sérgio Costa's work.

[3.4]

Stratified medicine or stratifying medicine? Strata between techné and bios

What in recent debates in Biomedicine is called >Personalized<⁵⁹ *Medicine*, or *precision*⁶⁰ *medicine* is scientifically better described as **stratified medicine**. The enabling techné and technology seems to have changed. Instead of Microscopes, culture techniques or biopsies, what comes into focus as *enabling technologies* of stratification medicine are >biomarkers<⁶¹, next generation sequencing and computers in the sense of big-data collection and big data integration. By a clearly targeted and optimized treatment the individual/personal -and not population-based- assessment, the weight is put not as much anymore on *disease classification* but rather on *outcome prediction*. Stratification is being applied in the contemporary debate on the transformation of 21st century medicine in relation- not only- to individuals but - as well- to groups of people. Thus 'Stratified medicine' can be seen in a *first level of understanding* as the grouping of patients based on risk of disease or response to therapy by using diagnostic tests or techniques to understand and combat mechanisms of disease. Strata thus can be found by grouping and classification of biomarkers found by 21st century biotechnologies, such as modeling, biomarker screening, simulation and big-data analysis.

We can distinguish different types of biomarkers⁶², such as trait markers - "indicating a predisposition for a certain disease" (Boem, Boniolo, Pavelca 2015) and state

⁵⁹ "Personalized medicine is a new framework for medical care that involves modelling and simulation of a disease on the basis of its underlying mechanisms. This strategy must replace the 20(th) century paradigm of defining disease by pathology or associated signs and symptoms and conducting outcomes research that is based on the presence or absence of the disease syndrome. New technologies, including next-generation sequencing, the 'omics' and powerful computers provide massive amounts of accurate data. However, attempts to understand complex disorders by applying these new technologies within the 20(th) century framework have failed to produce the expected medical advances. To help physicians embrace a paradigm shift, the limitations of the old framework and major advantages of the new framework must be demonstrated. Chronic pancreatitis is an ideal complex disorder to study to consider the pros and cons of the two frameworks, because the pancreas is such a simple organ for disease modelling, and the advantages of personalized medicine are so profound." Whitcomb, D.C (2012). "What Is Personalized Medicine and What Should It Replace?" *Nat Rev Gastroenterol Hepatol.* 2012 May 22;9(7):418-24. doi: 10.1038/nrgastro.2012.100; Cf: European Science Foundation., 'Personalized Medicine for the European Citizen: European Science Foundation'. Online: <http://www.esf.org/coordinating-research/forward-looks/biomedical-sciences-med/current-forward-looks-in-biomedical-sciences/personalised-medicine-for-the-european-citizen.html>

⁶⁰ National Research Council (2011). *Toward Precision Medicine: Building a Knowledge Network for*

Biomedical Research and a New Taxonomy of Disease. Washington, D.C.: THE NATIONAL ACADEMIES PRESS: online https://www.ucsf.edu/sites/default/files/legacy_files/documents/new-taxonomy.pdf

⁶¹ Biomarkers are taken as fundamental reference systems trying to answer the following questions: "Who is sick? What disease is it? Who will develop a disease? Who should be treated, and with what? How does the patient react to the treatment? Did the treatment work by restoring health?" Boem, Boniolo, Pavelca (2015, 104)

⁶² K. Bracht, 'Biomarker: Indikatoren für Diagnose und Therapie', *Pharmazeutische Zeitung*, 12/2009 (March 2009), at <http://www.pharmazeutische-zeitung.de/index.php?id=29346> cit in Boem, Boniolo, Pavelca 2015

⁶³ I. Koychev, et al (2011). "Evaluation of State and Trait Biomarkers in Healthy Volunteers for the Development of Novel Drug Treatments in Schizophrenia," *Journal of Psychopharmacology*, 25:9, 1207-1225

⁶⁴ Hingorani, A.D.et al (2013). "Prognosis research strategy (PROGRESS) 4: Stratified medicine research". *BMJ* 2013;346:e5793 doi: 10.1136/bmj.e5793 (Published 5 February 2013)

⁶⁵ Boem, F., Boniolo, G., Pavelca, Z. (2015). "Stratification and Biomedicine: How Philosophy stems from Medicine and Biotechnology," in: Marta Bertolaso (ed). *The Future of Scientific Practice: 'Bio-Techno-Logos'*. (=History and Philosophy of Technoscience, 5). New York: Pickering & Chatto, 103-116

markers⁶³. "measured during the course of a disease and that inform clinicians about the progression" (ibid). Other classifications of biomarkers take into account the calculation of risk developing a certain disease or the foretelling the reaction to a treatment by >predictive markers<, while classificatory >diagnostic markers< should split the disease into subgroups and epistemic developmental >prognostic markers< should predict the development of the course of the disease. Thus stratification has a temporal future dimension inscribed into its activity of epistemic knowledge development about biological markers and the patient's personal outcomes.

→ "Stratified medicine refers to the targeting of treatments (including pharmacological and non-pharmacological interventions) according to the biological or risk characteristics shared by subgroups of patients. Stratified medicine is regarded as central to the progress of healthcare according to the leaders of the National Institutes of Health, and the Food and Drug Administration among others. In contrast with "all comer" or "empirical" medicine, stratified medicine seeks to target therapy and make the best decisions for groups of similar patients. One approach to stratifying the use of treatments is to consider absolute risks. (...) we described how prognostic models are used to estimate the absolute risk of an outcome for an individual. Those people with the highest absolute risk will derive the largest absolute benefit from a treatment (that is, the greatest reduction in probability of the outcome) when the treatment effect expressed in relative terms is the same for all patients." Hingorani, A.D.et al(2013)⁶⁴
←

Secondly stratification is not just an expression of the grouping of patients, but as well in the stratification of medicine as a knowledge discipline and specific practices as well. Stratification medicine responds towards two shortcomings of orthodox medicine in the sense of Boem/Boniolo/Pavelca⁶⁵ (2015,104): On the one hand, the *grid on the assessment level of diagnosis and therapy* in

classical medicine are seen as *too wide*, not being able to access the heterogeneity on the causal level, as orthodox medicine does not take into account individual particularities of metabolism and individual physiological behavior that might influence significantly the patient's response to a drug or treatment. On the other hand, medicine is understood in orthodox *still-not-stratified-medicine* as too reactive to combat disease and not proactively in favor of maintaining health, and fostering enhancements of well-being. For the above mentioned authors we have to distinguish three categories of stratification in health related areas: „ **stratification of diseases, therapies and patients**“ and- moreover - I would add a fourth kind, the *stratification of the concept of medicine* itself. Important is what Boem, Bonioli and Pavelca (2015) call the *stratification turn* in medicine:

→ “(...) the stratification turn has relevant philosophical implications. In particular, (...) how it is changing our way of defining and classifying diseases ('The Philosophy Within').

This is an ontological topic strictly linked with the so-called bio-ontologies, which are a computational approach by means of which we integrate data coming from different sources, especially coming from molecular work, with clinical needs.” ←

[3.4.1]

⁶⁶ Waljee, A. et al (2014). "A Primer on Predictive Models". *Clinical and Translational Gastroenterology* 4, e44; 2 January 2014, doi:10.1038/ctg.2013.19

⁶⁷ Dougherty, E. R. (2008). On the Epistemological Crisis in Genomics. *Current Genomics*, 9(2), 69-79. <http://doi.org/10.2174/138920208784139546>

⁶⁸ see for instance the actual social science research project on "Postgenomic Solidarity. European Life Insurance in the Era of Personalized Medicine: „Insurance - as we have known it - has played a crucial role in performing solidarity framed in the epistemology of 19th century statistics and its sociology of 'the norm', enabling the development of 'insurance society'. Today, the rapid development of predictive modelling and its widespread use of genomic algorithms and data-mining techniques have begun to challenge both the epistemology of statistics and the idea of solidarity that informed the insurance society. Is there a future for solidarity as we have known it in light of the emergence of an epistemology of 'big data', algorithms and genomic profiling?/ What kind of solidarity will emerge in a postgenomic society that relies on an epistemology of Big Data? **How do we define solidarity in a society where the respect for difference has become the basic principle of both personal and social ethics?** How will European societies enact tolerance of difference, respect for otherness, and striving to social bonding in the postgenomic era?" Van Hoyweghen (my emphasis): https://soc.kuleuven.be/ceso/lifesciencesociety-lab/current_projects/postgenomic-solidarity

⁶⁹ see: Kitchin, R.(2014a). "The Reframing of Science, Social Science and Humanities

Stratification Medicine: Strata as Big Data Integration

Big data will necessarily call for new categorization /classification strategies of networks facing data mining instead of classical data analysis, in which data organization is open (instead of closed) and dynamic (instead of static) as well as obtained (instead of collected), and therefore will pose questions for instance for our notion of *solidarity* facing the dominance of *predictive modeling* in which still the "differences between traditional explanatory research and prediction research are often poorly understood"⁶⁶. In the future we may face an excessively governmental urge for *genomic profiling* with *genomic algorithms* that calls onto the importance of newly formulated *epistemology*⁶⁷ and *ethics*⁶⁸ in the age of *big data*.

First, we will have to ask: How does the availability of Big Data, coupled with new data analytics, challenge established epistemologies⁶⁹ across the sciences, social sciences and humanities and in medicine? Will there be a „post-causal"⁷⁰ approach to science or even what some call a „post-human"⁷¹ approach for example to medicine derived from the growing influence of big data mining and subjective clustering in stratified medicine? Or will we have to hint again to the empirical fallacies that these approaches have to face sooner or later: that a) big data *cannot* capture a whole of a domain and provide full resolution b) that there still is *a need for a priori theory, models or hypotheses* c) that big data cannot speak for themselves free of human bias or framing: „As Gould (1981: 166) notes, 'inanimate data can never speak for themselves, and we always bring to bear some conceptual framework, either intuitive and illformed, or tightly and formally structured, to the task of investigation, analysis, and interpretation'. Making sense of data is always framed; examined through a particular lens that casts how it is interpreted. Even if the process is automated in some way,

the algorithms used to process the data are imbued with particular values and contextualised within a particular scientific approach." Kitchin 2014a

Secondly, the question of **data governance** is being posed and the automatic discovery of new relations of different levels of information.

Therefore creating integrated meaningful **Information Strata** by *information architecture*⁷² across contexts, channels and networks, is an upcoming scientific field of thinking strata in informational and big-data terms, not only for health applications and biomarker prediction, but in general for being put at use for the common good in society. I want to give just one example of the **Strata-Data** connection by referring to Sanches & Bless⁷³ (2011) "Network Design" study for developing a new internet in which an account of informational strata is given, and informational strata uses the metaphor of **verticality** and **horizontality** for *organization* and *governance* function, *knowledge* function, *machinic* function, *Data Flow*, *Connectivity* and *Information functions between strata in their distributed functionalities*:

→ "(...) the stratum represents a distributed functionality. It is obvious that the nature of network functionalities can differ. In this sense, two major types of strata are identified:

- The **Vertical Strata** whose main goal is to assist in management of the network. The **Governance Stratum** aims to check that a proper set of horizontal strata are instantiated and properly configured, via policies and with the information about the current status of the network. The **Knowledge Stratum** provides information to other strata about the topology of the network, current resource status, context information etc. It also monitors the status of the network continuously by collecting, storing and processing status information from other horizontal strata and discovers new capabilities in his or other domains.
- The **Horizontal Strata** are composed by an asset of strata which basically provides the resources and capabilities for communication across

Research", in Rob Kitchin. *The Data Revolution. Big Data, open data, data infrastructures & their consequences*, Los Angeles: Sage pp. 128-148; Kitchin, R. (2014b). "Big Data, New Epistemologies, and Paradigm shifts", *Big Data & Society*, pp.1-12

⁷⁰ These non-causal approaches are often proposed in popular science journals such as in *Wired*: "There is now a better way. Petabytes allow us to say: 'Correlation is enough.' We can stop looking for models. We can analyze the data without hypotheses about what it might show. We can throw the numbers into the biggest computing clusters the world has ever seen and let statistical algorithms find patterns where science cannot... Correlation supersedes causation, and science can advance even without coherent models, unified theories, or really any mechanistic explanation at all. There's no reason to cling to our old ways." Chris Anderson 2008 cit. In: Kitchin, R. (2014a),p.168

⁷¹ Chandler, D. (2015). „A World without Causation. Big Data and the Coming Age of Posthumanism,“ *Milenium. Journal of International Studies*, pp. 1-19

⁷² see: Davis, N. (2015). *Information Architecture. Theory, Science and Practice*. Woodhead Publishing; as well: Resmini, A., Rosati, L. (2011). *Pervasive Information Architecture: Designing Cross-Channel User Experiences*. Amsterdam: Morgan Kaufmann

⁷³ Sanches, S., Bless, R. (2011). "Network Design,"in: L.M. Correia et al (eds). *Architecture and Design for the Future Internet. 4Ward Project*. Dordrecht: Springer Science+Buisness, 59-88

networks. The *Machine Stratum* provides the underlying processing and transmission capabilities to other strata (it can be constituted by physical or virtual resources). The *Connected Endpoints Stratum* provides the “road” infrastructure for communication. The *Flow Stratum* provides the capabilities for the transfer of data across networks, and finally the *Information Stratum* handles the management of data objects in networks.”Sanches/Bless 2011, 46
←

How does the availability of big data and data infrastructures, coupled with new analytic tools, challenge established epistemologies in different disciplines leading to the creation of new fields and disciplines such as *Neuroethics* and their subfield of *Neuroenhancement*, or *stratified/ stratification medicine*? We should explore whether changes in how the raw material of information and knowledge in the field of stratified medicine is being produced, managed and analyzed are actually radically altering the foundations underpinning how the sciences, especially the medical humanities, biomedicine and classical medicine and patient-doctor relations, as well disease-health difference are understood and practiced, how knowledge is produced, that foster business in the field of aging, health and education in relation to stratifying people in groups, enacting governance for specific human strata and decision-making of different stakeholders, as well as raising many questions concerning justice, autonomy, mind-control, surveillance, cognitive bias, cognitive profiling, social sorting. How can stratified medicine be preventive of disease and may be able or not to even extract “future knowledge” about strata with the help of biomarkers?

Stratification enables clinicians to develop therapies for particular subgroups that will gain benefit from a specific treatment and are less prone to side-effects.



↑

Diagram "Debris: Stratified Medicine" 2015 by Sérgio Costa inspired by: <http://thefst.weebly.com/fst-health-awareness>
 "The availability of routine genetic testing, new biomarkers and advanced imaging, as well as new technologies for patient-centered data collection, has expanded the potential for patient stratification" Mathews⁷⁴, P. et al (2014)

⁷⁴ Mathew, P, et al (2014). "The emerging agenda of stratified medicine in neurology". *Nat Rev Neurol* 10,15-26, here p.10

Contrary to geomorphological strata, stratification medicine is based on data integration morphed and grouped into categories to give us more fine-grain information about groups, patient's individual biomarkers and specific expression of diseases or thus helps for a *predictive risk assessment*.

→ "People can now be grouped according to similarities, previously hidden or ignored, pertaining to the molecular details and mechanisms of the genome's structure and behaviour. From a philosophical perspective such a situation, characterized by an enormous amount of data, does not simply state the many classifications which are 'in nature', but rather how much

classifications depend on the methods of investigation and, therefore, by the technological innovations permitting them. From a technical point of view, these types of analyses are now possible especially due to new computational tools. However, this new perspective is not just methodological. Precisely this possibility of producing and analysing an enormous amount of data constitutes the theoretical premises for a variety of claims on what someone (maybe with too much emphasis and a not too deep knowledge in the history of science) calls a new way of doing science. *Data-driven science* is an expression now widely accepted to describe those scientific settings in which the general aim, rather than hypotheses testing, is generating massive amounts of data in order to discover patterns that then would constitute the core matter on which to start the experimental work.” Boem/Boniolo/Pavelca (2015) ←

This stratification in data-collection and integration is said to provide new insights even in such complex fields as Psychiatry and even mental disorders⁷⁵ (Schumann et al 2013)

⁷⁵ “Novel biomedical techniques have advanced our understanding of how the brain develops and is shaped by behaviour and environment. This has led to the advent of stratified medicine, which translates advances in basic research by targeting aetiological mechanisms underlying mental disorder. The resulting increase in diagnostic precision and targeted treatments may provide a window of opportunity to address the large public health burden, and individual suffering associated with mental disorders.” Schuhmann, G, et al (2013). „Stratified medicine for mental disorders“. European Neuropsychopharmacology, 24/1, 5-50

From general classification to the assessment of concrete variants

As epistemologies of biological concrete mechanisms

→ “classification means, on the one hand, the epistemological question concerning how to classify and, on the other hand, the ontological questions regarding the epistemic value of the classification and the way in which different classifications can be fruitfully correlated for the physician (and thus, extremely important, for the patients)” Boem/Boniolo/Pavelca (2015) ←

The epistemic difficulties lie in the definition of what biomarkers are and how the function to predict disease and their development in biological individuals within the complexities of variants.

→ “Of central importance in this endeavour is the identification and validation of *molecular biomarkers*, which are, as defined by the *Biomarkers and Surrogate Endpoint Working Group* of the American National Institute of Health, ‘[characteristics that are] objectively measured and evaluated as an indicator of normal biological processes, pathogenic processes, or pharmacologic responses to a therapeutic intervention’. These are established ‘based on epidemiological, therapeutic, pathophysiological or other scientific evidence’. “Boem/Boniolo/Pavelca (2015, 104) ←

Therefore what Witcomb (2012) calls assessment of (concrete) variants becomes more important than the orthodox medical classification or stratification of subgroups on its own. In the assessment concept a medical action-model is inscribed, asking how to intervene in the concrete variants and thus in each patient personally and not in general how to proceed in a response to populations with certain symptoms: the aim of stratified medicine thus lies in prediction of what could be the differentiated outcomes in the strata variants.

[3.4.2]

Stratification in pharmacogenomics: the strata of drug response as example of strata *for and from* science

Pharmacogenomics is the study of “identifying genetic variants that allow the prediction of drug response” (Boem/Bioniolo/Pavelka 2015). This means that a stratification of a patient’s response to a possible pharmacological treatment is optimized by a more adequate *stratification of genetic variables*. *Omics* have the aim to produce global specification and quantification of molecular components for general understanding of biological factors and interactors either [a] *within an organism* coming from types towards tokens or as well [b]

among different organisms coming from general to specific interactions.

→ "(...)pharmacogenomics deals with the identification of genetic variants within a population in order to predict specific drug response. By increasing the complexity, a more comprehensive understanding of particular genomic profiles associated with specific lifestyles can contribute to reshape our understanding and definition of diseases. The ontological dimension here lies precisely in the fact that a discipline like pharmacogenomics is 'cutting the world' so that, at the end, we can find the personal/unique signatures which should, in theory, define the individual. (...) The possibility of 'looking at the whole' by dissecting the disease at its molecular level opened the chance to deconstruct the disease itself as a single entity and to produce a 'thriving jungle' of different conditions determined by distinct *omic profiles*. (...) how should we interpret this change promoted by stratified medicine? Is it just a methodological innovation or truly a new way of doing science? What are the implications for medical practise? To address these questions the philosopher (but even the scientist) should try to avoid to dictate his/her conceptual categories. On the contrary, the purpose of an ontological/philosophical analysis pertaining to this context, is not to impose an *a priori* ontology to constrain the scientific work. It would be rather the opposite, that is, to highlight the hidden ontological assumptions in that context. In other words this situation offers a hint on the fact that there is the genuine possibility of doing philosophy *from* and *for* science and not just *of* science." Boem/Boniolo/Pavelca (2015) ←

[3.4.3]

Preventive Stratification as Risk-assessment

While "*genetic epidemiology* is investigating the correlation of genetic variation with the *risk* of developing a certain disease " Boem/Boniolo/Pavelca (2015) we should distinguish with Bostrom/Cirkovic in relation to global risk assessment⁷⁶ (2008), [a] *risks derived from Nature* [b] *risks that are due to unintended, and often unpredicted consequences* and [c] *risks that are originated by hostile acts*. Stratification in stratified medicine is connected to an statistical correlation in epidemiological risk assessment, that means risks that show a probability in a certain population of subjects, either in the form of welcomed or unwelcomed risks, in which (a) ***causal risk markers cannot be manipulated, but show statistical association to an outcome***. (b) ***genetic variants*** and their ***genetic risk factors*** indicate the **probability** of an increase or decrease developing a certain disease as for example Diabetes type 2 disease "whose manipulation changes the probability of the outcome, that is, of developing a disease" (Boem/Boniolo/Pavelca, 2015). Especially in Sérgio Costa's cloud-strata paintings the artistic assessment of existential risk is touched upon deeply, as Costa's explosive events captured in his 2015 paintings cover not only the field of individual risk – as in the case of stratified medicine and its patients risks of developing a disease, but as well the imagination of how to assess almost unperceptible or difficult to understand existential extinction risks of our whole species:

→ "Existential risks are those that threaten the entire future of humanity. Many theories of value imply that even relatively small reductions in net existential risk have enormous expected value. Despite their importance, issues surrounding human-extinction risks and related hazards remain poorly understood." Bostrom⁷⁷ 2013,15 ←

⁷⁶ Bostrom, N.,Cirkovic, M. (eds) (2008). *Global Catastrophic Risks*. Oxford: Oxford University Press

⁷⁷ Bostrom, N. (2013). "Existential Risk Prevention as Global Priority". *Global Policy* 4/1, 15-31

[4]

Sérgio Costa: Strata series



[4.1]

Principles of Painting Strata

Costa in his Strata # 2-18 applies the following principles:

[1] *Costa stratifies by taking photos of stratified Calcium rock formations and sedimented stone layers at the Algarve region around Tavira*

[2] *He destratifies the quality of the image by forcing the contrast to extremes of dark shadow areas, and then marks the dark areas (I call this attentional contrast stratification that is also a diagramatization process)*

[3] *Creation of the First Map/grid destratifying and geometrisation of the painting plane*

[3a] *Searching for new solutions for destratifying the painting surface and the image (un)frame: creating image*

discontinuities, introducing vertical breaks and assembling not according to the corresponding grid (Strata#15 – Strata#17); uncompleted shape modulation, isolating painting areas (Strata#15); and erasing (Eroded strata drawing series)

[4] *Plane of painting (second map composed of two or more image strata (except Strata #5). First working on the shadows, and within a limited parameter of color modulation of four color qualities: only a) sepia, b) cobalt blue, c) raw umber brownish, d) titan white (that gains a higher opacity than white zinc)*

STRATA 19 - On Strata # 19 onward:

In Strata #19 #20 and #21 another principle is introduced of a bicolor anaglyptic double. Strata #19 is structurally interesting using two images that are slightly dislocated in the moment of capture, and that shows the anaglyptic effect again stronger in usual anaglyptic images by the slight dislocation opens up a dynamic in painting that is rare, not only by its double layer of color strata but by the distance that these two colors make us grasp the image by anaglyphic glasses. Another change seemed to have happened to Sérgio Costa's work after 2011/2012:

Searching and working on found images in a more general sense of geo-philosophical emergent states swarms, collectives without a center : smoke, water, clouds

[4.2]

In the vapor of concepts: Clouds and sfumato

Hereby Sérgio Costa in his Clouds #22 - #27 generates vague blurred outlines and ethereal, cloudlike Sfumato effects, showing ambiguity in the transition from light to dark and change while blending & shading the thinnest layers together as if outlines are given a last mindful blur by painting with less than hairthin fingers instead of pencils. (see: Leonardo da Vinci). Costa reminds us on an essay from 1803 in which Luke Howard in his „On the Modifications of Clouds“ in which the chemist/pharmacist and pioneer of mechanical objectivity as well as autodidact meteorologist *Luke Howard* (1772–1864) distinguishes between four fundamental cloud-types: *stratus*, *cumulus*, *cirrus* and *nimbus*. These, are in constant evolution, continuously metamorphosing into one another (in Goethes classification⁷⁸: Strato-cumulus, Cumulus, Cirro-cumulus, Cirrus, Strato-cirrus, Nimbus), or as Goethe wrote in his poem *Howards Ehrengedächtnis* - 'In honor of Howard' on rising *stratus*, agglomerating *cumulus*, disintegrating *cirrus* and falling *nimbus*: "As clouds ascend, are folded, scatter, fall"⁷⁹

⁷⁸ "Die Wolkenklassifikation Howards steht in der Entwicklungslinie morphologischer, d. h. auf äußeren Kennzeichen beruhender Klassifikationen von Naturobjekten, wie des *Systema naturae* Linnés (1735) oder der Klassifikation der Mineralien (1774)²² durch Goethes Zeitgenossen und Freund Abraham Gottlob Werner (1749-1817). Howard teilte die Wolken nach ihrer äußeren Gestalt in die bis heute gängigen Grundformen (*simple modifications*) Cirrus, Cumulus und Stratus ein, denen er die *intermediate modifications* Cirro-cumulus und Cirro-stratus sowie die *compound modifications* Cumulo-stratus und Cumulo-cirro-stratus oder Nimbus hinzufügte." Bernhardt, K. H. (2004). "Johann Wolfgang von Goethes Beziehungen zu Luke Howard und sein Wirken auf dem Gebiet der Meteorologie" *Proceedings of the International Commission on History of Meteorology* 1.1 (2004). Retrieved online:

<http://www.meteohistory.org/2004proceedings1.1/pdfs/03bernhardt.pdf>

⁷⁹ "Wie Streife steigt, sich ballt, zerflattert, fällt" Goethe, J.W.v. (1989). *Schriften zur Allgemeinen Naturlehre, geologie und Mineralogie*, Deutscher Klassiker Verlag, 239. For Goethes morphological thought see: Molder, F. (1994). *O pensamento morfológico de Goethe*. Lisboa: Imprensa Nacional - Casa da Moeda



Strata #22 (Why not rather paint the haziness?) | 2015 | oil and enamel on canvas | 120x144cm

These Clouds of dusk strata, hazinesses, duskscapes - recent work of the Strata Series in 2015 - depart not only from digital edition of images of structures (smoke, clouds, dust ...) found from digital images on the internet, but seem to have a matrix, a dark hole from which all vapors emerge. One could call this the visual neighborhood area of gravity of the cloud strata paintings.

Costa's double image matrix has been mapped from a volcano and a rocket explosion as a continuous event of clouding of the clouds that emerge from such an event of eruption and explosion than several (conceptual) events or a hydro-stratification and their hydro-air-morphological aggregates. It is a smog of thoughts, a remaining activity of thinking strata in different unfoldings of strata planes being pushed out of a matrix neighborhood of "volatile structures". This double nature-technical cloud-strata "matrix" is always used as sampler and overlaid with digital editing of another image.

The transposition to the canvas is similar to the previous Strata series #2 - #14 (establishment of a grid, etc.) where, however, now only the white and sepia colors are used. The process ends with a veil with enamel that allows the paintings to enter a random and atmospheric value (hue) and gives the clouds an atmospheric dislocation, or dissipation in air. Again we are confronted with the principle of cloud accumulation and stratification but in the aggregate of vaporized and gase-form of liquids as if strata being a natural law of the veil of uncovering or discovering something; and then again we encounter another principle that of production and projection of collective shape that does not adhere to homeostatic self-regulation but to an unintentional deterritorialized emergence of swarms without a center, that seems to dissipate the stratification as Guldin expresses it:

→ "Clouds can be seen as border-posts separating two distinct domains of reality or as self-generating significant shapes. Two radically different forms of dealing with the phenomenon can be deduced from this. On the one hand, there is the **logic of the veil, of covering and uncovering**. One can plunge into the mist or emerge from a sea of fog. In this specific case, clouds do not play the predominant role, but point to something more essential hiding behind them. This conception is mostly associated with **stratus formations, with altostratus, cirrostratus and stratocumulus**. On the other hand, there is the **logic of projection and emergence**. One can **discover shapes in shapelessness, structures in the transitory and fleeting**; and one can witness the **surfacing of meaningful figures from amorphous masses of clouds**. In this second conception – mostly connected with the bizarre outlines and numerous protuberances of the **cumulus, altocumulus and stormy cumulonimbus** – **clouds are swarms, collectives without a center, developing according to an autopoietic principle**." Guldin, R. (s.d.), „Anything in a way is a cloud". Reflection on a phenomenon at the intersection of philosophy, art and science. (My emphasis) retrieved online: <https://www.ufmg.br/ieat/wp-content/uploads/2012/10/Guldin-Anything-in-a-way-is-a-cloud.pdf> ←

If concepts are metastrata, and thus in the words of Deleuze/Guattari in *What is philosophy?*(WP) "a skeletal frame"(WP,36) or a "spinal column"(ibid.) or a "archipelagos"(ibid) then the plane is an image of thought or the (smoky) "breath that suffices the separate parts"(ibid). If the breathing is crystallized, it might become strata of ice. If the magma is made consistent by cooling down it might become strata of volcanic stone. But the plane of immanence is the whole and a "one" that strata don't achieve. It is a singular wave that is difficult to attend to, no tracing, and these singular waves Sérgio Costa's

work helps to make explicit through the painting series of "Strata". This brings us towards a change of thinking image of classical geological strata to "free" or "open" nets or networks, a shift we can note in the change in understanding of the brain as still present in the name of the memory area of hippocampus, that physiologically was given names after geological stratification of layers – that persist still today- even though that this metastrata are composed within plastic neural nets. For Deleuze and Guattari the limitation of homeostasis is only valid for one form of a limiting case or aggregate form of an open system "the freezing or congealing of consistencies they will call "strata" (...) For them the 'organism' is precisely a type of stratum, 'that which life sets against itself to limit itself' (ATP:508)"(Bonta & Protevi⁸⁰).

⁸⁰ Bonta, M. & Protevi, J.(2004). Deleuze and Geophilosophy. A Guide and Glossary.Edinburgh: Edinburgh University Press, 4

[4.3]

Notes on >fucking hazziness<: Sérgio Costa's "Strata- Sampling Puzzles" (2015)

In Costa's recent work a praxis of creating clouds /nuages/nuvens is getting a stronger influence, close to the theory of Hubert Damisch⁸¹ (1972). I think that Damisch's theory of clouds seems also an interesting strategy to touch on Costa's spray-images. What happens as a ground or as a consequence of grounding happens always after a retardanis of the creating of a cloud spray; we always fix something on the surface of the paper *after* the clouds, *after* the cloud have emerged *after* the clouds transformed something permanently...

I think that Costa explores a praxis of cloudmaking in his work, a praxis and a process of a work to become: >uma obra por vir<, um pensar como praxis, como performance da pintura. A thinking-painting as shows up in the words of Dieter Mersch: „ein Denken als Praxis, als Performanz“⁸²

⁸¹ Damisch, H. (1972). Théorie du nuage. Pour une histoire de la peinture. Paris: aux Édition des Seuil

⁸² Mersch, D. (2015). Epistemologien des Ästhetischen. Zürich/Berlin: Diaphanes (=Denkt Kunst), 11

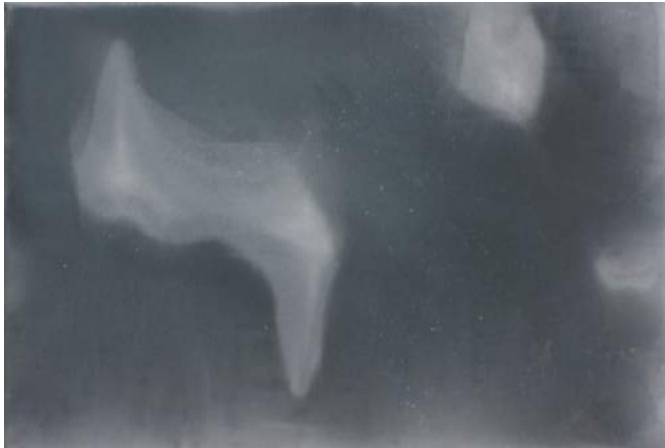
[4.3.1]

Strata Working-Images as Observational Program

Sérgio Costa is not observing any kind of biological microcosm by a microscope, nor does he take up the telescope and observes nebulae -*Nebula for Latin >cloud<*: a name used for any nebulous, that is, diffuse astronomical object. Nevertheless, nebula and gullies can be found in Sérgio Costa's recent painting works, in which materials (hand-molded clay-things, different types of painted textiles, cracks of painting layers) are confronted in an *observational program*⁸³ called >Strata< in which a variety of oil paintings, and material try-outs are presented in a systematic way. In the Sampling Strata exhibit, strata show an intimate conceptual relation to "working images"⁸⁴ (Nasim 2010) as experimental praxis. In the case of Costa's strata, the molds, gullies on the different canvas materials are conducted as experiments of >working images< in the artist lab between science and art. These working images interact with scientific instruments of observation, but as well with descriptions/depictions of other images (in the case of Costa with images of explosions/ volcanic eruptions; Strata#23-#27), maps, oil paintings, etchings, drawings and sampled paint/media experiments (Gullies), molds and crack-samplers.

⁸³ Nasim, O. (2014). *Observing by Hand. Sketching the Nebulae in the Nineteenth Century*. Chicago: Chicago University Press

⁸⁴ Nasim, O. (2010). "Observation, Working images and procedure: The 'Great Spiral' in Lord Rosse's astronomical record books and beyond", *BJHS* 43 (3), 353-389



[4.3.2]

Experiments in matter behavior

Strata Sampling Puzzles –e.g. gullies- appear as *experimentation in matter behavior* and deal with >entrainments< on different media. In physical geography >entrainment< is a process in which surface sediments are incorporated into a fluid flow (air, water, ice). Geological Entrainment is inherent in the operation of erosion. In Costa's >gullies< the diluted oil paint is poured on different textile supports ("veludo"=velvet and "cetim"=satin) taking advantage of their different textures, while minimizing subsequent interventions. The ink proceeds similarly to formation of water in the ground or dust, particles and gases in the formation of nebulae. Subsequently the fabric is mounted on wooden grids of small formats.

[4.3.3]

Vapor of the events





Strata #25 (Fucking haziness!) | 2015 | oil and enamel on canvas | 120x144cm

⁸⁵ Seel, M. (2005). *Aesthetics of Appearing*. Stanford: Stanford University Press

⁸⁶ Waldenfels, B. (2007). "The Power of Events". In: Bernhard Waldenfels. *The Question of the Other*. Hong Kong: The Chinese University of Hong Kong, 37-51

Costa, in his long term strata series, is interested in showing the differences, strategies and time lags, of an >Aesthetics of appearing<⁸⁵ (Martin Seel 2005) in experience: First, the >neptunic< longtime development is difficult to be experienced escaping human experiential limitations, and the meditation of which is thematic in earlier paintings (Strata #2-22) on rock stratification. Costa's strata series (2014/2015) develops another mode of experience though: the intimacy of the small and medium scale gullies experiments and the meditation on volcanic explosive *cloud strata* (Strata #23-27). In these explosive events we become reminded on our temporal and rhythmical, absolute experiential thresholds, such as the 3oms of *temporal order threshold* of experience, in which events appear to be happening in distinguishable temporal orders and not simultaneous, or the *fusion threshold* of 2-3ms in which events are distinguished as two and not as one event, need the *retardandis* of painting as a form of observing the too fast phenomena, the too nebulous, the explosive, that escapes our experience otherwise. Costa in this Strata-Sampling Puzzles exhibition searches for "key events"⁸⁶ (Waldenfels 2007, 42) a) attentional >scenic events< and >dramatic events< (Waldenfels 2007, 42) the eruptive "volcanic" fast events in contrast to b) geophilosophic longtime-events, the "neptunic" (slow and steadily evolving) experience: *What if we would live more than 500 years?* Maybe then even the neptunic experience of earth's kinetics of strata that Sérgio Costa Strata series hinges on, would become part of our daily experience. This volcanic experience that Costa pain(t)s seems to have a matrix, a black hole from which all emerges or is sucked into.



Strata #26 (Eventually) | 2015 | oil and enamel on canvas | 118x142cm

[4.3.4]

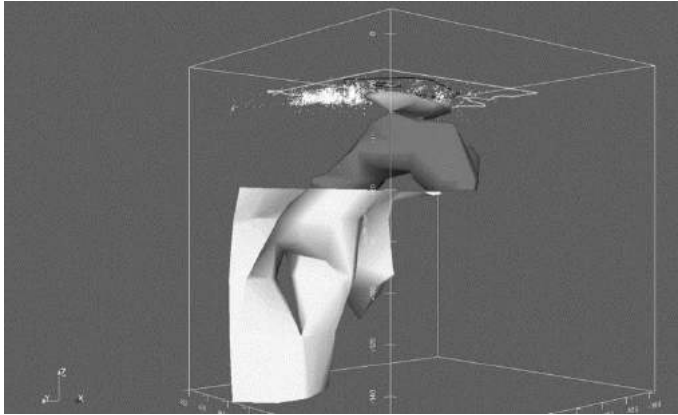
Explosive geo-sampling

What matters in vapor-becomings -“this isn’t yet a duskscape” is that vapors hint towards *transformations of matter*, not just in their strata of aggregation, but of bodily form in general. With Jean-Luc Nancy⁸⁷ we can say: „If we wish to keep the word *matter*, then we should say that it's the impenetrability of what is form – in other words, relation, sensing oneself, being sensed, and sensing something as if from the outside“. We experience strata even in its vaporous blurred form *as if from the outside*, we are never located inside strata, the knowledge strata, the sensing strata, the social strata being sensed, the material strata: we are already puzzled by a multiplicity of layers and relations, but always from the outside, by their uncertainty in hazziness without the one clear strata appearing for us in experience: >this isn't yet a duskscape<. The volcano explosions contrasting the slow artistic process of Costa's delicate oil paintings, remind us on the foggy atmospheres created by the 19th century painter J.M.W. Turner - a mix of a Victorian steamboat in which steam immerses the painting in mist, sea-motion and a lightscape from the harbour („Snow storm. Of a Habours mouth“ 1842) - but, in Costa's Strata #23 - #27 (2014/2015) we are deprived of anthropocentric reference of ports and boats, nor do they refer to anthropocenical responsibility in global domicides⁸⁸, on the contrary, >Strata< confront us by natural hazzards and evaporating life: blurred thoughts on >fucking hazziness<! Volcano Explosions... Just yesterday on the 23rd of April 2015 while writing this chapter -two days before the Nepal earthquake in which thousands are killed-, the >Calbuco< Volcano eruption in Chili *interrupts* me, thinking as far as a 20 km radar of evacuation: *breaks*, *cracks* and *ruptures*, the fragility of our existence, its necessity for our experience.... Sérgio Costa's >Strata< ask us two questions: Are we prepared for >volcanic< events?

⁸⁷ Nancy, J.-L. (2008). „On the Soul“. In: Jean-Luc Nancy. *Corpus*. Translated by Richard A. Rand. New York: Fordham University Press, 127

⁸⁸ Porteous, D.J. & Smith, S.E. (2001). *Domicide. The Global Destruction of Home*. Montreal: McGill Queens University Press

Our relative secure feeling of ignorance on the power of volcanic and seismic activity might have been induced by the science of cartography. The surface is more or less covered, something stable is put in maps, but the 3dimensional >earth underneath⁸⁹ and the deadly explosive substance of earth and lava is normally not shown.



↑ Screenshot from the video: “University of Utah seismologists discover magma reservoir under Yellowstone (with scale in kilometers)” <https://vimeo.com/125650965>

⁸⁹ cf.: 図2】日本列島の巨大カルデラ火山の分布と巨大カルデラ火山噴火の最悪のシナリオ worst-case scenario of the distribution and the huge caldera volcanic eruption of the Japanese archipelago of huge caldera volcano from the 2014 article of Tatsumi Yoshiyuki and Suzuki Keiko “Announces mechanisms and risk of huge caldera eruption” alerting that a major volcanic eruption could pose a major extinction risk for Japan in which researchers of the Kobe University Graduate School of Science Department of Earth and Planetary Science, statistically analyze the scale and frequency of happened volcanic eruption in the past 120 000 years in the Japanese archipelago



Strata #23 (This isn't yet a duskscape) | 2015 | oil and enamel on canvas | 120x144cm



Strata #24 (One can only think of something if one thinks of something else) | 2015 | oil and enamel on canvas | 118x142cm | 118x142cm



Strata #27 (Mindless into the cloudburst overhead) | 2015 | oil and enamel on canvas | 120x144cm

How are we able to experience long-time change? The volcanic or “irruptive, eruptive forms of change” (Waldenfels) as in a sudden volcanic eruption, a car accident, an earthquake and its replicas... This volcanic experience that Costa pain(t)s seem to have a matrix, a dark hole from which all emerges or is sucked into. The visual neighborhood area of gravity can be paralleled with the geophilosophical event of a >concept< in philosophy, as recently laid out in relation to Deleuze/Guattari’s “What is Philosophy” by Rudolphe Gasché⁹⁰:

→ *“As an incorporeal, the concepts created by philosophy thus hover in the vapor of the events, that according to the Stoics arise from the surface of corporal things. They are like a superstructural stratum on top of the infrastructural of the real. This stratum is as the incorporal suggests, one of pure meaning.”* ←

The interstice is just a geological necessary by-product of the tension of movement and fixation and thus a plane of consistency? Can we construct strata (stratification de- and re-stratification) as a valid model not just for a geopictorial view but also a general geo-attentional view derived from Costa’s work?

▪

⁹⁰ Gasché, Rudolphe (2014). *Geophilosophy. On Gilles Deleuze and Felix Guattari’s What is Philosophy.* Northwestern University Press, 48

[4.4]

Strata: Grid & Map

→
Strata #15 | 2012 | oil on canvas | 240x200cm



[4.4.1]

Territory and Map - Thinking as reaching out for the non-stratified

Strata#15 de-stratifies not only the rest of the painting series *before and after number 15*. This means: >Strata #15< shows other strata not only as rests of maps, but Strata#15 also shifts our attention towards the fact that strata in the sense of Sérgio Costa are foremost maps, and as such would be better studied - not in the science of geography or geology- but "in painting" - as Deleuze famously claimed in his small and precious text "What Children say". Strata #15 are an excellent way to study painting as map-making- a temporarily orienting strategy in time, space and affective intensity - and all of it still in the making.

The closer one gets to Costa's >Strata< the more the process view of painting as map-creation becomes visible, the more far the observer distances herself from the >Strata<, the more virtual the surface of Costa's art in general becomes. >Strata 15< is also the place where Costa's >strata< are openly stratified formations and map at the same time, ruler and pencil, hand and thought, breath and rhythm, all on the surface. Thus >Strata< #15 invites us to go beyond the possibilities we always imagined things to be in their historical stratified forms and methods- and in relation to our lives. Sérgio Costa's >Strata< ask us:

How do we orient in between and above strata?

How do we orient ourselves in between and above what we always thought was stable, fixed, grounded, or based on scientific facts and principles?

Strata appear not necessarily as rock layers and stratification does not equal petrification, but strata can -

as in the image sujet of Sérgio Costa's paintings- show up as layers of rock, not only densified by pressure, and broken up, but can be refolded or even transformed into maps, smoke, clay and even dust. On the other hand strata can appear as layers of two images on the two sides of an interstice line. Even that they are assemblages of a metastratum, this makes us believe that they are one and the same and thus merely assemblages of interstrata. Costa therefore does not dissolve the difference that Deleuze and Guattari try to convey between inter- and meta-strata in "A thousand Plateaus", but makes us realize how his paintings show more than just an internal relation between layers of rock, layers of the image: the "inter" and the "meta" strata are itself the double face of "higher" strata that he by painting decomposes in its structure in his series -as if painting Moebius bands- in which the inside and the outside are imperceptibly twisted and relinked into each other on a paradoxical unity of the different/same one/multiple that can be both. As such even the reality of hard rock layers find themselves de-stratified into maps of "dust", showing a politics of exhumation from dust as Negarestani puts it:

→ "Reducing to dust is thus neither a monotheistic oversimplification nor a reduction. It minimally denotes a process by which a new people are liberated from the authorial Whole (the structure, the body, the creation) as it degenerates into dust.(...) Exhumation undermines the order of strata; it invokes or resurrects beings before their time comes. In this sense exhumation is the invocation of the ground's potencies before they are actualized by and for the ground. Exhumations grasp potencies according to something other than the "status quo" or actualities of the ground, hence whatever it generates or unearths is marked by inappropriateness- that is, being fundamentally off-time and off-beat" Negarestani, R. (2008) *Cyclonopedia: complicity with anonymous materials*. re:press. Melbourne ←

⁹¹ England, J. (2001). *The Map is not the Territory*. Essay by Jane England, Curator. Published in *Conjunction with an Exhibition at England & Co, London*.

It is not therefore merely a matter of deciding, whether the map is indexical or related with a material object (the territory) or whether it is the territory itself (see: England⁹¹ 2001). For Deleuze *maps* are *not* mere indexes of a *res extensa*. They are also “maps of intensity”:

→ “There are also maps of intensity, that are concerned with what fills space, what subtends the trajectories (...)”(Deleuze 1995, 61) It is not therefore merely a matter of deciding, whether the map is indexical or related with a material object (the territory) or whether it is the territory itself (see: England 2001). ←

→ “A cartographic conception is very distinct from the archaeological conception of psychoanalysis. The latter establishes a profound link between the unconscious and memory: it is a memorial, commemorative, or monumental conception that pertains to persons or objects, the milieus being nothing more than terrains capable of conserving, identifying, or authenticating them. From such a point of view, the superposition of layers is necessarily traversed by a shaft that goes from top to bottom, and it is always a question of penetration. **Maps, on the contrary, are superimposed in such a way that each map finds itself modified in the following map, rather than finding its origin in the preceding one: from one map to the next, it is not a matter of searching for an original, but of evaluating displacements.** Every map is a redistribution of impasses and breakthroughs, of thresholds and enclosures, which necessarily go from bottom to top. There is not only a reversal of directions, but also a difference in nature: the unconscious no longer deals with persons and objects, but with trajectories and becomings; it is no longer an unconscious of commemoration but one of mobilization, an unconscious whose objects take

flight rather than remaining buried in the ground.”
Deleuze, G. (1997). *What Children Say. Essays Critical and Clinical*. Translated by Daniel W. Smith and Michael A. Greco, 61 (my emphasis). ←

[4.5]

Strata of Affect (Parastrata) - The sky is not the limit: spacing out

When first seeing a strata painting of Sérgio Costa a strong affect hit me: awe.

For Gallagher in his “The Awesomeness of Space”⁹² (2014) awe is a „direct and initial feeling when faced with something incomprehensible or sublime.“. On the contrary to wonder, awe is unreflected, immediate or simply a pathos-formula or an simple affect. Almost like an orthodox disbeliever in non-human representation in art, I was struck by a feeling that I missed out on the strongest beauty in the clarity of simple rock formation. A feeling as strong as pain overcame me, when wondering about the strata-painting. Suffering from pain -as the sudden apprehension of being caught in awe- is an attention grabber, and thus can be able to take over a person. A person might dissolve herself in a life focused on her body in pain, and an immediate experience of awe can give way to a strong religious-like experience, in the case of Sérgio Costa of an affective bond to the beauty and fascination, not so much of a transcendental Kantian *sublime*, but of a hyperreal *strata-concrete*.

Thus, awe-pain experience and strata-affect, condition one another, as much as pain disorders often appear as mingled with affect disorders (Danzer, *Personale*

⁹² Gallagher, S. (2014). “The Awesomeness of Space” online: <http://www.slate.com/bigideas/why-do-we-feel-awe/essays-and-opinions/shaun-gallagher-opinion>
See: Gallagher, S., Janz, B., Reinerman, L., Bokelman, P., Trempler, J. (2015). A Neurophenomenology of Awe and Wonder. Towards a Non-Reductionist Cognitive Science. Palgrave Macmillan

Medizin. Huber: München 2012). Pain and awe are basic foundational pathos forms, and as such basic symptoms are not able to be conceived in any kind of simple measure-bio-statistical or whatsoever - or by any kind of formula or number. This reminds us as human beings that *suffering from pain, and the sudden experience of awe is impossible to be completely eliminated from any individual's lifeworld.*

Recently a study has been put forward by Gallagher in which a simulation of being in outer space was performed and the test-persons have been put in the same position as astronauts, in order to see, if awe and wonder experiences as described by astronauts can be replicated in a simulated virtual earth orbit situation. Gallagher describes the research in which people experience the same awe and wonder as did the astronauts:

→ "In a complex analysis of the astronauts' journals and interviews, we found explicit descriptions of 34 different categories of experience related to these definitions (of awe and wonder; A.G.). They included, for example, experiences of being captured by or drawn to the view of the earth from the ISS; a feeling of connectedness with what they were seeing; a feeling of contentment (tranquility); a dream-like feeling (a feeling of unreality); a feeling of elation; a feeling of being overwhelmed; an experience of a perspective shift (a change of moral attitude); an experience of scale effects (feelings of the vastness of the universe or one's own smallness or insignificance); and so on. It was important to have good descriptions and categories of the astronauts' experiences for our attempt to replicate them. We were interested in answering a variety of questions. What are experiences of awe and wonder during space travel really like? What is the actual phenomenology? What aspects of the environment motivate such experiences?(...) Compare, as one small sample, two texts, the first from an astronaut, the second from an interview of one of our subjects:

[You] suddenly get the feeling that, hey, this is just one small planet which is lost in the middle of space... [A] very important feeling about the fact that we're just drifting through an immense universe. . . [*scale effects*]. [Y]ou become a little more conscious about the fact that we shouldn't be doing silly things on Earth like fighting and killing each other [*perspectival (moral) shift*].

So, it's a different view on Earth... I think it just really makes you feel less important when you look at everything in such a view like that. You're just a speck on the Earth that's in a universe of many different planets. You're small compared to everything else [*scale effects*], and I didn't feel too bad, but it kinda makes me feel like my problems now are not really as big as I think they are compared to everything else in the world [*perspectival (moral) shift*].

(...) views of earth in near-earth orbit elicited higher responses of awe and wonder than did views of deep space. /Third, we were able to track definite changes in EEG data (i.e., greater alpha suppression in both the frontal and the occipital/parietal areas, in both left and right hemispheres) correlated to experiences of awe and wonder. / Finally, and perhaps surprisingly, those subjects who indicated higher measures of religiosity (specifically those who expressed a more intense connection with a higher power and those who engage more in religious practices) experienced less awe and wonder than those who indicated lower measures on this scale. One possible way to explain this result is that those with higher religiosity scores may better be able to incorporate the space-related experiences into their expectations or conceptual schemas, thereby undermining conditions for experiencing awe and wonder. / We are really just beginning to explore

these experiences using scientific and interdisciplinary methodologies. But, we have already learned that the sky is not the limit." Gallagher 2014 ←

Not only is the sky not the limit in the experience of awe, wonder or pain in relation to an astronaut's Outer Space view back on earth, but also is no single strata appresented in Costa's painting – escaping a concrete limit of his paintings by any sort of strata- unification. This limitless experience is an experience of affective spacing, that is an auto affective self-encounter of strata, and very important in the comprehension of the awe and affect triggered by strata: As Catarine Malabou (2013) in her part "Go Wonder: Subjectivity and affects in Neurobiological Times" puts forward, in relation to Deleuze in all three forms of knowledge - a) knowledge from random experience (*experientia vaga*) knowledge from signs (*ex signis*) and reason as well as knowledge from intuition (*sciencia intuitiva*)- entail a determined relationship between passivity and activity, affects and concepts. This also means that for Deleuze a subject is self-touching in affect

→ "when essence affects itself, be it through passions or through its own capacity of referring to itself, this self-encounter always occurs as a spacing. In other words the reflectivity of essence over and on itself is never immediate, but creates a material and spatial surface. Each kind of idea creates, by introspection and projection at the same time, a space of encounter between thought and its object. This encounter between thought and being maybe immanent, as in the case of the third kind of knowledge, but it gives way to a surface creation nonetheless. Deleuze calls this surface- exterior or interior – a "plane of immanence". It also appears in Deleuze's texts as a "map": "The map is open and connectable in all its dimensions; it is detachable, reversible, susceptible to constant

modifications." In this sense auto-affectation does not arouse any feeling, but is comparable to an artistic creation, as if the ideal solicitation were painting or imaging itself." Malabou⁹³ 2013, 45 ←

For Deleuze and Guattari in ATP sets of affects coming up through the processes of coding and decoding are called *Parastrata*: they are presented as dynamic margins or mobile "besides" the supposed strata of the decoding process. Affective parastrata are part of a "machinic interlock".

→ "Every code is affected by a margin of decoding due to these supplements and surplus values—supplements in the order of a multiplicity, surplus values in the order of a rhizome. Forms in the parastrata, the parastrata themselves, far from lying immobile and frozen upon the strata, are part of a machinic interlock: they relate to populations, populations imply codes, and codes fundamentally include phenomena of relative decoding that are all the more usable, composable, and addable by virtue of being relative, always "beside." Deleuze/Guattari ATP, 74 ←

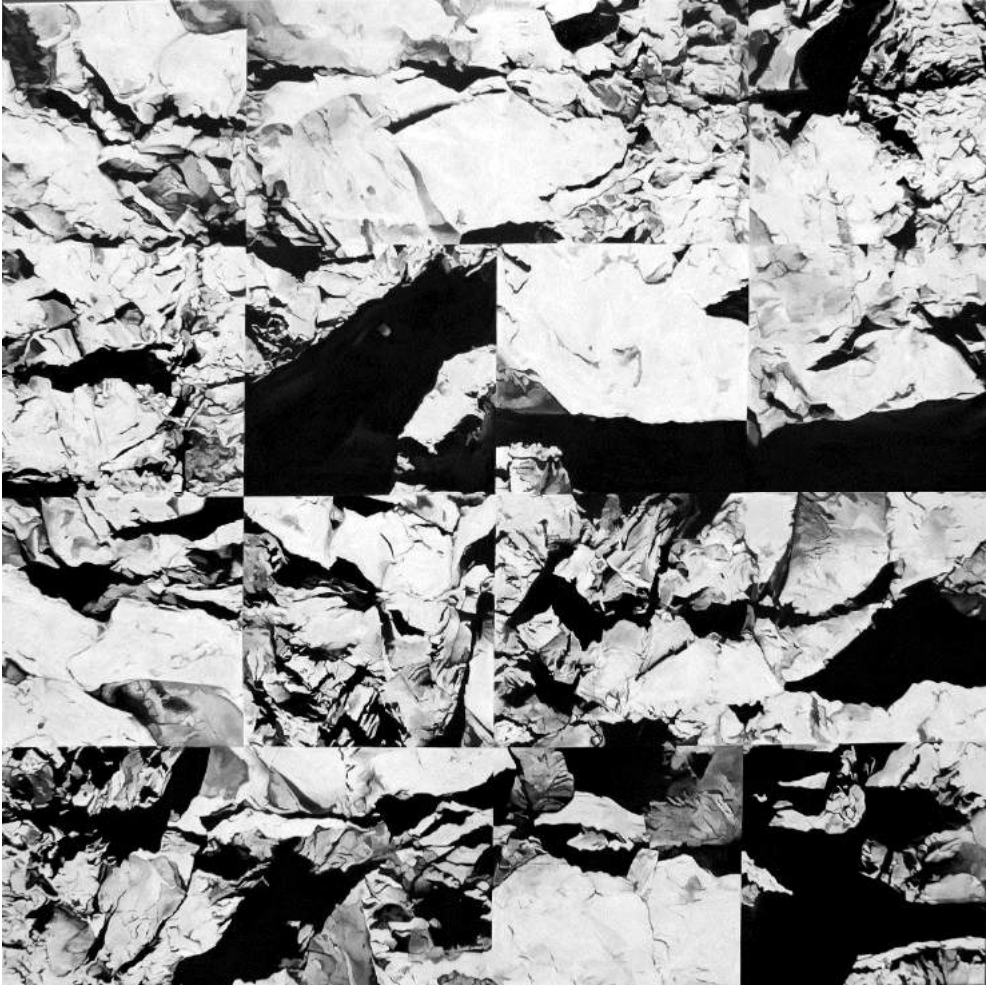
Thus in the realm of psychoanalysis these affects are followed in their tracings and according to Deleuze & Guattari have to be again relocated back onto the map:

→ "That is why it is so important to try the other, reverse but nonsymmetrical, operation. Plug the tracings back into the map, connect the roots or trees back up with a rhizome. In the case of Little Hans, studying the unconscious would be to show how he tries to build a rhizome, with the family house but also with the line of flight of the building, the street, etc.; how these lines are blocked, how the child is made to take root in the family, be photographed under the father, be traced onto the mother's bed; then how Professor Freud's intervention assures a power takeover by the

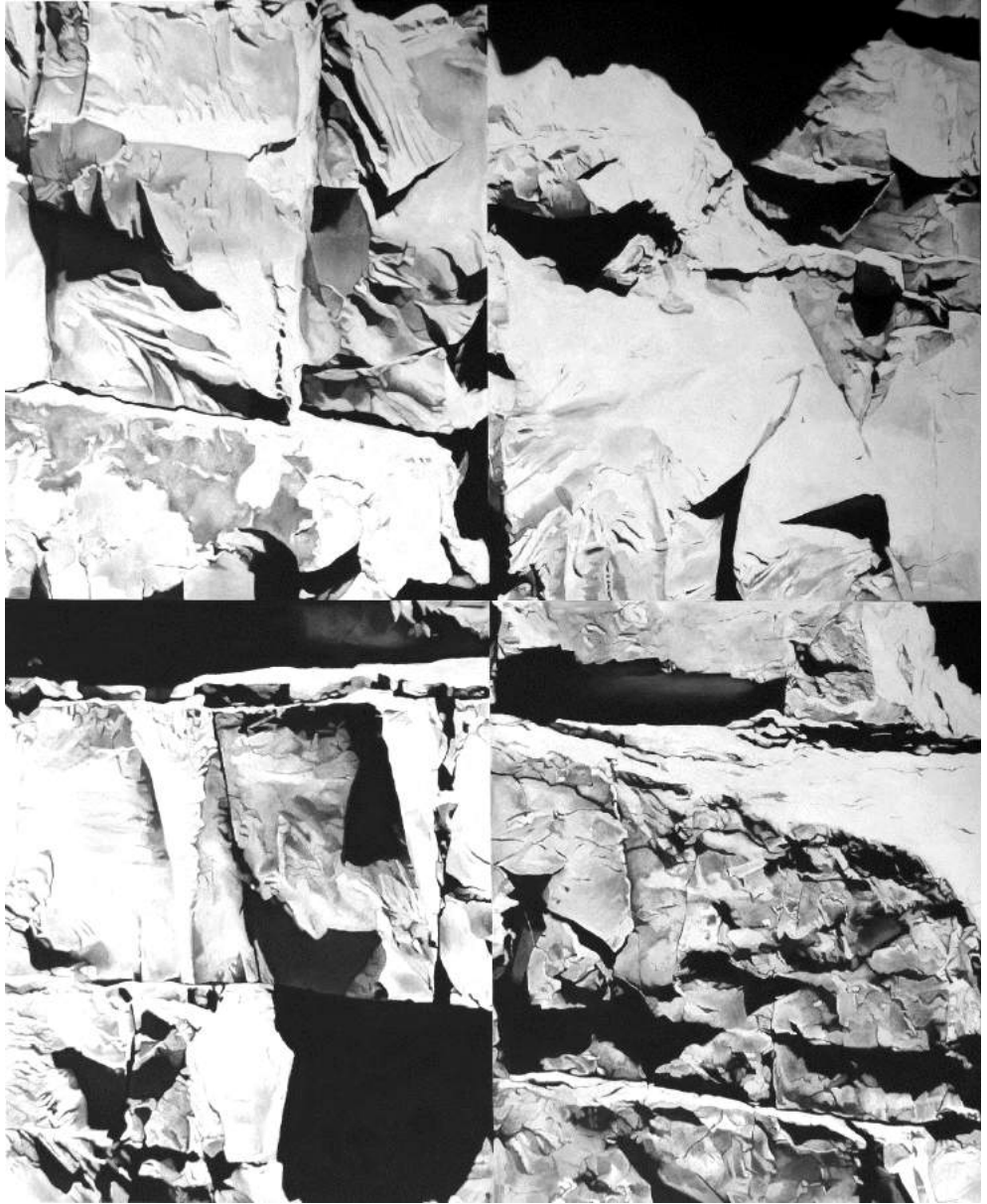
⁹³ Malabou, C. (2013). "Part I: Go Wonder: Subjectivity and affects in neurobiological times", in: Adrian Johnston & Catherine Malabou. *Self. An Emotional Life*. New York: Columbia University Press, 1-72

signifier, a subjectification of affects; how the only escape route left to the child is a becoming-animal perceived as shameful and guilty (the becoming-horse of Little Hans, a truly political option). But these impasses must always be resituated on the map, thereby opening them up to possible lines of flight. The same applies to the group map: show at what point in the rhizome there form phenomena of massification, bureaucracy, leadership, fascization, etc., which lines nevertheless survive, if only underground, continuing to make rhizome in the shadows. Deligny's method: map the gestures and movements of an autistic child, combine several maps for the same child, for several different children. If it is true that it is of the essence of the map or rhizome to have multiple entryways, then it is plausible that one could even enter them through tracings or the root-tree, assuming the necessary precautions are taken (once again, one must avoid any Manichaeian dualism).” Deleuze & Guattari, ATP, 14 ←

The getting visible of *strata painting Grids* becomes a strategy in Strata #16, #17, #18 a series of three Strata painting that come close to the former principle of Costa's Sampling puzzles:



Strata #17 | 2012 | oil on canvas | 200x200cm



Strata #18 | 2012 | oil on canvas | 200x162.5cm

[5]

From Sedimentation and stratification to forgetting strata: Strata as *Historical Erosion*





Strata #16 | 2012-2014 | oil on canvas | 240x200cm

[5.1]

Leaps in the *Logic of the Earth*

The strategy in Strata#16 is slightly shifted. Just in a first impression the image sujet could resemble a petrified palmtree, with a gully, small, incised networks of narrow channels and their associated downslope as formed by sediment erosion or even a microscopic metamorphosis of skin strata in a microcosmic detail.

Another possible hypothesis arises when seeing the Strata as an upsurge against the grid (overpainting a part of the grid) and a leap inside what occurs in sedimentation. As such this could be seen as a first part of Costa's ungrounding strategy of geometry and an artistic redefinition of the primary science of Geo-logy, and its time-structure of stratification, in parallel well expressed in Derrida's own thoughts and readings of Husserl's *Origin of Geometry*, as if holding from the bottom of the ground against the time-structuring and geo-morphological principles of sedimentation and erosion:

→ „Geometry, in effect, is the science of what is absolutely objective- i.e., spatiality- in the objects that the Earth, our common place, can indefinitely furnish as our common ground with other men. But if an objective science of earthly things is possible, an objective science of the Earth itself, the ground and foundation of these objects, is as radically impossible as that of transcendental subjectivity. The transcendental Earth is not an object and can never become one. And the possibility of a geometry strictly complements the impossibility of what could be called „geo-logy“, the objective science of the Earth itself. (...) Primordiarly the

Earth moves no more than our body moves and leaves the permanence of its *here* grounded in a present. The Earth therefore knows the rest of an absolute here; a rest which is not the rest of the object (rest as „mode of motion“), but Rest starting from which motion and rest can appear and be thought as such, the Rest of a *ground* and a *horizon* in their common origin and end. The Earth is, in effect, both short of and beyond every body-object- in particular the Copernican earth-as the ground, as the *here* of its relative appearing. But the Earth exceeds every body-object as its infinite horizon, for it is never exhausted by the work of objectification that proceeds within it: " The Earth is a Whole whose parts . . . are bodies, but as a 'Whole' it is not a body" [" Grundlegende , " p. 3 1 3]. There is then a science *of* space, insofar as its starting point is not *in* space. ←

"Derrida, J.(1989 [1962]). Edmund Husserl's Origin of Geometry: An Introduction, University of Nebraska Press Lincoln and London, 85

Husserl since his "Origin of Geometry" deals with the cognitive role of spatialization in the formation of conceptual thought. He uses a geological grounding metaphor of sedimentation in relation to the human organism's cognitive praxis. Sedimentation for Husserl in relation to human cognition refers to the processes of consolidation of embodied sense processes towards linguistic concepts and later towards the material sedimentation in writing (and we could add also drawing or painting). Husserl's geological grounding metaphor of thought and language as sedimentation combines the processes of synchronic and diachronic dynamics of sedimentation and stratification over time. Spatial sedimentation build synchronically layers vertically and form horizontal strata diachronically. Sedimentation therefore juxtaposes two different realms: *structure building and spatial orders as well as timely processual developments and becomings.*

Derrida reflects on Husserl's thought of sedimentation/stratification and its reactivation process, that we could also call de-stratification:

Important in our case of strata is what Derrida mentions in the topic of irruption/ upsurge/ leap in relation to sense-making in the use of sedimentation and strata in Husserl, the sense-making becomes at the same time a leap:

→ "(In the *Origin*, the notion of *Stufe* has both a structural and a genetic sense and can be translated by "step" or by "stage".) The geological image of "sedimentation" translates remarkably well the style of that implication. It brings together, for all intents and purposes, the following images: The image of level or stratum- what is deposited by an inroad or a progression after the radical novelty of an irruption or upsurge: every advance, every proposition (Satz) of a new sense is at the same time a leap (Satz) and a sedimentary (satzartig) fallback of sense." Derrida (1989 [1962], 98-99) ←

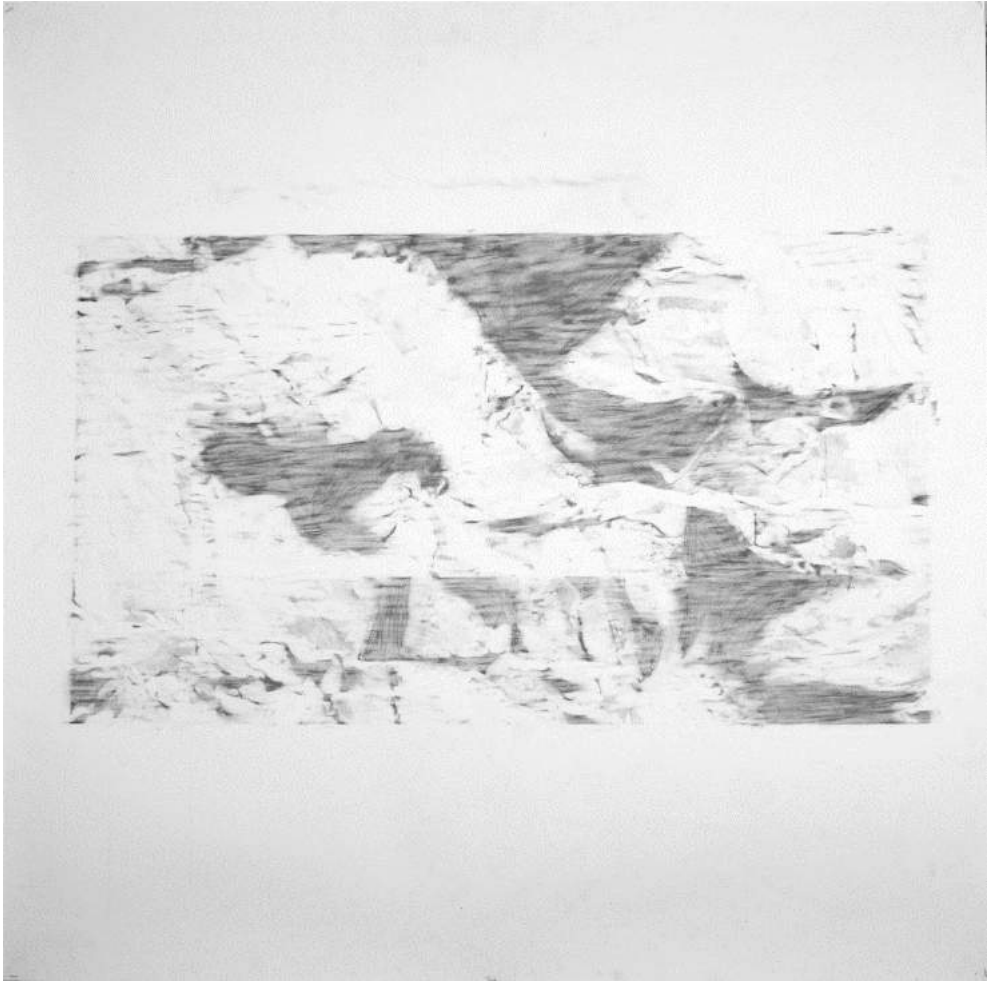
[5.2]

Eroded Strata

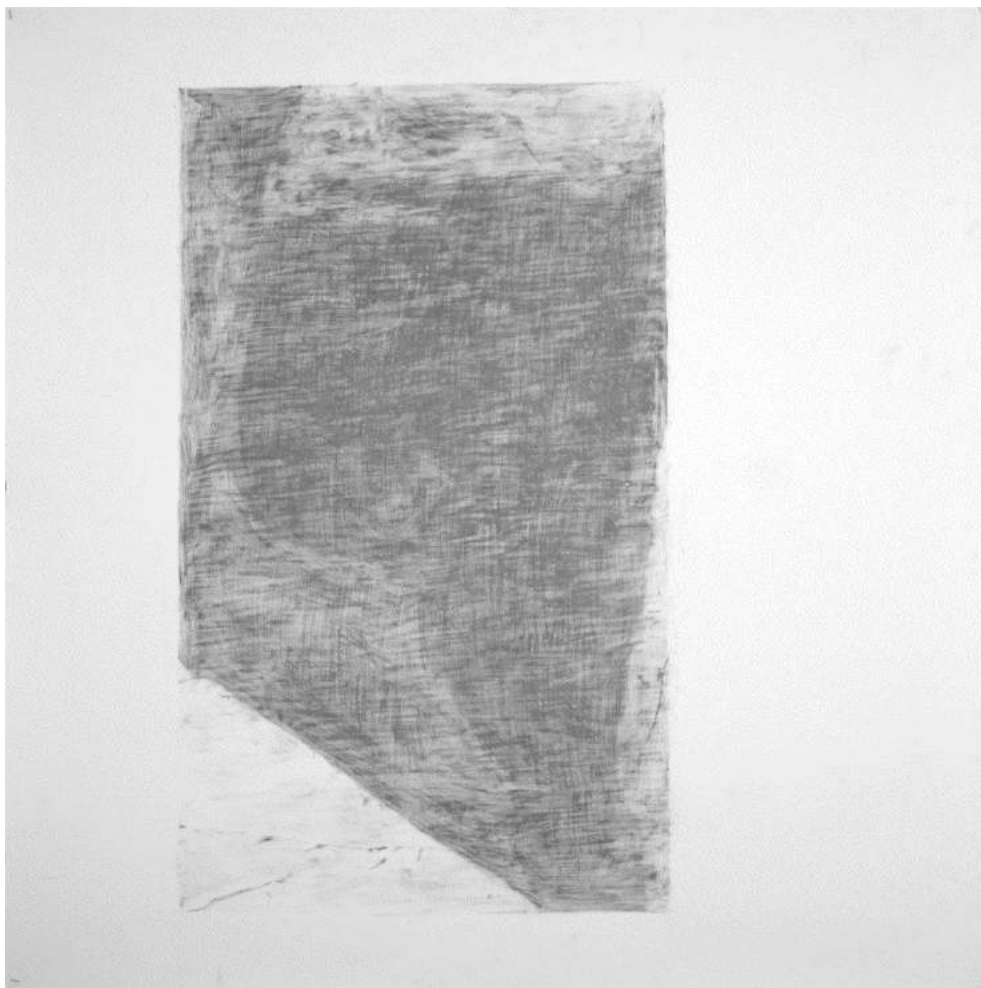
→ *"And the historical? It is formations that are stratified, made up of strata. But to think is to reach a non-stratified material, somewhere between the layers, in the interstices. Thinking has an essential relation to history, but it is no more historical as it is eternal. It is closer to what Nietzsche calls the Untimely: to think the past against the present- which would be nothing more than a common place, pure nostalgia, some kind of retour, if it did not immediately add: "in favor, I hope, of a time to come." There is a becoming of thought which passes through historical formations, like their twin, but that does not resemble them. Thinking must come from outside of thought, and yet at the same time be engendered from within- beneath the strata and beyond them."* Deleuze, G. (2006). "Michel Foucault's main concepts", In: Deleuze, G. *Two Regimes of Madness. Texts and Interviews 1975-1995*, 241 ←



Eroded strata #2 | 2013 | graphite and eraser on paper | 122x122cm



Eroded strata #3 | 2013 | graphite and eraser on paper | 122x122cm



Eroded strata #1 | 2013 | graphite and eraser on paper | 122x122cm

[6]

“Strata”: Ungrounding and Virtualization in Sérgio Costa’s ‘Wunderkammer’

→ „The earth is not a mere fragment of dead history, stratum upon stratum like the leaves of a book, to be studied by geologists and antiquaries chiefly, but living poetry of a tree, which precede flowers and fruit- not a fossil earth, but a living earth; compared with whose great central life all animals and vegetable life is merely parasitic. Its throes will heave our exuviae from our graves. You may melt your metals and cast them into the most beautiful moulds you can; they will never excite me like the forms, which this molten earth flows out into. And not only it, but the institutions upon it are plastic like clay in the hands of the potter.” *Thoreau*⁹⁴, *Walden, Spring, 184* ←

⁹⁴ Thoreau, H.D. (2007). *Walden & On the Duty of Civil Disobedience*. Rockville: Arc Manor



[6.1]

Exhumation vs. Strata Relics: Virtualizing Plotholes in 3D

As a contemporary counterpoint to the dichotomic opposition of *dead-earth-strata* in Thoreau and the enthusiastic plasticity of Waldens proposal of *living-organic-strata* we find the position of the Iranian philosopher and fiction writer Negarestani in his philosophical novel *Cyclonopedia* and its concept of *exhuming earth/strata* or presenting a non-living & non-dead or *undead-strata*, *scarring-strata* as in a relic, an "operative of exhumation which confounds the chronical time by connecting now with abysmal time scales" (Negarestani, cit. in Woodward⁹⁵, 54) "*Exhumation undermines the orders of strata... Exhumation is the invocation of the ground's potencies before they are actualized. ...Since ungrounding or exhumation incapacitates the consolidating power of ground, the earth cannot be narrated by its outer surface any longer but only by its plot holes, vermicular traces of exhumation.*" Negarestani, *Cyclonopedia*, 239

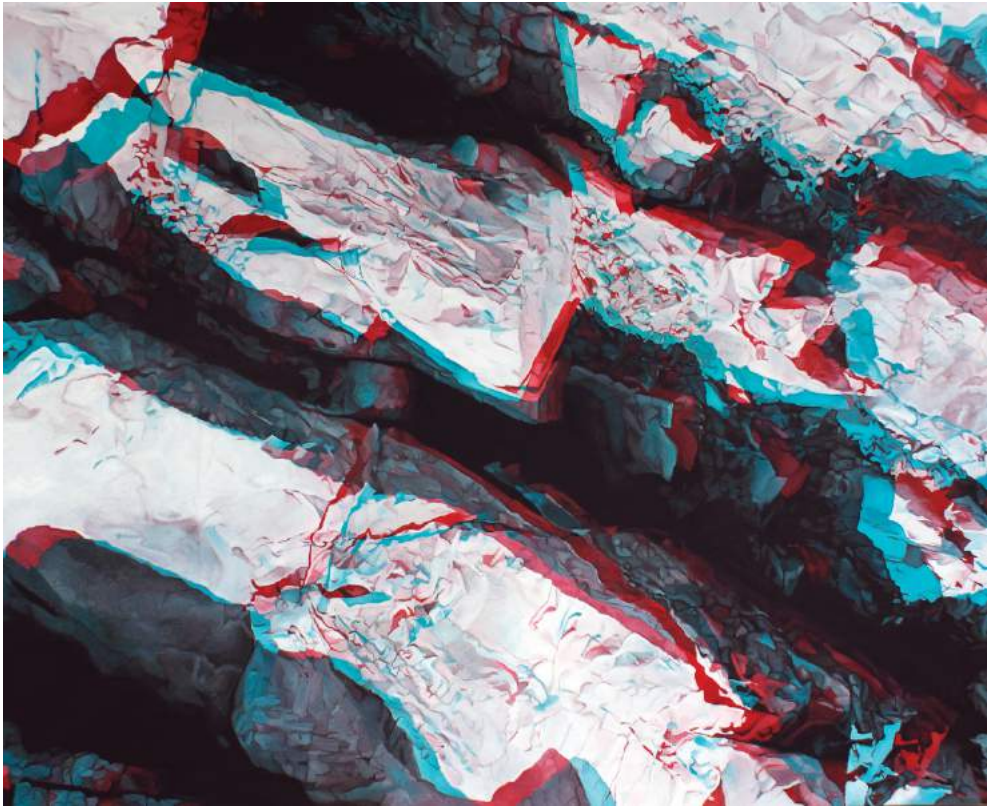
⁹⁵ Woodward, B. (2013). *On an Ungrounded Earth*. New York: punktum books

We can also see the strata series as a critical reflection on exhumation praxis, as an undermining of the orders that strata bring along:

→ "*In Exhumation the distribution of surfaces is thoroughly undermined and the movements associated with them are derailed; the edge no longer belongs to the periphery; anterior surfaces come after all other surfaces, layers of strata are displaced and perforated, peripheries and the last protecting surfaces become the very conductors of*

invasion. Exhumation is defined as a collapse and trauma introduced to the solid part by vermiculate activities; it is the body of solidity replaced by the full body of trauma. As in disinterment — scarring the hot and cold surfaces of a grave — exhumation proliferate surfaces through each other. Exhumation transmutes architectures into excessive scarring processes, fibroses of tissues, membranes and surfaces of the solid body.” Negarestani, R. (2008). *Cyclonopedia. Complicity with anonymous materials.* Melbourne: re.press ←

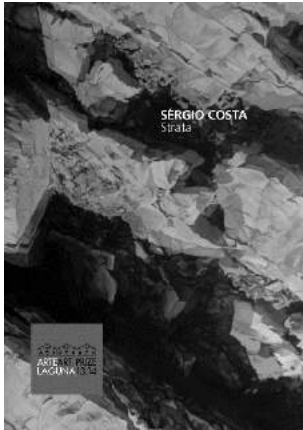
By following a Minerva’s flight of wonder in Costa’s experimental strata series, we follow a form of artistic experimentation given in a new diagramming strategy not only by the means of painting but as well by changes of dimension in new strata experiments as introduced by the anaglyphic principle in Strata #19, #20, #21 in this new strata series of Costa in between 2013 and 2014 as shown first in the *Geological Museum of Lisbon* (5th of April to 3rd of May 2014) and later in his exhibition – linked to the shortlist of the *Arte Laguna prize* [Venice 22.3-6.4.2014] in May 2014 at the gallery *Carlos Carvalho Arte Contemporânea* in Lisbon, Portugal.



Strata #19 (3D anaglyph) | 2013 | oil on canvas
162.5x200cm



→ Flyer cover for the exhibition Strata | Geology Museum, at the Portuguese Academy of Science | Lisbon | 2014



Arte Laguna Prize catalogue
for the exhibition Strata |
Carlos Carvalho Gallery,
Lisbon | 2014

There is, however, a way more important new dimension in this series of strata from 2013-2014 starting with underdetermined proto-amorphous things: The forming of mesh of clay and the drying of the wet mesh through which its porosity appears in Strata #20 and #21, exhibited in a showcase before we enter the exhibition space. And even after transporting these frail underdetermined things into the realm of painting, in which we can see them as paradoxes (simultaneously a proto-brain slice or/and a slice of petrified toasted bread) our imagination while observing these things is unlimited in a trivial matching game of similarity. The concreteness of these sub(jectual) objects brings us further due to its contextual embeddings and transport into the realm of a museum space, the geological museum, in the building of the Portuguese Academy of Sciences. Strata of Sérgio Costa turn into a "real counterpart", a virtual syncope of the petrified objects exhibited in the museum, an artistic principle of *ungrounding* and *virtualization* of the museological material space and its displayed objects.

In Strata #20 and #21 the porosity that is an openness of craters and valleys unlike its geological counterpart of sedimentation can be put into perspective as artistic strategy opposed to a geological sedimentation principle of stratification. The most easily observable change in this new experimental strata series of Costa in 2014 is the introduction of another perceptual dimension inside a ***Gestural Heuristics of strata***, the anaglyphic two color outlines that create a 3D effect of a 2D painting, a diagram based on the interplay of two colors added to the actual painting, virtualizing the stratification. In the field of Philosophy of science Griesemer⁹⁶ (2004) refers to the importance of gesture for knowledge production within concrete three dimensional models, and the change between 1-D (symbolic)-2-D (diagrammatic) and 3-D (gestural) dimensional models, however, without thematizing – what we can observe in Costa's gestural move towards 3D painting: *the virtue of gesture influencing transformation/reduction of dimensionality in general.*

⁹⁶ Griesemer, J. (2004), „Three-Dimensional Models in Philosophical Perspective, in: Soraya de Chadarevian and Nick Hopwood, Models. The third dimension of science, Stanford 2004, S. 433-442



Strata #20 (3D anaglyph) | 2014 | oil on linen | 40x50cm



Strata #21 (3D anaglyph) | 2014 | oil on linen | 40x50cm

[6.2]

#Ungrounding Strata#

Costa's Strata exhume the fixity of our habitual perception of things and thus strata as rock layers start decomposing, while not even the most hard rock on which religions believe to be build, escapes this virtualizing principle of de-stratification or ungrounding. By the introduction of new anaglyphic works of strata, Sergio Costa can now be seen in 3D, without any need to go to a multiplex cinema- the cinematic anaglyphic mode in 2014 reached the geological museum, it catapults the observer to a nature 2.0. The more the observer seems to recover in this optical illusion the "original" 3D structure of the object in study, in a "regrounding" of reality, the more he tries to root them on a platonic plane the more strata virtualize and ungrounds.

→ „If geology, or the 'mining process', opens onto an ungroundedness at the core of any object, this is precisely because there is no 'primal layer of the world', no 'ultimate substrate' or substance on which everything ultimately rests. The lines of serial dependency, stratum upon stratum, that geology uncovers do not rest on anything at all, but are the records of actions antecedent in the production of consequents" Iain Hamilton Grant (2010) "Mining Conditions". In: *The Speculative Turn: Continental Materialism and Realism*, eds. Levi Bryant, Nick Srnicek and Graham Harman (Melbourne: re.press, 2010), 41–46 here ←



Crack sampler | 2014

[6.3]

Debris – gestures: Strata Rests





Poster image for the exhibition Sampling strata | Bangbang Gallery, Lisbon | 2015



Crack sampler debris (installation view) | 2014 | paint and plaster | variable dimensions

⁹⁷ "What is a danced gesture? Distinguished from any other gesture, functional, gymnastic, theatrical, playful. What characterizes it: the fact that it never goes to the end of itself. The movement that unfolds, holds back- returns onto itself and extends towards the next gesture. In this sense has no outline, (...), dodges its own limits, escapes itself. **That's what allows it to always remain before and below writing /graphy:** it is false to say that the gesture draws figures in space. When it does, it slides towards acrobatics or choreography of circus. (...)The Danced Gesture assumes two planes/levels of movement, one to the body surface, another one parallel making the same journey, but sustaining the movements of the first plane. This is only to refer visible movements of the body itself, while the second means and runs through the body, its interior and its surface. (...)The danced gesture expresses no precise meaning, because any movement towards the sign and significance is suspended in two ways: upstream, by retaining that the lower speed of the visible movement operates on itself: downstream, because the flow of movement "underground" acquires a speed such that the gesture never is able to match." Gil, José (2005), *Movimento Total*, 89-90 (my translation)

⁹⁸ Are diagrams frozen, fixed gestures? Are diagrams stiffened bars formed out of flexible, elastic gestures of thought, thinking and (en)acting upon and with the world, that Costa's paintings aim to virtualize and thus mobilize again? As Gilles Châtelet says "Gestures are disciplined mobilities of the body". Châtelet, G. (2000{1993}). *Configuring Space: Philosophy, Mathematics and Physics*. Dordrecht: Springer.

Can we become *gestures to be another*? How to decide when to command a *gesture of rupture*, when to crack open the colors of the image and run? When do gestures -idealized as politics- become means without end (Agamben), or even non-instrumental danced gestures⁹⁷ (José Gil)? Though Gestures being evidently the most important forms of human display and expression, they are more than actions without words. Gestures go beyond linguistic gestural language studies, and their function in co-speech. As social and aesthetic forms of display and expressions they make the body and corporeality arise in relation to itself and to the other. But – what until now is still not studied well enough, gestures are linked to learning and the development of the new in our experience and the development of our knowledge. *Gestures become possible and virtual movements*⁹⁸, never fully instrumental, intentional or poetic acts, nor mere individual motor-programs and expressive and instrumental actions. Attention in this sense is a joint gesture that is closely linked to co-movement, inter-embodiment, but that is not fulfilled in an actual movement or motor activity only, gestures as self-other movements prepare thoughts and interbodily encounters. ***Every gesture encompasses a promise of a complete movement that does not come to full fruition, but needs the coordination, the entrainment with the other to come into being.*** In the moment of touch - the syncope of gesture - the existence of gesture is temporarily suspended. Gesture only opens the possibility of the proximity of two bodies, it performs the possibility/virtuality of encounters, but is not the actual encounter. Therefore, gesture creates an opening to another movement, showing itself as transindividual and intergenerational. Gestures "calls" for a counter movement, rehearsals of *encounters*, by its necessary incompleteness of equilibrium, its "unbalance": *Gestures show the necessity of the body for constant disequilibrium, transforming orientational maps.* Are debris gestures deprived gestures of no sign value? On the surface, gestures seem to express signs and seem to become

technical tools of stabilization, but suddenly this surface tension might be deviated, opened or ripped apart and show big-scale *political* tectonic changes in short times, occurring among enslaved domesticated animals/humans/plants, gestures of rupture and its consequential debris.

And then: how to keep and archive, how to diagram and gather what fell off from painting, fell off our history of making an image, our image?

How to put together what fell off from thought?

Material to think further, mental cognitive and in specific gestural qualitative paint that fell off from painting, what to do with it? How to continue from here from the debris of thought of pain(t)? Distract ourselves from the rests of paint? Or should we distract ourselves from the current image frame of stratified powers, knowledge and political capitalist machines of strata producing systems?

What fell off from pain(t)ing are thinking debris: rests, crumbs, thought rests gathered by the action of bricolage of gesture, *gestures of collapsed strata debris*.

Agamben reminds us on a crucial point that we will apply to the idea of gestural strata. Agamben in relation to gesture refers to Varro's⁹⁹ distinction of [I] „facere“, [II] „gerere“ and

[III] „agere“ in a action-based account and I consider as well Varro's idea of [IV] ‚fingere‘ and [V] ‚formere‘. These five notions of how gestures could be categorized as cognitive enhancement in destratification, restratification and formative development, have to be clearly distinguished when we talk about *knowledge development* in science and art based on gestures, that could be categorized as **(I) >Facere<** type Cognitive Enhancements, or Augmentation though gestures/making/breaking ... **(II) >agere<**- Type of Cognitive Enhancements (for augmenting individual and social action potential, gestures that socially relate between the strata **(III) >gerere<**- Type

⁹⁹ “VIII. 77. The third stage of action is, they say, that in which they faciant ‘make’ something: in this, on account of the likeness among agere ‘to act’ and facere ‘to make’ and gerere ‘to carry or carry on,’ a certain error is committed by those who think that it is only one thing. For a person can facere something and not agere it, as a poet facit ‘makes’ a play and does not act it, and on the other hand the actor agit ‘acts’ it and does not make it, and so a play fit ‘is made’ by the poet, not acted, and agitur ‘is acted’ by the actor, not made. On the other hand, the general, in that he is said to gerere ‘carry on’ affairs, in this neither facit ‘makes’ nor agit ‘acts,’ but gerit ‘carries on,’ that is, supports, a meaning transferred from those who gerunt ‘carry’ burdens, because they support them. 78. In its literal sense facere ‘to make’ is from facies ‘external appearance’: he is said facere ‘to make’ a thing, who puts a facies ‘external appearance’ on the thing which he facit ‘makes.’ As the fitor ‘image-maker,’ when he says “Fingo ‘I shape,’” puts a figura ‘shape’ on the object, and when he says “Formo ‘I form,’” puts a forma ‘form’ on it, so when he says “Facio ‘I make,’” he puts a facies ‘external appearance’ on it; by this external appearance there comes a distinction, so that one thing can be said to be a garment, another a dish, and likewise the various things that are made by the carpenters, the image-makers, and other workers.”
Varro, On the Latin Language VI, online:
http://www.loebclassics.com/view/varro-latin_language/1938/pb_LCL33.3.247.xml 244-247

Cognitive enhancements of gestures in the sense of better *management/organisation* of cognitive skills including mapping skills and gesture based diagrammatic reasoning of mapping strata to carry on the theater of production of organisation of (intimate) experience, knowledge development and social-political organisation.

(IV) >fingere< –Type of cognitive enhancements („As the fictor 'image-maker,' when he says "Fingo 'I shape,'" puts a figura 'shape' on the object" Varro) – this type refers to enhancement imaginations by "*plastes et fictor* [molder and image-maker]"-gestures, mediated by fictions, to de-stratify and change dimensionality of strata and invent and do *as if* there was a strata to break from.¹⁰⁰

¹⁰⁰ For *plastes et fictor* cf. Pico della Mirandola, G. (1990). *De hominis dignitate/Über die Würde des Menschen*. Übersetzt v. Norbert Baumgarten. Hg. und eingel. v. August Buck. Lateinisch-Deutsch. Hamburg: Felix Meiner

(V) >Formare< – Type Cognitive Enhancements of gesture: Formative cognitive enhancements („when he says "Formo 'I form,'" puts a 'form' on it), when the gesture properly forms a new way of designing and creating gestures.

At the core of debris gestures of broken strata lies the aspect of their gesture-base of self-other relations and techniques and technologies by externalizing tools of reasoning and >explorative Gestures of Knowledge< and their intimate movements, lies the fundamental epistemological relation between >diagram< and >gesture< in their multimodality, combining scientific and artistic diagram praxis of the gestural dimension of the relation of techné, epistémé and human bodily movement. Episteme is the Greek word most often translated as knowledge, while techné is often translated both as craft or art. These translations, however (see: Parry¹⁰¹ 2014), may inappropriately house some of our current assumptions about the relationship between theory (the domain of "knowledge") and practice (the concern of 'craft' or 'art'). We can ask: How is the relation of these two forms of knowledge, of *truthful knowledge* on the one hand and *practical knowledge* on the other hand, given in *debris*

¹⁰¹ Parry, R.(2014), "Episteme and Techne", *The Stanford Encyclopedia of Philosophy* (Fall 2014 Edition), Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/fall2014/entries/episteme-techne/>>.

gestures of strata rests? And how do we mediate between these two modes of knowing between truthful knowledge and knowledge fostered by enactment and technical action in which the potentiality of human gesture comes forward? Agamben's (1992¹⁰², 2013¹⁰³ 2014) anthropotechnical >Potentiality of Gesture< is a valuable contribution to approach these questions as well as Sloterdijk's¹⁰³ (2009) notion of training and exercise, applied to not only biological and cultural self-preservation and biological strata of a homeostatic equilibrium, but for cultural development by enhancement gestures of exercise and training (Sloterdijk 2009, 2010¹⁰⁵) as in >doing science and philosophy< and how do both contribute to the foundation of the destratified humanities (You must change your life (2009)? Sloterdijk's position and other transhuman and posthuman¹⁰⁶ (life beyond theory) positions (Braidotto 2013¹⁰⁷), or in the sense of life beyond the individual >self< but at the same time fostering in medicine personalized and stratified medicine approaches call our attention for strata rests untreated but open to our gestural rehearsals of repair, treatment and enhancement.

Other positions of *debris gestures* and *strata rests* can be described as a „post-anthropocentric“ anthropotechnique. This means stratifying life beyond the species (beyond human-other species distinction or cross-species hybridity for instance in the sense of La Mettrie's¹⁰⁸ Human-plant), or even destratifying the inhuman (life *beyond* death; against the idea (or *fact*?) of mortalism) positions, that culminate in proposals of digital automatized, or even posthuman humanities, and its Imagination.

¹⁰² Agamben, G. (1992). "Notes on Gesture". In: G. Agamben, Means without end. Notes on Politics. Transl. by Vincenzo Binetti and Cesare Cessarino. Minneapolis/London: University of Minnesota Press, 49-62

¹⁰³ Agamben, G. (2013|2012). *Opus Dei. An Archaeology of Duty*, tr. by Adam Kotsko, Stanford: Stanford University Press

¹⁰⁴ Sloterdijk, P. (2009), *Du musst dein Leben ändern. Über Anthropotechnik*, Frankfurt, Suhrkamp

¹⁰⁵ Sloterdijk, P (2010), *Von Philosophie und Wissenschaft als Übung*, Frankfurt, Suhrkamp.

¹⁰⁶ "The fallout of post-anthropocentrism (...) sets a different agenda for the Humanities, and not only in terms of research priorities. The image of thought implied in the post-anthropocentric definition of the Human goes much further in the deconstruction of the subject, because it stresses radical relationality, that is to say nonunitary identities and multiple allegiances. As this shift occurs in a globalized and conflict-ridden world, it opens up new challenges in terms of both post-secular and post-nationalist perspectives, including a new European dimension marked by multi-lingualism and cultural diversity(...)The question of the future of the Humanities, the issue of their renewal and the recurrent threat of death of the

disciplines, is aggravated by one central factor: the new 'human-non-human linkages, among them complex interfaces involving machinic assemblages of biological "wetware" and non-biological "hardware"' (Bono et al., 2008: 3) "Braidotti, R. (2013). *The Posthuman*. Cambridge: Polity Press, 144-145; Bono, James J., Tim Dean and Ewa

Ziarek Plonowska. (2008). *A Time for the Humanities. Futurity and the Limits of Autonomy*. New York: Fordham University Press.

¹⁰⁷ Opposite to Braidotti's posthuman humanities position- "Posthuman times call for posthuman Humanities studies"- see: Nussbaum, M. (2010). *Not for Profit. Why Democracy Needs the*

Humanities. Princeton, NY: Princeton University Press.

¹⁰⁸ Julien Offray de La Mettrie (1748). "L'homme plante" see: http://bibliothek.bbaw.de/quellendigital/lametrie/mettr_hommplante_fr_1748/LAMETTRIEHOMMEPLANTE.pdf

These positions should be scrutinized from a perspective of the debris the strata rests in the idea conceiving the category of >human< as a strata debris, in a Philosophy of Cognitive enhancement and as such as a conceptual operator in the production on the radical imaginative theatre-stage of *Enhanced Humanities*.

How do concepts of cognitive enhancement from a slow (*classical theories of education*) and fast accelerated perspectives such coming from biomedical cognitive enhancements, cloning, direct brain to brain linkages and self-other relation enhancements deal with critiques such as Nussbaum's "Not for Profit. Why democracy needs the Humanities" Position (as she is classically based on democratic values of slow enhancement methods such as education in the spirits of the Universal declaration of Human Rights¹⁰⁹ and positions on theoretical education positions such as the theories of Pestalozzi or John Dewey's, in which values such as critical thinking, transcending non-universalist morals and "fostering the ability to imagine sympathetically the predicament of another person" (Nussbaum 2010,7) are most valorized.

¹⁰⁹ "Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance, and friendship among all nations, racial or religious groups." Universal Declaration of Human Rights, 1948 cit. in Nussbaum 2010, 14



Strata tridimensional molds | 2013 | modeling paste | variable dimensions

[6.4]

#Strata Wunderkammer#

While presenting a transition of the scientific plane of geologic objects shows an artistic strategy of virtualization of a discrete and historical-material structured geological collection- that in itself still preserved by the influence of a Baroque intention of the Wunderkammer. Costa's exhibition transports the entire museum onto the plane of his strata. Thus by showing a transition of the scientific plane of actuality of geological objects in a space-fold of the Museum space officially dedicated to art, Costa allows us to grasp the strategy of virtualization of stratification by the artistic diagrammatic machine of his paintings. This principle of virtualization becomes actualized by a showcase that displays Costa's Strata three-dimensional Strata studies made of a demiurgic claylike material always already in decay, in rupture: infinite material strata syncope. The interest of these strange object is exactly located in their fragility, their infinite porosity exhuming strata in decay, *a poromechanics of strata*: A place where "[t]he cosmogenesis of decay, unfolds within solidity, [and] spreads from interior to outer surfaces." Negarestani, *Cyclonopedia*, 181–182.

¹¹⁰ Gerner, A. (2015). "Notes on embodied and disembodied notions of infinity and continuity (considering C.S. Peirce, Rudy Rucker's 'White Light' and Milan Kundera's 'Immortality)'" *Infinity*, coord. by Pedro Lind (=Mateus Doc VIII), Vila Real: Online first: <http://www.iicm.pt/pt/wp-content/uploads/2015/03/Notes-on-embodied-and-disembodied-notions-of-infinity-and-continuity-considering-C.S.-Peirce-Rudy-Ruckers-White-Light-and-Milan-Kunderas-Immortality-10.3.2015.pdf>

How do we relate our embodied experience and the evidence of continuous infinity¹¹⁰ in the stratified? How do strata and experienced "eternity" relate?

[7]

Floating higher than strata? What stays and persists? Becoming atmospheric strata?

*"The first eternity we find is that of rocks, of the swooping contour of the plains, of the skylines: all that is resistant, unchanging."*¹¹¹

How about thinking the stratified as an *infinite loop of strata*?

What if we would float with less gravity in space?

Would this make us stop to think strata, or even: would this make us think strata come to a *logical close*-more than to a finite end?

Strata on strata, strata below strata, strata unfolding into strata, strata beyond earthly strata: unfolding of strata without coming to a halt? Are strata an absolute or infinite thinking image of constitution and of persistence?

There are infinite predicates in language that express exactly this point which can be called limit cases of a (stratified) logic of the infinite that should be considered in Peirce's complex continuity concept, as recently highlighted by Bellucci¹¹² in the logical analysis of *relational predicates*: Peirce's "continuous predicates"¹¹³, a relational predicate that results in a limit of recursive process of hypostatic abstraction, in our case on strata. Gertrude Stein marked this infinite predicate in the following poem: "A rose is a rose is a rose is a rose", - thus *a strata follows a*

¹¹¹ Gros, F. 2014, A Philosophy of Walking. Verso:London, 82

¹¹² Bellucci, F. (2013). "Peirce's Continuous Predicates". Transactions of The Charles Saunders Peirce Society 49/ 2, p. 178-202

¹¹³ "A predicate which can thus be analyzed into parts all homogeneous with the whole I call a *continuous predicate*. It is very important in logical analysis, because a continuous predicate obviously cannot be a *compound* except of continuous predicates, and thus when we have carried analysis so far as to leave only a continuous predicate, we have carried it to its ultimate elements." Peirce, C. S. (1977). *Semiotic and Significs: The Correspondence between Charles S. Peirce and Victoria Lady Welby*. Edited by Charles S. Hardwick and James Cook, Bloomington: Indiana University Press, p.72



strata follows a strata follows a strata... that Bellucci in his paper takes as a starting point while examining Peirce's concept of continuous predicate and its relevance to Peirce's theory of logical analysis: "Around 1906, Peirce discovered that the *logical analysis of a proposition comes to an end when a "continuous predicate" is found*: Continuous predicates are those predicates that cannot be analyzed, or, which is the same, are only analyzable into parts all homogeneous with the whole."¹¹⁴ That means that an end is reached where logically all parts are the same as its whole.

What if the whole would become strata?

Strata become strata become strata become strata... what if this book became strata on its own?

Before responding to these metaphysical questions we have to orient ourselves about which age of strata we actually belong to.

¹¹⁴ Bellucci, F. (2014). Transactions of the Charles Saunders Peirce Society 49/2, 178-202.

[7.1]

You are here, *now*! What stays and persists in the changing strata of earth of the Anthropocene today?

We earthbound...should/could we „*change our grounds*“ as a “possibility of thought“*in order to accept as a preferred but not necessary ground, a Earth as our body surrounded by space?* Or should we think *how to think ourselves as embedded on the ground of earth and as human= earthbound?* (cf. Husserl, E. (1940{1934}) „Grundlegende Untersuchung zum phänomenologischen Ursprung der Räumlichkeit in der Natur“ in Farber, M. Philosophical Essays in Memory of Edmund Husserl, Cambridge: Harvard University Press, 307-327)

▪

In 2016 the professional organization responsible for defining the Earth timescale- the *International Union of Geological Sciences* (IUGS), proposes a new official description of Earth-Time, succeeding the Holocene, the period starting after the last great ice age 11, 700 years ago. Many scholars today advocate an „**Anthropocene**“- (cf. Waters, C.N. et al (2016). „The Anthropocene is functionally and stratigraphically distinct from the Holocene“. *Science Jan 8, Vol 351/6369, 137-146*) of „man“ influenced Earth-time, in which human kind is – among others, **effectuating long lasting traces in Earths strata e.g. by appearance of anthropogenic manufactured materials in sediments** (concrete, waste, plastic etc.), by **a) novel markers** (concrete, plastics, global black carbon, and plutonium (Pu) fallout, shown with radiocarbon (¹⁴C) concentration.) in geochemical signatures, radiogenic signatures, and **b) Long-ranging signals** (nitrates (NO₃⁻), CO₂, CH₄, and global temperatures, which remain at relatively low values before 1950, rapidly rise during the mid-20th century and, by the late 20th century, exceed Holocene ranges, carbon cycle

change evidencing from ice scores, climate change and rates of sea-level rise since last ice age, in recent sediment and ice—note causally influencing c) **biotic change** (mass invasion/extinction of animal and plant species) and changing climate/ atmosphere, and thereby transforming as well human’s natural habitat and **Lifeworld**.

The concept of the Anthropocene - in which humans are having crucial impact on the Earth by changing its life condition, climate and geology, creating new or distinctive strata persisting far into the future - was coined in 1873 by the geologist Antonio Stoppani (Crutzen¹¹⁵ 2002), but only recently enforced in the beginning of the 21st century, by the ecologist Eugene F. Stoermer and atmospheric chemist and Chemistry Nobel Prize laureate Paul Crutzen in 2000¹¹⁶ at a conference of the International Geosphere-Biosphere Program of the United Nations in Mexico that has been later inserted in a one-page “concept” article in the journal *Nature* (Crutzen 2002), called >Geology of Mankind<-reflecting on human influence on climate and the atmospheric resources as found by stratigraphy of ice and as a geological concept has been officially introduced as a *formal unit of geological epoch division* in the stratigraphic society of London since 2008¹¹⁷. How to define the Anthropocene in geology is still under debate and can be followed for example on the website of its *stratigraphic working group*¹¹⁸ - though the interdisciplinary debate around it has become very vivid, including hard sciences, social sciences, philosophy, ecology, politics and economy

¹¹⁵ Crutzen, P.J. (2002). “Geology of Mankind. The Anthropocene.” *Nature* 415/ January 2, 23

¹¹⁶ See: Crutzen, P. Stoermer, E.F.(2000). “The “Anthropocene”” IGBP Newsletter 41, May 2000, p.17 online: <http://www.igbp.net/download/18.316f18321323470177580001401/NL41.pdf>

¹¹⁷ Zalasiewicz, J., Williams, M. (2008). “Are we now living in the Anthropocene?” *GSA TODAY* v. 18, no. 2, doi: 10.1130/GSAT01802A.1:

“Geologically, units of equivalent rank do not necessarily have to be of equivalent time span, particularly as the present is approached. Thus, the Quaternary, whether its beginning is placed at 1.8 Ma or 2.6 Ma, is by an order of magnitude the shortest period, while the Holocene, at a little under 12,000 calendar years (ICS, 2006) is, by at least two orders of magnitude, the shortest epoch. This inequality has not been seriously disputed, partly because of its practical usefulness. The preceding discussion makes clear that we have entered a distinctive phase of Earth’s evolution that satisfies geologists’ criteria for its recognition as a distinctive stratigraphic unit, to which the

name Anthropocene has already been informally given. We consider it most reasonable for this new unit to be considered at epoch level. It is true that the long-term consequences of anthropogenic change might be of sufficient magnitude to precipitate the return of “Tertiary” levels of ice volume, sea level, and global temperature that may then persist over several eccentricity (100 k.y.) cycles

(e.g., Tyrrell et al., 2007). This, especially in combination with a major extinction event, would effectively bring the Quaternary period to an end. However, given the large uncertainties in the future trajectory of climate and biodiversity, and the large and currently unpredictable action of feedbacks in the earth system, we prefer to remain conservative. Thus, while there is strong evidence to

suggest that we are no longer living in the Holocene (as regards the processes affecting the production and character of contemporary strata), it is too early to state whether or not the Quaternary has come to an end.” Zalasiewicz, J., Williams, M. (2008), 6-7

¹¹⁸<http://quaternary.stratigraphy.org/workinggroups/anthropocene/>

¹¹⁹ <http://www.stratigraphy.org/>

as well as other humanities. The decision about it being accepted as geological epoch is carried out by the International Commission of Stratigraphy¹¹⁹ of the Geological Society of London who determines the denomination and the calibration of different divisions and subdivisions of geological time, which date back to the formation of the Earth, 4.6 billion years ago.

→ "For the past three centuries, the effects of humans on the global environment have escalated. Because of these anthropogenic emissions of carbon dioxide, global climate may depart significantly from natural behavior for many millennia to come. It seems appropriate to assign the term 'Anthropocene' to the present, in many ways human-dominated, geological epoch, supplementing the Holocene — the warm period of the past 10–12 millennia. The Anthropocene could be said to have started in the latter part of the eighteenth century, when analyses of air trapped in polar ice showed the beginning of growing global concentrations of carbon dioxide and methane. This date also happens to coincide with James Watt's design of the steam engine in 1784. (...) Unless there is a global catastrophe — a meteorite impact, a world war or a pandemic — mankind will remain a major environmental force for many millennia. A daunting task lies ahead for scientists and engineers to guide society towards environmentally sustainable management during the era of the Anthropocene. This will require appropriate human behaviour at all scales, and may well involve internationally accepted, large-scale geo-engineering projects¹²⁰, for instance to 'optimize' climate. At this stage, however, we are still largely treading on terra incognita." Crutzen 2002, 23 ←

¹²⁰ see the video of *inhabitants* „A Brief History of Geoengineering“ (2015/9) http://inhabitants-tv.org/sept2015_geoengineering.html on geoengineering patents in advance of a select view entities for privatizing and owning the global means of mitigating climate change- such as systems of enhanced cloud formation and precipitation, weather-control, cloud brightening and solar reflectivity as well as solar mirrors- entirely disrespecting the idea that climate and the earth's atmosphere, as *water* or *air*, is one of our definite common good of mankind.

Anthropocene as *another* humanistic, labour-oriented, phantasmatic and metaphoric hack onto pre-historical geology is proposed McKenzie cartographing alternative “ought-to-be” approaches that leave besides the idea of actual *anthropos*:

→ “The Anthropocene introduces the labor point of view—in the broadest possible sense—into geology. Perhaps the challenge is then to find analogous but different ways to hack other specialized domains of knowledge, to orient them to the situation and the tasks at hand / Let’s invent new metaphors! Personally, I like the *#misanthropocene*¹²¹, but don’t expect it to catch on. Jason Moore prefers the *Capitalocene*¹²², Jussi Parikka the *Anthrobscene*¹²³. Kate Raworth suggests *Manthropocene*¹²⁴, given the gender make-up of the Anthropocene Working Group considering it as a name for a geological era. Donna Haraway offers to name it the *Chthulucene*¹²⁵, a more chthonic version of Cthulhu, the octopoid monster of H. P. Lovecraft’s weird stories. “Chthulucene does not close in on itself; it does not round off; its contact zones are ubiquitous and continuously spin out loopy tendrils.” Haraway notes the strikingly parallel evolution of new metaphorical tools in *both* humanities and biologies, where competitive individualism is no longer a given. In Bogdanovite terms, perhaps it is because in both domains, producing knowledge got strangely complex, collaborative, and mediated by apparatuses. A new breed of basic metaphor is at least partly at work and in play, one which in the biologies could be described as a “multi-species becoming-with.” McKenzie, W. (2015). *Molecular Red. Theory for the Anthropocene*, London/New York: Verso Books, p.489 ←

¹²¹ “#misanthropocene from Joshua Clover and Julianna Spahr, #misanthropocene: 24 Theses, Commune Editions, 2014, at <http://communeeditions.com>”

¹²² Jason Moore, “The Capitalocene,” June 2014, Online: www.jasonmoore.com

¹²³ Jussi Parikka, *The Anthrobscene*, Minneapolis: University of Minnesota Press, 2014

¹²⁴ “Manthropocene” see Andrew Revkin, “Never Mind the Anthropocene,” *New York Times*, October 17, 2014”

¹²⁵ Haraway, D. (2015). “Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin,” *Environmental Humanities*, vol. 6, pp. 159-165

▪

¹²⁶ Zalasiewicz et al (2015). "When did the Anthropocene begin? A mid-twentieth century boundary level is stratigraphically optimal". Quaternary International 12th of January online:

<http://www.sciencedirect.com/science/article/pii/S1040618214009136>: "We evaluate the boundary of the Anthropocene geological time interval as an epoch, since it is useful to have a consistent temporal definition for this increasingly used unit, whether the presently informal term is eventually formalized or not. Of the three main levels suggested – an 'early Anthropocene' level some thousands of years ago; the beginning of the Industrial Revolution at ~1800 CE (Common Era); and the 'Great Acceleration' of the mid-twentieth century – current evidence suggests that the last of these has the most pronounced and globally synchronous signal. A boundary at this time need not have a Global Boundary Stratotype Section and Point (GSSP or 'golden spike') but can be defined by a Global Standard Stratigraphic Age (GSSA), i.e. a point in time of the human calendar. We propose an appropriate boundary level here to be the time of the world's first nuclear bomb explosion, on July 16th 1945 at Alamogordo, New Mexico; additional bombs were detonated at the average rate of one every 9.6 days until 1988 with attendant worldwide fallout easily identifiable in the chemostratigraphic record. Hence, Anthropocene deposits would be those that may include the globally distributed primary artificial radionuclide signal, while also being recognized using a wide range of other stratigraphic criteria. This suggestion for the Holocene–Anthropocene boundary may ultimately be superseded, as the Anthropocene

Another *geological* view when the Anthropocene started – namely mid 20th century comes from the working group around Jan Zalasiewicz¹²⁶ (2015), that proposes levels of an 'early Anthropocene', "linked to the origin and spread of agriculture, thousands of years ago; a beginning coincident with that of the Industrial Revolution, in the late 18th century; and one coincident with the Great Acceleration (Steffen et al. 2007) of the mid-twentieth century."¹²⁷

The new dating is due to the time when humans more than merely *leaving traces of their actions* in the strata of the earth's crust, began *changing the whole Earth system, thus changing stratification of earth as a whole*. This is often referred to as 'Great Acceleration' of a) population, b) carbon emissions, c) species invasions and extinctions, d) of the production of concrete, plastics and metals among others including the speeding up of earths proper movements besides the acceleration of human life as laid out exemplarily by Hermínio Martins (2011)¹²⁸ in three

is only in its early phases, but it should remain practical and effective for use by at least the current generation of scientists."

¹²⁷<http://www.egu.eu/newsletter/geoq/12/externalnews.pdf>

¹²⁸ "O tema da aceleração, que implica todas as fases da vida humana em todos os seus estratos ontológicos, invadindo e conquistando regiões cada vez mais vastas do "continente da Natureza" (expressão do chanceler Francis Bacon) e explodindo repetidamente no "Continente da História" (Althusser) ou, se a História já está fora de prazo, no "continente pós-histórico" foi muito debatido nas últimas três décadas (Câmara 1986), mas nos últimos dez anos talvez mais que nunca. Vejam-se só os títulos de toda uma série de obras publicadas na língua inglesa, algumas das quais bastante difundidas, à venda em todos os aeroportos internacionais: *Is History Accelerating?* (Hanna, 1998) *Is Progress Speeding up?*, *Faster: The acceleration of just about everything*

(Gleick, 1999), *The Spike: accelerating into the unimaginable future, The Tyranny of the Moment, etc.* Sentimos que estamos a viver e condenados a viver, na e pela aceleração, embora privados de qualquer telos colectivo, ou necessariamente e contingentemente, como todos os mestres canônicos nos ensinaram não podemos descortinar um ponto final que não seja o de uma supercatástrofe global conducente à extinção da espécie, de algum tipo ou outro num leque amplíssimo de cenários antropogénicos (como seria, para alguns, a Singularidade dos trans-humanistas), sem falar dos exogenous, um leque tão amplo e tão redundante de disjuntivas que torna a "certeza moral" de um ou outro destes desfechos se realizar altamente possível (Leslie, 1999)." Martins, H. (2011). "Aceleração, Progresso e experimentum Humanum". In: Hermínio Martins. *Experimentum Humanum. Civilização Tecnológica e Condição Humana*. Lisboa: Relógio d'Água, 333-389, here: 334

stains of contemporary thought [1] in thinkers of acceleration of human life world in daily life as described in the **law of the maximization of throughputs** as explained by the biomathematician Lotka¹²⁹ (1925 in: Martins 2011) in his view of the amplification of the bioenergetic fluxes and the acceleration of (time) consumption (Rifkin¹³⁰ 1994; 2000), the next line of thinkers can be designed according to Herminio Martins as [2] **panglossian accelerationists**, tacitly subscribing the *principle of infinite substitutability* as enounced by the nuclear physicists H. Goeller and A. Weinberg (Weinberg¹³¹ 1992), in which in our technoeconomy each resource can be substituted by whatever other to retrieve a optimization for a future economic growth), and [3] the **dynamic Panglossianism**. The date giving event for the Anthropocene working group would be the beginning of the nuclear age mid 20th century with the world's first nuclear bomb explosion, on July 16th 1945 at Alamogordo, New Mexico, and it thus starts when artificial radionuclides were scattered all across the Earth, leaving detectable signals in modern strata virtually everywhere. This recent Anthropocene has had a new sub-event with the 2011 **Fukuyama disaster**¹³², spreading radioactive strata in and via the world's oceans.

However, there is also an alternative interpretation against a bio- or geoconservative view of the Anthropocene that the mild optimist Peter Sloterdijk¹³³ (2011) recently "responded" to Crutzen with a conference and article called "How big is >big<?/"Wie groß ist "Groß"?" applying Spinoza's famous question *what a body is able to - Etenim, quod corpus posit, nemo hucusque determinavit*¹³⁴ to the body of the earth, confirming that until now *nobody has conceived of what the body of the earth is able to*:

→ "We do not know what developments are possible if geosphere and biosphere are further developed by an intelligent technosphere and noosphere. It is not excluded a priori, that thereby effects occur which are equivalent to a multiplication of the earth. The technique has not said its last word. If they are usually perceived to date in terms of environmental degradation and

¹²⁹ Lotka, A.J. (1925). Elements of Physical Biology. Baltimore MD

¹³⁰ Rifkin, J. (1994). Time Wars. The Primary Conflict in Human History. New York: Touchstone Books; Rifkin, J. (2000). The Age of Access. The New Culture of Hypercapitalism. Where all of Life is a Paid for Experience. New York: Tarcher

¹³¹ Weinberg, A. (1992). Nuclear Reaction. Science and Trans-Science. New York: American Institute of Physics

¹³² (cf p.exe.: Gemenne, F. (2015). "The Anthropocene and its victims," in: C.Hamilton, C. Boneulle, F. Gemenne (eds.). The Anthropocene and the Global Environmental Crisis. Oxon/New York: Routledge)

¹³³ Sloterdijk, P. (2011). "Wie groß ist "Groß"? In: Sonderdruck Suhrkamp (2011). Das Raumschiff Erde hat keinen Notausgang. Energie und Politik im Anthropozän. Texte von Paul J. Crutzen, Michael D. Mastrandrea, Stephen H. Schneider, Mike Davis und Peter Sloterdijk. Suhrkamp, Frankfurt, 93-112

¹³⁴ Spinoza, Ethica, Pars III, Pr. 2, Scholium

biogenomativity, it only reveals that it is in some ways still in its infancy.” Sloterdijk 2011 (my translation) ←

The multiplication Sloterdijks speaks of, could be seen as future and still unknown principles of *strata earth 2.0, a new approach of creating earth strata with cognitive and technological means.*

¹³⁵ Sloterdijk, P (2001). Nicht gerettet. Versuche nach Heidegger. Frankfurt: Suhrkamp, 212pp

Sloterdijk (2011; 2001¹³⁵) sees the principles of technology in relation to earth not necessarily or atemporally on a bioconservative side of heterotechnics (violation of nature and tricking nature), giving way to a *homeotechniques* (based on procedures of imitation of nature and the continuity of natural production principles on artificial levels) in which an *earth –technics* relation is given by geological *biomimetical* standards of technology that could actually lead to such a new relation of >Umwelt< or earth’s ecology and Earth-Body-Technology. This would also imply not only a techno-human condition (Allenby & Sarewitz¹³⁶ 2011), but as well an anthropological influence account on the earth and its strata by creating a spherical Anthropocene interior-human made or human influenced strata:

¹³⁶ Allenby, B. & Sarewitz, D. (2011). The Techno - Human Condition. Cambridge Mass. /London. MIT Press

→ “The indifference of nature against the human driving was an illusion that corresponded to the era of ignorance (see the essay by Paul J. Crutzen in this volume). There are limits of expression, limits of emission, limits of toleration of ignorance - and because there are such limits, even if we do not know exactly where they should be drawn, the seemingly unthinkable idea of nature as an all-absorbing externality is shaken. All of a sudden we find ourselves compelled to admit the unnatural translucent idea that the terrestrial sphere as a whole has been transformed by the human practice in one large interior.” Sloterdijk 2011 (my translation) ←

This anthropocenic interior in Sloterdijks reading calls us on the plan of anthropotechnical action: "You must change your life! (Sloterdijk¹³⁷ 2009). Is it then what stays and persists in this anthropocenic strata interior that Sérgio Costa's strata series is following after in his paintings? Strata chase after our gaze! Is it what surrounds us all the time that actually creates not just a sphere of rock but as well a horizontal stability. All that surrounds us, all what prevails unnoticed almost, almost all the time that becomes intensified or simply de- and re-stratified in Costa's work?

¹³⁷ Sloterdijk, P. (2009). Du mußt dein Leben ändern!. Versuch über Anthropotechnik. Frankfurt: Suhrkamp

But then and again I ask myself when looking at Sérgio Costa's Strata: **Why did Costa's strata series still not leave Fuller's spaceship earth?**

→ „Spaceship Earth was so extraordinarily well invented and designed that to our knowledge humans have been on board it for two million years not even knowing that they were on board a ship. And our spaceship is so superbly designed as to be able to keep life regenerating on board despite the phenomenon, entropy, by which all local physical systems lose energy. So we have to obtain our biological life-regenerating energy from another spaceship the sun. Our sun is flying in company with us, within the vast reaches of the Galactic system, at just the right distance to give us enough radiation to keep us alive, yet not close enough to burn us up.“
Buckminster Fuller, R. (1969). Operating Manual for Spaceship Earth. Carbondale: South Illinois University Press, 44-45 ←

How can we relate the endless stratification of being and the topos of infinite continuity on our planet Earth? The material aggregates are foldable ad infinitum; they are "infinite aggregates of material"¹³⁸ but would there be aggregates of material at all if there was no gravity? Would there be strata if we could leave gravity, or if gravity was transformed? Would that affect the way we think strata as

¹³⁸ Deleuze, G. (1993). Fold. Leibniz and the Baroque. Forword and Translation by Tom Conley. Athlone Press: London, 114

well? Is gravity the only existing force that leads to stratification, as if washed against a resisting object, idea or movement?

▪

What stays? Atmosphere, troposphere, stratosphere, mesosphere, thermosphere, exosphere, magnetosphere, fine global layers of gases, vaporous surroundings, charged particles, *fragilglobal skins* held in place by gravity and low temperature giving us a logic of form, climate, life, evolution: strata becoming earth?

▪

Again - even without answers found, it seems a good idea to walk our thoughts, with Costa's paintings in mind, not to look at them not even to contemplate them, but *to walk with strata*: "You leave one lodging for another, but continuity, what lasts and persists, comes from the surrounding landscapes, the chains of hills that are always there." Gros 2014, 33

There is continuity in resting, crawling, cruising and walking, a developmental continuity of locomotion, it seems for me that this mobile continuity is also present in Costa's strata: a movement of thought.

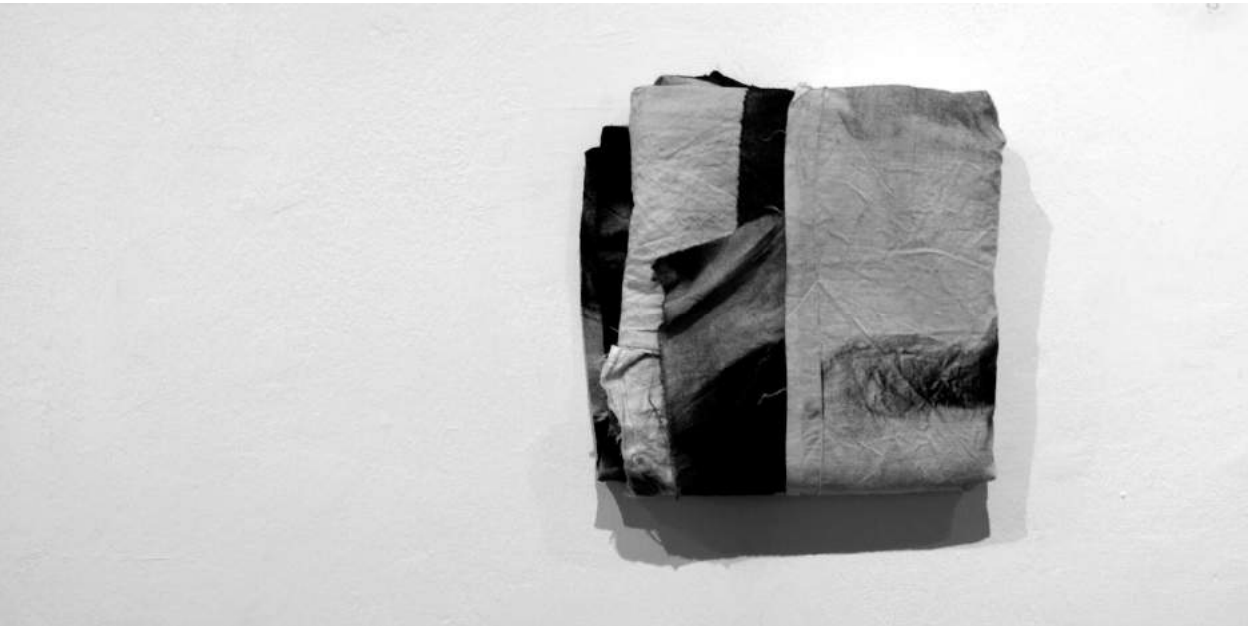
Moving strata, walk with strata: walking strata; float with strata: floating strata

and,

Sérgio: let's go swimming, too!

[8]

Lines that desire a >grounding onto an atmospheric body<. On Sérgio Costa's Strata series >Ground< (2015)

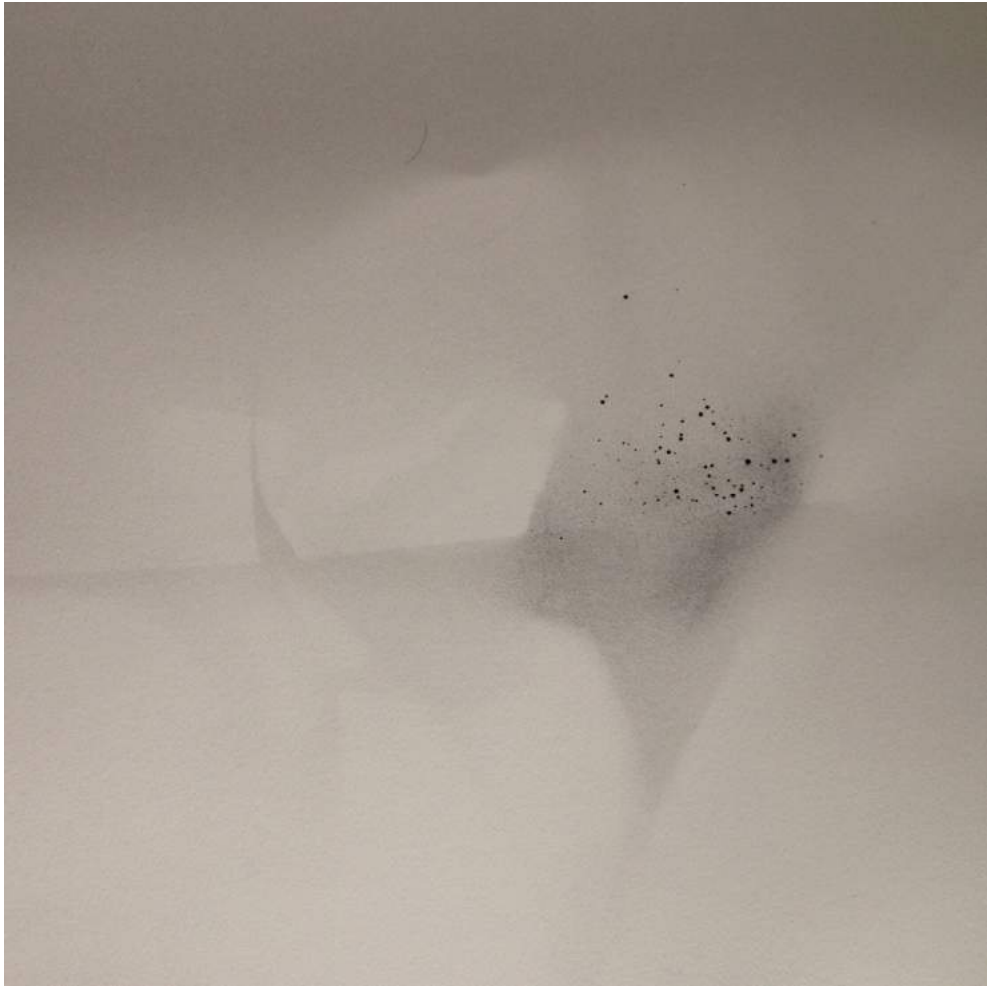


Ground | exhibition view | MU.SA Lab Arte, Sintra | 2015





Ground | 2015 | this page and next



In "What is the Creative act"¹³⁹ Gilles Deleuze opens up a difficulty in cinematic experience between sound/speaking and its groundedness of sight/seeing within the coming into being of a cinematic idea- *Avoir une idée en cinema*. This topic is present in Sérgio Costa's recent works "Ground" (2015 exhibition) at MU.SA Lab Art Sintra Portugal:

→ "the words rise into the air as the ground drops further down. Or as these words rise into the air, what they are talking about goes underground."¹⁴⁰
←

In how far is our feeling of *living in a body*- as if being a *folded linen, paper-thin skin*- suspended by a virtual being? The paper-works of >Ground< (2015) in which Costa give us an insight into the poetic darkness of the underground, confront the spectator with the question: In how far do our voices, our affects, actions and perceptions drop underground?- "(...)the voice rising while what the voice is talking about drops underground" (Deleuze 2007, 320).

How long do we need to find our voice, in this underground? Forever? Or just before we die, we might grab something from underground? How long can this *epoché* last, in which we mingle within ourselves as astronauts of our own flesh? In how far is the metaphysical activity to feel ourselves immersed into a *constantly different feeling of being* a self, of breathing, of pain? In which modes do we distract ourselves from a "deserted ground" (Deleuze) of being pain, being excitement, being groundless, but becoming a desire machine to unground ourselves, heaving something upon the surface, lining up a body/corpse in order to fall out onto the paper-plane again and again, *as if being inside a looped bodily homeless atmospheric vaporized> spray<- In den Lüften, da liegt man nicht eng* (Paul Celan)...

In the recent exhibition >Ground< (2015), Sérgio Costa revisits the topic of the lived experience/the fall-out of the corpse that are we, of snow-like body-lines, sexual

¹³⁹ First time published in complete version of Deleuze lecture transcript at the FEMIS film school on March 17, 1987 of his homage on Jean-Marie Straub and Danièle Huillet in *Trafic 27*, Autumn 1998

¹⁴⁰ Deleuze, G.(2007). "What is the Creative Act?", in: Gilles Deleuze. *Two Regimes of Madness. Texts and Interviews 1975-1995*(= semiotexte; revised edition), MIT, pp. 312-324, here: p. 319



lines, though only atmospheric spray cloud of lines of scattered embodiment of grounding: a deserted ground in which we become lines that desire a grounding onto an atmospheric body:

→ "We only see the deserted ground, but this deserted ground seems heavy with what lies underneath it? That is precisely what the voice is telling us; it is that which comes to take its place underground when ready. If the voice speaks to us as corpses, of the lineage of corpses which comes to take its place underground, at that moment, then the slightest whisper of wind on the deserted land, on the empty space that you have before your eyes, the smallest hollow in this earth will all take on meanings." (Deleuze 2007, 320) ←



Ground | 2015 |
all images next page

These lines that show open projective vectors, of enhanced conditions of meeting of self and other, in which no finite grounding is possible, no extracting of a concentrated notion of anything, nor the possibility of pushing the atmosphere of grounding into a single lived space is given, no show and last call for a singular physiology take-off and landing, no possibility of forcing us onto a single central stratum, nor horizon line of thought in sight of an individual body, but bodily nebulae, unable to recognize itself as a ground: in reaching out for the atmospheric skin of the other, the other margin of the projective vector, that is suspended by the matter behavior of mixed air and paint an homeless-radiant fall-out on paper, a memory-dissolution machine of our continuous desire to arrive at a ground, a fundamental uncertainty, even a clarity of longing for a ground, though the observation and next lineage of truthful auto-operation, is *infinitely suspended* in the air:

>Ground< under-, over-, and ungrounded Space
outer space, corpse outer corpse, sex outer sex,
groundlessness outer groundlessness...

...strata... to be continued

List of Sérgio Costa's exhibitions/works of Strata (2008-2015)

"Strata: a geopictorial collection", Galeria Pedro Serrenho, Lisbon, 2008, solo show

Strata #2 | 2008 | oil on canvas | 144x120cm | p.47

Strata #3 | 2008 | oil on canvas | 144x120cm | p.81

Strata #4 | 2008 | oil on canvas | 144x120cm | p. 21

Strata #5 | 2008 | oil on canvas | 130x160cm | p. 23

Strata #6 | 2008 | oil on canvas | 200x162.5cm | p.41

Arte Lisboa, Contemporary Art Fair, Galeria Pedro Serrenho, 2008, group show

Strata #7 | 2008 | oil on canvas | 200x162.5cm | p.42

Arte Lisboa, Contemporary Art Fair, Galeria Pedro Serrenho, 2009, group show

Strata #11 | 2009 | oil on canvas | 144x120cm | p. 52

9th Prize Amadeo Sousa Cardoso, Amarante, 2014, group show

Strata #17 | 2012 | oil on canvas | 200x200cm | p.128

"Landscape", Galeria Bangbang, Lisbon, 2014, group show

Strata and diagrams | exhibition view | Bangbang Gallery, Lisbon | 2014 | p.18

Strata and diagrams | 2014 | p.19

Strata and diagrams c1 | 2014 | pencil, enamel, marker and collage on paper | 60x50cm | p.29

Strata and diagrams a1 | 2014 | pencil, oil, enamel and marker on paper | 60x50cm | p.36

Strata and diagrams a2 | 2014 | oil, enamel and marker on paper | 60x50cm | p.69

Strata and diagrams f3 | 2014 | oil, enamel and marker on paper | 60x50cm | p.82

"8th Prize Arte Laguna", Venice, 2014, group show

Strata #12 | 2011 | oil on canvas | 142x118cm | p.53

Strata #13 | 2011 | oil on canvas | 142x118cm | p. 56

"Strata", Museu Geológico, Lisbon, 2014, solo show

Strata tridimensional molds | 2013 | modeling paste | variable dimensions | p.158

Crack sampler | 2014 | p.149

Strata #15 | 2012 | oil on canvas | 240x200cm | p.119

Strata #19 (3D anaglyph) | 2013 | oil on canvas | 162.5x200cm | p.144

Strata #20 (3D anaglyph) | 2014 | oil on linen | 40x50cm | p.146

Strata #21 (3D anaglyph) | 2014 | oil on linen | 40x50cm | p.147

Flyer cover for the exhibition Strata | Geology Museum at the Portuguese Academy of Science, Lisbon | 2014 | p.144

"Strata", Carlos Carvalho Arte Contemporânea, Lisbon, 2014, solo show

Strata #12 | 2011 | oil on canvas | 142x118cm | p.53

Strata #13 | 2011 | oil on canvas | 142x118cm | p.55

Strata #14 | 2011 | oil on linen | 200x162.5cm | p.58

Strata #15 | 2012 | oil on canvas | 240x200cm | p.118

Strata #16 | 2012-2014 | oil on canvas | 240x200cm | p. 132

Strata #17 | 2012 | oil on canvas | 200x200cm | p.128

Strata #18 | 2012 | oil on canvas | 200x162.5cm | p.129

Strata #19 (3D anaglyph) | 2013 | oil on canvas | 162.5x200cm | p.144

Strata #20 (3D anaglyph) | 2014 | oil on linen | 40x50cm | p.146

Strata #21 (3D anaglyph) | 2014 | oil on linen | 40x50cm | p.147

Eroded strata #1 | 2013 | graphite and eraser on paper | 122x122cm | p.139

Eroded strata #2 | 2013 | graphite and eraser on paper | 122x122cm | p.137

Eroded strata #3 | 2013 | graphite and eraser on paper | 122x122cm | p. 138

Crack sampler | 2014 | p.148

Strata tridimensional molds | 2013 | modeling paste | variable dimensions | p.158

Crack sampler debris (installation view) | 2014 | paint and plaster | variable dimensions | p.152

"Sampling strata", Galeria Bangbang, Lisbon, 2015, solo show

Strata #22 (Why not rather paint the haziness?) | 2015 | oil and enamel on canvas | 120x144cm | p.100

Strata #23 (This isn't yet a duskscape) | 2015 | oil and enamel on canvas | 120x144cm | p.113

Strata #24 (One can only think of something if one thinks of something else) | 2015 | oil and enamel on canvas | 118x142cm | p.114

Strata #25 (Fucking haziness!) | 2015 | oil and enamel on canvas | 120x144cm | p.108

Strata #26 (Eventually) | 2015 | oil and enamel on canvas | 118x142cm | p.110

Strata #27 (Mindless into the cloudburst overhead) | 2015 | oil and enamel on canvas | 120x144cm | p.115

Gullies | 2015 | p.105

Strata tridimensional molds | 2013 | modeling paste | variable dimensions | p.158

Crack sampler debris (installation view) | 2014 | paint and plaster | variable dimensions | p.152

"Ground", Lab Art of Sintra Museum of Arts, Sintra, 2015, solo show

Title / Description of the Works:

Ground | exhibition view | MU.SA Lab Arte, Sintra | 2015

Ground series | spray on paper | variable dimensions | 2015 | p.173

Private Collections/ not exhibited

Strata #8 | 2009 | oil on canvas | 144x120cm | p.43

Strata #9 | 2009 | oil on linen | 200x162.5cm | p.44

Strata #10 | 2009 | oil on linen | 200x162.5cm | p.51

Additional/ Working Images

Stratification phase #1 | Printed photography of one of the images in use for the Strata series (38x25cm) used in Strata #5 and #13 | p. 27

Stratification phase #2 | Image of the photocopy (50x30cm) with the amplifying grid tool. | p.27

Arte Laguna Prize catalogue for the exhibition Strata | Carlos Carvalho Gallery, Lisbon | 2014 | p.145

Poster image for the exhibition Sampling strata | Bangbang Gallery, Lisbon | 2015 | p.150-151

Diagram "Debris: Stratified Medicine" 2015 by Sérgio Costa | p.92

For additional information on the works of Sérgio Costa, see:

<http://www.sergiocosta.eu>

***Strata- Geophilosophical Notes on Sérgio Costa* is based on early forms of published texts by Alexander Gerner**

Chapter [1 & 2]

Gerner, A. (2012). „Attentional Thresholding and Attentional Strata – Notes on Sérgio Costa,” in: Alexander Gerner, Philosophical Investigations of Attention. PhD thesis, Universidade de Lisboa. Lisbon, p. 451-468

Chapter [4]

Gerner, A. (2015). "Notes on >fucking hazziness<. Sérgio Costa's 'Strata- Sampling Puzzles'" Catalogue Galeria Bangbang, Lisbon

Chapter [6]

Gerner, A. (2014). "Pensando o não-estatificado com Sérgio Costa >Strata<. english/portuguese In: Arte Laguna Prize/ Museum edit (Ed.) "Sérgio Costa. Thinking the Non-Stratified in Sérgio Costa >Strata<". Veneza: Europrint, 18-23

Gerner, A. (2014) "Strata":Desterramento e Virtualização na Wunderkammer de Sérgio Costa", Exhibition Text: Museo Geológico Portuguese Academy of Sciences, Lisbon, 5.4.-3.5.2014

For additional information on the work of Alexander Gerner, see:

<http://cfcul.fc.ul.pt/equipa/agerner.php>

<http://cognitiveenhancement.weebly.com>

