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ABSTRACTS

From the Spectacle de la nature (Abbé Pluche,1732) to Naturphilosophie. Creativity, order and vital disorder

Cécilia Bognon, Université de Paris (Labex "Who am I?", and IHPST)

Art, Science, and Nature: Museums as Entangled Spaces

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Natural history museums and science and technology museums are currently facing many challenges in terms of change of narratives and curatorial trends. Today, many Western scientific museums are wondering how to cope with their history and their historical collections, and how to rethink their identities and exhibitions, which are deeply rooted in the nineteenth-century ideas of science, nature, civilization, progress, production, and development—whether we like it or not. Exhibiting scientific objects traditionally means adopting a specific narrative and selection of artefacts not only in connection to scientific theories and ideas, but also to political or ideological agendas. This talk will show how complex and entangled are the narratives behind the public display of natural history and scientific artefacts in museums during the nineteenth and twentieth centuries, selecting some European cases as relevant examples. Today, one of the ways in which scientific museums are changing their narratives is the introduction of contemporary art in their research projects and strategies of engaging different kinds of audiences. Thus, many contemporary artists are developing projects in collaboration with scientific museums worldwide, from the National Museum of Science and Technology Leonardo da Vinci in Milan to the Natural History Museum in Berlin. This presentation will explore this general topic, on the one hand addressing examples of recent collaborations between artists and scientific museums, and on the other hand focusing on some relevant moments of this collaboration in the history of this seminal Western institution.

A Transcultural History of Art History from the 19th Century and beyond. Art and Science in a Dialogue

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As art history emerged as scientific discipline in the second half of the 19th century, first in the German speaking context and then in other countries, two opposite tendencies were developing. On one side the *connoisseurship*, approaching the work of art in its singularity and studying its material and technical aspects with an attributionist aim, and following an evolutionary idea of art history. On the other side, different approaches were unified by the analysis of the work of art within its broader cultural context, in reconstructing its social, cultural and political dimensions, in the dialogue with other disciplines. Both groups wanted to legitimate their methodologies on a “scientific” basis, the first grounded on the direct observation of the work of art, the latter developing a series of general concepts (*Grundbegriffe*), valid for interpreting works coming from different cultural contexts. This second tendency, born in German speaking countries as “Kunstwissenschaft”, and later translated in France as “science de l’art”, emerged in taking distance exactly from the direct study of techniques and material aspects, working on a more abstract level and aiming to pinpoint affinities and similarities between artifacts. Alois Riegl’s *Kunstwollen*, Heinrich Wölfflin’s *Formgefühl*, Aby Warburg’s *Pathosformel* and Henri Focillon’s *Vie des formes* are only a few examples. In this paper, I want to discuss this methodological gap between different approaches to art history in the epoch in

which it was more intensively aiming to build its disciplinary identity, and to follow its development in the actual art historical practice.

Is there a science of interpretation? Sociology of art and epistemology of social sciences in the work of Jean-Claude Passeron

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In *Sociological reasoning* (1st ed. 1991), Jean-Claude Passeron brings together chapters on the epistemology of the social sciences and chapters on the sociology of art and culture. I will question the relationships between these two dimensions of his work, going beyond the observation that Passeron is a sociologist with an interest in the epistemology of his discipline. I will show that these two dimensions of his work have in common that they grant a central role to the notion of interpretation: Passeron claims, in his epistemological work, that the social sciences are interpretative sciences, and his sociology analyses the interpretations of works of art. By comparing what Passeron writes, as a sociologist, on aesthetic interpretations as social practices, and what he writes, as an epistemologist, on interpretations as scientific practices, I will question of the relation between art and science, but also between epistemology and sociology of science. I will wonder, in particular, whether Passeron defines demarcation criteria between scientific and non-scientific interpretations, and in what sense these scientific norms may differ from the social norms of interpretation.

The Smile of Mnemosyne: John Wheeler between History of Science and Arts

Stefano Furlan, Max Planck Institute for the History of Science (Berlin)

John A. Wheeler (1911-2008) is a leading figure of 20th-century physics, well-known even to a larger public for his evocative expressions such as “black hole” or “it from bit”. Much less-known – actually, almost entirely unexplored – is his active engagement with the arts and their history, as well as with the history of science. This paper intends to offer some insights on Wheeler’s related activities from the 1950s to the early 1960s. A first aspect concerns his reflections on a meta-level, viz. how he conceived his own physical researches within a historical dimension, what uses of the past he resorted to, which features had to be emphasized in the large historical projects he was starting to plan and organize (such as the famous “Sources for History of Quantum Physics”, then led by T.Kuhn, J.Heilbron and others). Interestingly enough, Wheeler was inspired by interviews that he happened to read in some art journals, where e.g. young writers were interviewing distinguished colleagues about their creative processes. Likewise, Wheeler intended to preserve the legacy of the founders of 20th-century physics not just by gathering documents or “factual” pieces of information, but having competent people interviewing them and trying to shed light on their heuristic strategies, inspirations, and so on. This methodological analogy clearly aimed at offering a different picture of physics and of its actors, a task particularly urgent after the recent appearance of an ambivalence towards its role in creating the terrifying weapons that appeared at the end of World War II. However, that was not simply a captivating move: in Wheeler’s mind it synergistically interacted with his very peculiar way (at least among recent physicists) of looking at the past. Far from considering history as obsolete material for dusty archives, Wheeler always tried to look for inspiration from past ideas or theories, either by analogy or by identifying some untapped potential still waiting to be disclosed. If, to outsiders, this may sound as a noble but impractical attitude in science, it is worth underlining that it was such an operation that led Wheeler to dust off first (early 1950s-early 1970s) Einstein’s legacy, and later Bohr’s. His renewed meditations on the work of his two great mentors did bear fruit: what nowadays appears as Wheeler’s most “futuristic” or “visionary” proposals, black holes and quantum information as a basis for everything, started as a fully aware, even methodological operation of polishing and disclosing the potentialities of past ideas. He had a similar attitude also when it came to pictures, that he largely employed both in his

heuristics (as a visual thinker) and in the popularization of his researches. In this sense, he developed a quasi-Warburgian conception of pictures and of their powers, which saw him re-exhuming and re-functionalizing diagrams or illustrations from previous centuries. All these aspects can be seen in action, also thanks to the working notes that Wheeler dutifully kept for posterity and for future “historical epistemologists”, in the long, complex path that led him to become the godfather of black holes.

Wastewilderness: Nuclear Lands

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As they are usually understood, the designations "nuclear wasteland" and "pure wilderness" are opposites poles. When the two kinds of lands converge into nature reserves on the sites of decommissioned nuclear weapons lands, storage facilities, or accident sites, we often describe this circumstance as "paradoxical" or "ironic." Taking stock of plans to manage lands (and build monuments to warn the very distant future), I argue that the categories of wastelands and wilderness are far from antipodes; that their relation is more intriguing (and disturbing) than a binary of purity against corruption or civilization against chaos. Indeed, the most radioactive site in the U.S. weapons complex is also, astonishingly, one of the most bio-diverse in North America, with similar developments across the world. Removing parts of the earth in perpetuity —for reasons of sanctification or despoilment—alters a central feature of the human self, presenting us in a different relation to the physical world, and raising irreducible ethical questions about who we are when land can be classified, forever, as not for us humans. Confronting such territories sets us where historical epistemology crosses with the ethics of how we cultivate our relation with the self, others, and the non-human, now and for the long term.

The entangled histories of anthropology and photography, between art and science

Agnese Ghezzi, IMT School for Advanced Studies Lucca

The history of anthropology offers an interesting vantage point to analyse the connections as well as the demarcations between the “two cultures”. Looking at the institutionalisation of the anthropological discipline in Italy during the second half of the nineteenth century, the paper aims to analyse the different scholarly discourses around what anthropology should be. Such arguments moved primarily on the divide between a cultural and scientific orientation of the discipline’s object and methodology (Pogliano 1993, Stocking 1996).

The formation of anthropology happened in a phase of delineation of the natural and the human sciences and the new community of anthropologists - made of “zoologists and travellers, paleoethnologists and physicians, psychiatrists and physiologists, philologists and historians” (Mantegazza 1901) - entered into that crack and developed within it. While some scholars saw anthropology as a “natural history of man” and promoted the application of a rigid scientific method, others privileged the attention to historical, cultural, or psychological data. I will, therefore, analyse how the new community mediated between these two poles, looking at the intersection with other disciplines and especially at the contact with ideas of art and science.

Firmly rooted in medical knowledge, anthropology was moving on the line between what Ginzburg called an anatomical/naturalist model and a conjectural/semiotic model (Ginzburg 1980). On the one hand, anthropologists desired a highly disciplined representation of human varieties and tried to build a 'human atlas' where the biological features resulted isolated and comparable. On the other, they looked for a less staged and more lively description, not focused on bodily features but on attitudes, traditions and habits, with the attempt to build a system of “comparative psychology” (Mantegazza, Giglioli and Letourneau 1873).

I will particularly analyse the methods that were proposed in regards to observation and visualisation, that emerged as crucial practices to address (Daston and Lunbeck 2011, Edwards

2016). Photography was soon promoted as a fundamental ally in the classification of human groups and handbooks referenced to the correct employ of such visual technique (Puccini 1998). Next to the need for a “scientific photography” that follows the anthropometric standard - in line with the paradigm of ‘mechanical objectivity’ (Daston and Galison 1992, 2007) - there was the need for an “artistic photography” able to capture the attitude and the character of the portrayed subjects (Zannetti and Giglioli 1874).

Therefore, the paper crosses the 19th-century debate on the definition of photography as a technique at the intersection between art and science with the discourses around anthropology as a discipline in between the humanistic and the scientific domain. It will consider how fin-de-siecle Italian anthropology invoked both artistic and scientific concepts and it will explore if and how photography shaped and influenced the method of the discipline itself and, vice versa, how that branch of knowledge regulated and systematised the use of photography (Caraffa et al. 2019). Looking inward to how the tools made the discipline, this paper identifies the various discourses associated with photography, exploring the influence visual materials exerted on scientific theory.

Fashion and Academic Divisiveness

Gwen Grewal, The New School for Social Research

“Fashion” seems to be neither an art nor a science. At its most narrow, it might be argued to belong to the third culture of the “social sciences”; at its broadest, it might be cast as equivalent to the mode or style in which every art, science, or social science must participate by default. Yet the scorn fashion receives from the so-called arts and the indifference it receives from the so-called sciences suggest an interesting critique of their division.

In *Anachronic Renaissance*, Christopher Wood and Alexander Nagel have argued that the arrival of art history in the late medieval or early Renaissance period is simultaneous to the inclusion of fashion in art. During that period, a secular vision of art appears in which fashion is integral, for fashion seems to rear its head alongside a cultural awareness of time and in contrast to timeless iconography. Nagel and Wood’s view is one shared by fashion historians and philosophers alike. For example, in her recent book *Social Appearances*, Barbara Carnevali attributes fashion's modernity to the expression of “individuality and originality” in clothing; while in *Seeing Through Clothes*, Anne Hollander distinguishes fashionable modernity from its fashionless past by the presence of “significant distortion and creative tailoring.”

I offer two points of criticism to these views: 1) Fashion is not modern. It may be as ancient as that old quarrel Plato speaks of in the *Republic* between philosophy and poetry—a quarrel that could easily be extended to the 20th century division between hard and soft intellectual modes. 2) Attributing any beginning to fashion is as impossible as positing a beginning for thinking. Yet the advantage to historicizing fashion may be summarized thus: if there were to be a time before we wore time’s baggage on our persons—a time when our being in the world was stripped or at least unaware of its mode—we might be able to imagine a future in which epistemology could be uncluttered by individual flair.

Fashion’s association with fluffy femininity is the specter of the perception of the “arts” in its most ill-starred form, and the widening gap between the arts and the sciences is traceable to that same longing to expiate ourselves of fashion’s influence. But, as Rousseau remarks in the *First Discourse*, the arts and sciences both amp up their specialized jargon to conceal ignorance; this enervates big questions in favor of small distinctions. The divisions in academia, ever finer, ever more querulous, display an “achievement” whose price is a removal from the indivisible world that inspired its inquiry. Within itself it becomes further removed from itself. Rousseau seems to have anticipated the lack of communication between literary intellectuals and scientists that C.P. Snow described. Travel between the two cultures becomes impossible, when the question of mode—of fashion—has been forgotten. The sidelining of fashion, understood both as a “lesser art” that deals with clothing

and as way or manner, is not only a symptom of the division between the arts and sciences, but also an unsuspected route through which one might assess its current appearance.

Polemics and Epistemes: Symbiontics in Contemporary Bio-Arts

Caroline A. Jones, MIT

Can polemics shift epistemes? The artworld operates on this utopian premise. A century of symbiosis theory has quietly or explicitly challenged “Darwin’s bulldogs” and neo-Darwinism. Yet scientists working today on symbiosis in life systems still operate culturally within an episteme of Darwinian evolutionary theory and domestication metaphors: “harnessing” metabolisms by “cheaters” or “altruists,” the parasite and its host. Artists are crafting a frontal attack on the Darwinian episteme, informing an urgent polemic I dub “Symbiontics.” This presentation will explore the collaborations between artists and science (if not scientists) that allow us to explore this portmanteau, which takes technical philosophy’s term “ontic” and adds it to symbiosis to support the claim that symbiosis is that-which-is. Indebted to the wordplay of biologists themselves (Ivan Wallin, Scott Gilbert) and cultural theorists (Beth Demster, Donna Haraway) “symbiontics” plies its craft literally in artworks that sprout mycelial blooms, plasmodium patterns, or HeLa cell patterns. The endosymbiotic and serial endosymbiosis theories of evolution that biologist Lynn Margulis put forward in the late ‘60s are now gaining impact in the shifting cultural frame of the contemporary art world. Their uptake by the visual arts will be discussed via a range of contemporary art works that attempt to sense the message of evolution: all creatures live on a microbial planet and do best when they proliferate genomic flexibility and welcome symbiotic partners. Survival favors the most interdependent.

As curator of the forthcoming exhibition *Symbionts*, I will argue that a new demographic of contemporary artists questions the “code dominance” of 2000. Two decades into the new millennium, we might be able to resonate with the fact that our cells are cooperative amalgams of aerobic single-celled organisms merging into other archaeobacteria, that multicellular bodies carry around a swarm of bacteria that chemically modulate our moods, digest our food, and provide a constant stream of information to our immune system. Building on Margulis’s hunch that our sensory cells themselves derive from ancient partnerships formed with spirochetic bacteria, I ask after the (un)conscious wriggling chemical and electromagnetic sensitivities that give us our haptic, auditory, olfactory, and retinal access to the world -- a strange universe of epistemic possibilities that entails using our equally strange tools of art (Noë) and entanglements (Barad) to open ourselves to the resonant frequencies of ancient collaborators within. I argue for a polemical shift in a dominant scientific episteme, following art toward a being-with our symbionts, calling upon viscera to confirm our interspecies dependence.

On Epistemological Reconstruction of the Development of the Concept of Space in Geometry and in Painting

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In Ancient Greek mathematics we cannot find any systematic study of the concept of space. If we take Euclid, Archimedes or Apollonius, we see them study different geometrical objects, but never any study of space. It seems, that the notion of space entered mathematics after Renaissance from painting. After space was reified in geometry (i.e. turned into an object of study) by Desargues, an interesting and intricate development of the notion of space started. In my book *Patterns of Change* (Kvasz 2008, pp. 111 – 159) I proposed an epistemological reconstruction of the development of the notion of space in geometry using Wittgenstein’s picture theory of meaning.

The main idea of this approach is to apply Wittgenstein’s picture theory of meaning to pictures contained in groundbreaking text on geometry. It turns out, that the most natural way to reconstruct the development of geometric space from an epistemological point of view is to

reconstruct it as the development of the pictorial form of the particular mathematical texts. According to Wittgenstein the pictorial form is the way how aspects of a (linguistic) representation are related to the world they represent. It is possible to discriminate several pictorial forms, i.e. different ways of how geometers organize the systems of lines, that constitute their pictures, into a geometric representation. It turns out, that the main breakthroughs in the development of geometry were accompanied with changes of the pictorial form.

Maybe even more interesting feature of the present approach is, that very similar innovations, than those used by Desargues, Lobachevski, Klein or Poincaré in geometry, were used by painters like Albrecht Dürer, Andrea Pozzo, Diego Velázquez, Claude Monet, Paul Cézanne or George Braque. In the paper I will introduce the concept of pictorial form of a representation, distinguish four different pictorial forms in the history of geometry and show paintings which use analogous pictorial forms. This shows, that at least in the area of visual representation the boundaries between geometry and painting are blurred. The analysis indicates, that there is a fundamental level of understanding our spatial experience, that unites science with art.

References

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Between Art and Science: Ernst Cassirer's Concept of Style

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In the *Logic of the Cultural Sciences* (1942), German philosopher and epistemologist Ernst Cassirer (1874-1945) used the concept of style (*Stilbegriff*) to legitimize the scientific nature of art history and, more generally, of the human sciences, but also to distinguish them (after Wilhelm Dilthey and Heinrich Rickert) from the natural sciences. According to him, style is indeed a formal or structural concept that prevents the *Kunst- or Kulturwissenschaftler* from falling into the triple pitfall of naturalism, historicism and psychologism, thus allowing them to develop a methodology that is irreducible to causality, i.e. to the methodology that is typical of the sciences of nature.

Yet, 20 years earlier, in "The Concept of Symbolic Form in the Construction of the Human Sciences" (1923), Cassirer had already borrowed Goethe's concept of style to describe not the cultural sciences, but the natural sciences of his time, and more particularly Albert Einstein's physics, which, he admitted, is not exclusively causal in nature, since it also uses formal or structural categories. In so doing, Cassirer did not seek to blur the differences between the sciences of nature and the sciences of culture. Rather, he tried to demonstrate that, if there indeed is a "science of art" (*Kunstwissenschaft*) that can produce some knowledge about artistic phenomena, there also exists what could be called an "art of science", in that, as Goethe himself suggested, science as a whole is a symbolic process through which humanity shapes (and not simply imitates or explains a pre-given) reality.

This exemplarity of art for science raises the question of the very nature of the concept of style in Ernst Cassirer's philosophy. Is it only meant to be an epistemological concept used to characterize a certain mode of scientific practice? Or is it meant to define, in a more profound way, symbolism as such? Drawing upon the *Metaphysics of Symbolic Forms*, I will show that for Cassirer, style is neither an "alter ego" of the symbolic form (Naumann), nor a conceptual tool limited to the analysis of artistic forms (Lauschke). It instead designates the specific manner in which the symbolic function of the human mind actually takes shape and diversifies throughout history. That is why Cassirer's concept of style could be understood as a symbolism in action or in progress, i.e. as a historicized version of Goethe's maxim, according to which "the particular is the general made manifest under different conditions."

How Maxwell Discovered the Maxwell Equations

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The official story – the one still taught in many university-level physics courses - of how J. C. Maxwell arrived at the Maxwell equations goes roughly as follows. Having collected the main experimental laws of the electromagnetic science of his time, namely Gauss' law for electricity, Gauss' law for magnetism, Faraday's law for electrical induction, and Ampère's law for electromagnetism, Maxwell noticed that they jointly violated the principle of conservation of charge. For this reason, and possibly motivated by a love for symmetries, he decided to add an additional term to the equations – the 'displacement current', understood as a rate of change of an electric field over time. By means of this bold postulation (which further experiments surprisingly confirmed), the principle of conservation of charge got restored.

As a matter of historical fact, things went very differently. In the first part of the presentation, I will sketch the main elements of Maxwell's monumental scientific creation. It involved re-imagining electromagnetic forces in the mathematically more familiar terms of fluids flowing in tubes of variable section, exploiting analogies with hydrodynamics. Subsequently, Maxwell introduced an imaginary substratum of the electromagnetic forces consistent with the fluid model, exploiting an analogy with a mechanical system of molecular vortices. The introduction of the displacement current resulted from Maxwell's insight that the system would need to be elastic in order to account for the phenomena of electrostatic charge and induction.

In the second part of the presentation, I will discuss some interesting similarities and differences of Maxwell's scientific creation with artistic creation. Special attention will be paid to the description of Maxwell's work as an exercise of a 'constrained' form of freedom. In this context, a connection will be drawn with the philosophical reflections of John Dewey and Benedetto Croce concerning the aesthetic aspects of scientific investigation and the thesis of the 'primacy of the aesthetic'. The idea that the scientific investigator is, in the course of doing his or her research, aesthetically engaged sets the stage for a historically well-informed discussion of the *aesthetics* of science - the (severely underexplored) discipline concerned with the 'intuitive' and 'non-conceptual' elements inherent to the scientific practices of knowledge-production.

Cultural Politics of Historical Epistemology

Pietro Daniel Omodeo, Ca' Foscari University of Venice

This communication addresses the political question of historical epistemology, at three levels. As I consider historical epistemology to be an inquiry into the genesis, validity and goals of knowledge (especially, scientific knowledge) and politics as the realm of collective agency, the political question of historical epistemology especially concerns the collective character of the goals that inform science. First, the political question relates to the function of science at the level of ideas, that is, as ideology. In this respect, science can be understood as a historically given intellectual means to justify and guide collective decisions by acting at a psychological and, as it were, a spiritual level. Secondly, science as a force of transformation also acts as a material means of change of nature and of society. This second level is directly connected with the Baconian nexus of knowledge and domination, but re-read through praxeological lenses as a problem of objective change of environmental conditions. Thirdly, at the meta-level, historical epistemology as a specific path to knowledge theory reverses abstract conceptions of science and nature as they were both given in absolute terms. By contrast, it investigates the concrete conditions for the emergence, development and directness of all knowledge. In this sense, historical epistemology can be seen as the knowledge theory of historical materialism. It favours a critical but not skeptical attitude toward science and its potential. In this perspective, historical epistemology is a matter of cultural politics.

Art and Science, Method and Style: The Function of the Concept of Style in French Historical Epistemology

Daniel Rodriguez-Navas, The New School for Social Research

The goal of this presentation is to elucidate the relationship between two pairs of concepts: the concepts of method and style within French historical epistemology (FHE), and the concepts of scientific and of artistic style.

After an introductory discussion of the idea of FHE, understood, through the Wittgenstenian model of family resemblance, as a family of views about and ways of engaging in the history and philosophy of science, I will argue, in a first part of the presentation, that a concept 'like' the concept of style is 'called for' by the FHE approach to the history and philosophy of science. The starting point of the argument will be the observation that one of the typical traits of FHE is the idea that the history of science is irreducible to the chronology of discoveries within each scientific discipline (Canguilhem). For one of the tasks of the FHEpistemologist—with apologies for the barbaric abbreviation—is to identify patterns in the discourse and practices of scientists (in a capacious sense of the term that includes, as Canguilhem notes, those who grant themselves that *honorific* title without being quite entitled to it).

This irreducibility of the history of science to the chronology of scientific discovery, however, imposes an important restriction on how FHEpistemologists may go about identifying those patterns: they cannot rely on references to the scientific methods explicitly and self-consciously adopted by past scientists, as this would amount to adopting the latter's perspectives, ensuring that the resulting history would be mere chronology. Hence the usefulness of a concept 'like' the concept of style for FHEpistemologists and the sense in which FHE 'calls for' such a concept. The notion of style enables FHEpistemologists to identify types of unity and coherence in scientific discourse and practices other than the unity conferred upon them by consciously adopted scientific methodologies. It enables them to *see* past scientific practice and discourse from a perspective other than that internal to the disciplines that constitute their object of enquiry. Borrowing Bachelard's understating of the *épistémologie* as the psychoanalysis of the scientific mind, we might simply say that style is unconscious counterpart of conscious scientific method. More precisely, if less simply, we will say is that if the mark of scientific reason is that it consciously regulates itself through explicitly and self-consciously adopted and methodological principles, each 'style of scientific thought' (a variant of Hacking's "styles of scientific reasoning") is the concrete manifestation of the unconscious counterpart of scientific reason.

This insight, that the concept of scientific style is, within FHE, the functional analogue of the concept of method in alternative approaches to the history and philosophy of science, provides a useful entry-point for the second part of the presentation, the discussion of the relationship between the concepts of scientific and artistic style. I will argue that strictly speaking, the concept of method finds no application in the case of aesthetic production (while insisting that the concept of technique plays an analogous role), and offer the rudiments of an account of this difference between artistic and scientific production, and of the corresponding difference between the notions of scientific and artistic style, in terms of a difference between the teleological constraints that guide and govern scientific and artistic practice: while in the case of the sciences 'the facts' function as 'hard external constraints', the arts meet no such external constraints. Instead, they are 'dialectically regulated' by the aesthetic standards dominant within their respective cultural-historical settings, 'soft' standards which they aim to reconfigure and subvert without altogether forsaking.

Varieties of pluralism. Granger's, Feyerabend's and Hacking's theories of scientific styles compared
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One of the "pluralisms" that proliferated in Anglophone philosophy of science during the second half of the twentieth century involves conceiving of the history of science as a history of "scientific

styles". A growing number of historians and philosophers of science have touted the concept of style as more flexible than method in conceiving of the historicity and plurality of the ways of thinking, discovering, and experimenting that constitute the sciences. Conflicting interpretations of "styles" in science mainly concern whether the term implies abandonment of the realism, objectivity, and progressiveness commonly understood to distinguish science from the arts. My aim is to give an overview of the different ways the concept of "scientific styles" has been understood in the history of philosophy of science. I will moreover try to show how some versions of this concept allows for a form of pluralism that avoids relativism.

In the first part of my talk, I will discuss how P.K. Feyerabend mobilized art historian Alois Riegl's idea of self-standing cultural units (Kunstwollen, "will to art") to show that different scientific theories, like different artistic styles, cannot be compared against a common background and are therefore "incommensurable". From this perspective, expounded in Feyerabend's *Wissenschaft Als Kunst* (1984), science is analogous to the arts in that neither shows objectivity or progress. I will then contrast Feyerabend's view with the one put forward by Hacking, whose style-project, which spanned over 30 years, elaborates a notion of "styles of scientific reasoning" aiming to account for the objective and progressive nature of scientific knowledge and practice. By conceiving scientific styles as a relatively closed set of ways of finding out about the world and intervening in it, Hacking's styles tend to accumulate-both reasoning strategies and ontological entities.

In the second part of my talk, I will analyse Gilles-Gaston Granger's theory of scientific styles as developed in his *Essai d'une philosophie du style* (1968), a deeply original and yet scarcely studied epistemological analysis of style. Granger's *Essai*, not available in English, has so far aroused interest only in French scholarship. In this work, Granger reworks the notion of style from the ground up, advancing an idea of "generalized stylistics" to theorize the dynamics mutually shaping objects and methods of production. Far from being merely ornamental, style for Granger becomes a category of formal thought through which one can reconsider the dialectics among theory and practice, abstraction, and individualization. I will highlight Granger's *Essai* as an example of "comparative epistemology" that attempts to interrogate the boundaries of the natural, formal, human, and social sciences in terms of both objects and methods.

All three theories endorse a form of scientific pluralism. Yet whereas Feyerabend's styles invite epistemic relativism and constructivism, Hacking's and Granger's theories show that style can support objectivity, realism, and progressiveness. Taking this comparative analysis as my point of departure, I will argue, against Feyerabend's stylistic anarchism or epistemic "Dadaism", that the historicity and plurality of scientific styles do not imply epistemic relativism.