I attempted an argument about how analogical, anachronic exhibition revealed a comprehension, or rather perception, of the Byzantine objects in Byzantine Things in the World, a perception that such things could not provide under normal conditions, neither through conventional display nor in isolated study. The eponymous book accompanying the exhibition tried to make arguments for certain readings of and positions against those objects, but those arguments necessarily preceded the exhibition itself. What forcefully emerged, and what I will proceed to describe and argue below, is that the objects argued for their own fluidarity, to use Félix Guattari’s term from The Three Ecologies—that their worlds could be united in a flux that we can only now retrieve, imagine, and explain historically through these objects’ dynamic showing of their inner lives.¹ So the goal here is to describe and to explain what the objects did and showed during the exhibition and in particular how the exhibition demonstrated alchemy, in the literal sense of showing the mutability, interconnectedness, and irreducible fluidarity of things that ancient and medieval alchemy so energetically concerned itself with and explained so provisionally. Alchemy emerged forcefully not only as a magical element within our experience as visitors to the show, but also as a historical way to explain material conditions of these objects perceptible only in that environment. Alchemy revealed a fundamental understanding in that world, its belief in the essential relationships of matter in which we all share.

In their characteristic ways, objects abstract themselves under varying conditions. Lambent materials such as gold and silver reflect and absorb light to the degree that individual qualities of colour and texture shift to sheen and generalization. Figuration loses its identity in objects, and regardless of iconographic content, the integrity of the object is always lost under sensual scrutiny of the user, holder, and/or viewer. Where integrity dissolves, transforming relations among objects and human subjects come into play.²

This book uses abstraction as a guiding principle for alchemical exhibition in two ways, and it does so in accordance with—however hoary the conceit—meanings made available by the Oxford English Dictionary (OED). In the first place, it examines these Byzantine objects abstractly, that is to say, it regards an object: “independently of its

¹ “Fluidarity” is adapted from Guattari 2000; see 54, where he signals his indebtedness to Gregory Bateson. See Bateson 2000, 339: “In a word, schizophrenia, deuteron-learning, and the double bind ceases to be a matter of individual psychology and become part of the ecology of ideas in systems or ‘minds’ whose boundaries no longer coincide with the skins of the participant individuals.”

² My position resists any such allegorization as argued for, say, in Kessler, 2011.
associations or attributes, and isolating properties or characteristics common to a number of diverse objects, events, etc., without reference to the peculiar properties of particular examples or instances." This approach to abstraction runs the risk of essentializing matter and experience in the Byzantine world, but it aims to examine objects for their realizations of the irreducible encounter among a thing and its materials, maker(s) and subject(s). In the second place, this book seeks to undermine assumptions about representation, that is re-presentation, that are so natural to us (to generalize, of course). It takes a position, in this way, divergent from a Platonic understanding of images standing in diminishing authenticity as they proceed away from the prototype or model; in other words, a portrait is not a lesser version of a discrete human subject. My position thus follows another definition of abstraction literally: "freedom from or absence of representational qualities; a style or method characterized by this freedom." So examining these Byzantine objects abstractly entails no representational qualities, in the sense of there being no figuration needed on an object, but also no representation involved even if figures are present: some of the object’s meaning may derive from reference to a prototype, but the life and agency it possesses are limited to the object itself at an essential level of its signifying work. This position is the freedom of non-re-presentation, an attempted move away altogether from human-centred, human-determined perception and away from dichotomies such as abstraction and figuration.³

Animism and the Atomic Principle

The particular relation in play among objects and persons in late antiquity and Byzantium was a Christian animism. Despite the protestations of theologians in their always-interested texts, that world revealed itself to be fully open and transformative, when looked at with the “right questions” in mind.⁴ It is evoked in the “atomic principle” described by Flann O’Brien (pseudonym of Brian O’Nolan) in his posthumously published novel The Third Policeman (1967).⁵ The principle holds that like makes like, so in the logic of that book, someone who persistently stands with one foot resting against a wall will idle themselves into a state of a bicycle resting on its kickstand—and become a bicycle, literally. Too much idling in this way leads to a transformation, a sympathetic union of natures, that makes like things more obviously similar to themselves in the world.

The cross operated in late antiquity on the atomic principle in the sense of providing a permeable form by which like, the originary Christ, can make like—Christian believers. Believers simply needed to find physical unity with that essential form of a Christian universe, the cross, either through prayer or other attitudes or gestures that made alike forms find unification among themselves.⁶

³ See the incisive remarks in Siegel 2013.
⁴ On the disciplinary, productive tensions between theology and religion, see Helmer 2012.
⁵ Similar ideas are also in O’Brien’s The Dalkey Archive (1964).
⁶ See Peers 2013, 67–69, for example.
Objects, too, themselves declared this “atomic principle” and were active in creating such passages from person to the divine. The range of states along which the principle operates runs in both directions, from humans to things and back again. The bidirectional quality means bikes and men share potentialities between them, and self-othering can occur across ontologies. Objects, including facets of monuments, could enter into sets of relations with their full environments that constantly transformed subjects. Abstraction in the senses already described was deeply invested and operational in materiality here, and it never worked to absent object or subject; it is not transcendent, but fundamentally of the world saturated by God’s Incarnation. So the spectrum of transformation is not direct always, as in man to bike, but a larger array of potentialities in which subjects, objects, things, could engage in constant like-minded alterations toward God.

Objects had venerable models for acting out. That ability was always latent, but things did such work frequently. Scholars have often tried to explain away these aspects of objects’ work in Byzantium by ascribing any mention of such work in the sources as superstition or textual error. However, both explanations infantilize human reactions to objects in Byzantium or privilege accidents of preservation and transmission over real human knowledge of the world those people lived in. They are neither relevant nor true for explaining any significant aspect of that culture. Such have been the explanations, for instance, of the apocryphal Gospel of Peter, a fascinating third-century (?) text. In it, the cross on which Christ was crucified makes a dramatic appearance at the moment of the discovery of the empty tomb, and it has a speaking part. In the first place, the stone appears to withdraw itself to make way for the advance guard that announces the remarkable news to the soldiers. Then a voice from heaven speaks to the cross, who emerges from the tomb and declares its speech capacity:

And they saw the heavens were being open, and two men descended from there, having much brightness, and they drew near to the tomb. But that stone which had been placed at the entrance rolled away by itself and made way in part and the tomb was opened and both the young men went in. Then those soldiers seeing it awoke the centurion and the elders, for they were present also keeping guard. While they were reporting what they had seen, again they saw coming out from the tomb three men, and the two were supporting the one, and a cross following them. And the head of the two reached as far as heaven, but that of the one being led by them surpassed the heavens. And they were hearing a voice from the heaven saying, ‘Have you preached to those who sleep?’ And a response was heard from the cross, ‘Yes.’

Not to overburden this text by forcing it to say more than it does or by overrepresenting its explanatory power, this passage is a remarkable and not atypical description of the ways in which objects, things—but also the stone that rolls itself away—that are to us inert and passive are shown to be alive and participatory in the world. Taken at its word, the text reveals a strong tendency in that culture to enchant its world.

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7 See Basl and Sandler 2013, who argue artifacts’ “good of their own” is counterintuitive, though one might have to begin taking what is good for artifacts into account in all of one’s practical and moral deliberations: “After all, artifacts are created to serve our purposes, and if we choose to act in ways that are detrimental to them, why should that matter?”

And ways to rediscover that enchantment are also available to us in exhibitions. *Byzantine Things in the World* attempted that quixotic task through conversations among diverse works of art and through evocative display. In the first room of the show, a painting by Ad Reinhardt, with its crosses latent on and in its one-note tonality, and another with the overtly Christian mirror crosses by Robert Rauschenberg, revealed the diverse ways crosses emerge and make themselves perceptible and engaged (Figure 11). Likewise, a novalike explosion of crosses on the wall facing the exhibition entrance demonstrated the spread and density—and beauty—of that simple form, constituent of all Christian reality. The single standing cross by Jim Dine on the left-hand side of the wall likewise abstracted that shape, stated the essential form, while insisting on its particularity in itself. One encountered how to see a world motivated and moved by the intersection/intercession of these perpendicular lines. Relation with and among these forms is a fully human way to enter into communication with the divine—or just with the world, to place that project into Menilian practice and ambitions. It happens through abstraction, a reduction to essence in the repetition of the cross form and in the consistent lack of figuration.

Some of the experiences of conceiving and mounting an exhibition that related to these arguments for a certain kind of understanding of late antique and Byzantine materiality inform my position in this book. They showed alchemy in action. One of the key conceits of the exhibition was showing Byzantine objects in novel juxtapositions with modern and non-Western art. Another queried the ways we often encounter historical
objects in museums and tried to indicate misleading qualities of those encounters, and so care was taken, for example, in the installation to avoid overlegibility of illumination. In a room dedicated to the “mystery of vision,” a gorgeous gold box (ca. 500) in the collection was a focal point; small in scale, it sat on a plinth in the centre of the floor, where it could interact with other works, namely, *The Halo*, by James Lee Byars, *Monogold*, by Yves Klein, and *Untitled (Gold Painting)*, by Robert Rauschenberg (Figures 12 and 13).
The constellation of golden abstraction produced memorable effects in a room lighted only by a small number of spots on the ceiling; no natural light played a role in the direct perception of objects in the room.

Here, the show showed the argument: each gold object communicated with the ambient environment in the absorption of light and radiation of reflection, and among them, they then modelled alchemy’s essential, fluid truth. Dramatically, a painting by Mark Rothko, *No. 21 (Untitled)*, with modular components of orange and yellow, found itself entering those gold fields in the room (Figure 14). Every surface captured and returned elements in the painting, and the painting in turn increased its golden, glowing intensity. The Byars work needed regular polishing, because of the way *The Halo* attracted airborne particles of all kinds, as well as touch—visitors often try to touch this magnetic object, as they do the Klein painting, too.

The interaction among materials, in other words, was active, and the transitive nature of gold emerged as forceful and dynamic. The alchemical relation among them was dramatic. The untarnishable gold box sat still and radiant, but its discretion was not absolute, for its reach extended to other works in the room, including the icons, whose gold backgrounds spoke under these conditions to each other. Remarkably, the gilded-brass halo immediately beside the box reflected, absorbed, and cast back its sheen, and its surface qualities were rich and deep and strikingly like neighbouring gold on a much smaller scale (Figure 12). *The Halo* radiated variable gold shadows on dark wall and floor, so it extended itself while also containing its environment in its convex brass mirror surface. The principle of relation among likes demonstrated itself in the comparable
performances of the two works. One could say the little box was the little piece of yeast that leavened all objects in its vicinity to goldish perfection. Like making like was the mystery under vision in that space; each piece spoke to the other in visible, material terms, and each caught and kept viewers in the reflective intensities.

Touching sources of light and radiance is a compelling need, it seems. But light and radiance in this way came to be more than effects of objects’ lighting and placement. They were thinglike, like the objects themselves. They became thingly facets of objects. The intensity and density of radiance emerged when visitors went into the next room, if following the nonprescriptive counterclockwise route most often taken, because there, the effects of a sunlit room were almost overwhelming, especially combined with two bright, flamboyant Willem de Kooning paintings (Untitled IV and Untitled VI) on the wall inside (Figure 15). In the darkened room, however, the Rauschenberg Gold Painting (Untitled) shows gold leaf applied to a surface (of wood, fabric, and cardboard) cockled and ridged almost, but not really, like cloth, so that the radiance is broken and wrinkled, almost (Figure 13 and Figure 16). The abstract surface there stated the same effect under these conditions as the late Byzantine icon of the Ascension beside it, an unex-

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9 See King 2002, 27: “Although light exhibits wave phenomena, nevertheless, it is a thing—it is optical material. We don’t treat it as such. Instead, we use it very casually to illuminate other things. I’m interested in the revelation of light itself and that it has thingness.” And see Taylor 2012, 112.

10 For the first time, the piece hung vertically on the wall, rather than being placed on a plinth out on the floor.
pected contingency between the two objects, since several icons were tried next to the Rauschenberg before the Ascension took hold (Figure 16 and Figure 17).

Abstract in the sense being used in this book, the pieces manifested an essentialized quality, each reduced to a formal and material mutuality and also without re-presentation. The abraded surface of the icon took on the same dynamic intensity of field as the Rauschenberg, but without the three-dimensional effects, since the icon was scumbled, in the sense of appearing to be given a softer, glowing opacity through the loss of detailing in the centre of the panel. In this case, the icon's figural definition has been lost through accidents of time, though the Ascension iconography is clear in outline, and

The conservation report (1985-57-9) is highly evocative: “Very badly damaged paint surface [...] The wear and successive intervention by restorers make it difficult to see the original design: even a lot of the very damaged gold which at first would seem original is in fact a later addition [...] The craquelure on the original ground is a very fine hair-line net, overlaid by a stronger pattern following the wood grain. These more defined cracks are strongest in areas where a granular pigment has been mixed with large amounts of white, and least evident where the pigment is finely ground and of homogenous nature. Although it is difficult to see the original boundaries of the gold because of all the later restoration—at the point where one can see the original vermilion border, it is also possible to see traces of gold beneath this. The leaf was laid on a transparent organic mordant [...] From the infra-red photograph there seems to be no detailed preliminary drawing [...] [The] same freedom therefore [that] allowed the brush work explains the fluidity of the paint work and the balanced relationship between solid forms and stylized modeling.
Figure 17. Ascension Icon, tempera and gold leaf on wood, Late Byzantine. The Menil Collection (85-57.09), with permission of The Menil Collection.
the material abstraction emerged forcefully from the panel through its proximity to and unexpected agreement with the Rauschenberg and the Klein. The icon’s troubled conservation history, ironically, allowed it to find common purpose with the neighbouring modernist works, and it also showed the active, fluid brushwork and productive tensions among ground, field and human forms—all of which resonated and articulated through that splendid Rauschenberg.

Light in some rooms was golden, and in the alchemical sense of Byzantium, the material spirit of the objects was transcending the object limits we normal ascribe to inert, dead things (Figures 12, 13, 14, 18, and 19).\textsuperscript{12} Photography was inadequate to capture this quality of experience—on the one hand, the effects were so fugitive, and on the other, they became fully evident only as one spent more time among the objects—and so the chance to photograph was lost. Here the expansiveness of silver and gold’s reach outside its (for us, normal) boundaries revealed a material essence reduced to the irreducible and sharing its perfect golden and silver states across object type and substance (say, from gold to brass to paint).\textsuperscript{13} The individual properties matter less than the

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\textsuperscript{12} See Lazaris 2018 on gold as the divine realm’s splendour in this world.

\textsuperscript{13} Stones and gems also play into that spread. Gems participated in this process of extraordinary genesis, of course, formed and coloured by divine fire and earthly exhalations. See Halleux 1981, 50–51. Gems have special qualities, but these are not always discernible to the eye, except the degree of colour and grain. For example, the Menil possesses a number of small stones of variable origins and identity. One small red and green medallion of the Annunciation (thirteenth century?) is described as glass paste, while a nearly contemporary (?) bloodstone or hematite with the Virgin and Child was shown in the exhibition alongside it—neither was discernibly different. But the sympathetic red of the blood, in alchemical logic, makes like.
characteristics common to these works, the spread among things and viewing subjects that allowed each thing, human and otherwise, to enter into relation. That relation was encouraged (for us), indeed, dictated (for them), by attitudes about metals and minerals, geology and chemistry, and the transformation of matter in the Byzantine world.

Alchemy and Matter

Alchemy and Matter reveal a fundamental aspect of late antique and Byzantine materiality, consistent, too, with understanding the cross as the core of creation. Alchemy’s search for similar essential abstractions, its insistence on colour as a sign of essence, and its revelation of living, transmutable qualities consistent across all matter make that esoteric science an important testimony to late antique and Byzantine assumptions about matter and the world. One does not have to claim that that culture believed in all the tenets of alchemy to assert that its basic understandings were widely held. Some general notions about alchemy, as we know them from the range of sources that have survived, are important for this book: the belief in a prima materia, the basic, primeval stuff of the universe (derived from Aristotle, Empedocles, and Plato, largely) and in the four elements that make up the material world and in their exchanges form the fluxes and flows of the world we see and know. But also, and this assertion mirrors some of the arguments for a Christian animism, “the alchemists envisioned a universe that was sentient and filled with life, reflecting the permeation of the spirit

14 Alchemy has been applied to understandings of art making and to Byzantine art previously. See Ingold 2013, 46–49; Elkins 1999; and James 1996, 36–41.
of God throughout its vastness."\textsuperscript{15} So Byzantine alchemy is a way into understanding a worldview, and it also shows fundamental interpretations—and interpretations fundamentally different from our own—of materials, especially metals, of course, used for the creation of things in that world.\textsuperscript{16} It shared a whole range of vocabulary, processes, and premises with cognate fields, such as dyeing, pharmacology, and cooking. Each field adapted shared notions concerning the conventions and ends typical of each area of work.\textsuperscript{17} Each built a Christian worldview that attempted to explain all aspects of the material world.\textsuperscript{18}

Alchemy was a kind of empirical investigation of the world, and it developed by means of practical knowledge and experiments. The engagement not only with process, but also with sensory data, is a striking aspect of alchemical researches and writings.\textsuperscript{19} Some of the surviving writings from the late antique period deal with deception, such as the papyri now in Leiden and Stockholm from the late third century (?). They give recipes for achieving the effects of precious materials through base ones, for instance, gold colouring.

To colour gold to render it fit for usage. Misy, salt, and vinegar accruing from the purification of gold; mix it all and throw in the vessel (which contains it) the gold described in the preceding preparation; let it remain some time, (and then) having drawn (the gold) from the vessel, heat it upon coals; then again throw it in the vessel which contains the above-mentioned preparation; do this several times until it becomes fit for use.\textsuperscript{20}

Those writings reveal a practical approach to something we might call chemistry, of course, but they also show full confidence in the ability to show philosophical knowledge in otherwise mundane-sounding recipes for the transmutation of metals from one state to another. They share that position with more heavily intellectualized, allegorical approaches to metals' lives, such as Zosimus of Panopolis (fl. ca. 300).\textsuperscript{21} For a theorist such as Zosimus, alchemy was a route to the purified soul by means of the philosophy of discovery of the hidden structures of the world and their examination and contemplation.\textsuperscript{22} But his writings also presupposed a unifying system at work in the world, with spirit as a privileged catalyst for its workings and changes: "The composition of waters, the movement, growth, removal, and restitution of corporeal nature, the separation of the spirit from the body, and the fixation of the spirit on the body are not due to foreign

\textsuperscript{15} Linden 2003, 15.
\textsuperscript{16} See Principe 2013 and Principe 2014.
\textsuperscript{17} See Kerssenbrock-Krosigk, et al. 20014, 13; Schreiner and Oltrogge 2011, 13–14, 50–61, and 108–9; and Mertens 1995, cxiii.
\textsuperscript{18} See Goltz 1972, 31–49.
\textsuperscript{19} See Smith 2010.
\textsuperscript{21} See Mertens 1995 and trans. in Taylor 1937a, 88–92.
\textsuperscript{22} See Fowden 1993, 123.
natures, but to one single nature reacting on itself, a single species, such as the hard bodies of metals and the moist juices of plants.\textsuperscript{23}

Zosimus represents the beginning of a tendency toward highly elevated and often obscure language in the service of alchemical mysteries. Texts such as these are not self-evidently practical guides, unlike the recipes in the Leiden and Stockholm papyri, for example, with their indications of practical experience behind them. Together, this set of texts reveals essential aspects of this early stage of chemistry: experience overtaken by theory, but both engaged in a unifying system that assumed movement and change throughout matter and that sought the abstract, essential meanings of the world.

How matter maintains and regulates its unity is due to universal sympathy, where everything sublunar is in alignment. Toward the end of late antiquity, Stephanus of Alexandria (ca. 550/5–ca. 622) reveals the earlier tendencies, perhaps even more rarified than before: “O heavenly nature making the spiritual existence to shine forth, O bodiless body, making bodies bodiless, O course of the moon illuminating the whole order of the universe, O most generic species and most specific genus, O nature truly superior to nature conquering the natures, tell what sort of nature thou art.”\textsuperscript{24}

Evidently, Stephanus’s position relies on a highly intellectualized analysis of metals and on a mystical view of creation—unlike the “rational” method of the later alchemist Michael Psellus (1017/18–1078/96), who still shared his premises.\textsuperscript{25} It is dismissive of actual craft, because such handiwork is disingenuous in its assertion of skill and knowledge.\textsuperscript{26} Indeed, his position eschews the actual stuff altogether in favour of a vitalism in and uniting everything, “Put away the material theory so that ye may be deemed worthy to see with your intellectual eyes the hidden mystery. For there is need of a single

\textsuperscript{23} Mertens 1995, 34 (10.1), trans. in Linden 2003, 50; and continuing, Mertens 1995, 35 (10.1), trans. in Taylor 1937a, 89: “And in this system, single and of many colours, is comprised a research, multiple and varied, subordinated to lunar influences and to the measure of time, which rule the end and the increase according to which the nature transforms itself.”


\textsuperscript{26} The similarities between alchemy and art, as well as its competitive aspects, are well attested over the entire history of that field of inquiry. See, for example, Newman 2014 and Göttler 2014 and Göttler 2013, 504. The relationship is complicated, however: see Haug 2014, 97: “The discussion of early modern theories on metallogenesis has shown, that the creative process of the human artist and artisan was compared to the natural genesis of the divine artifex. The same primordial matters are available to the goldsmith and the metalworker, to the alchemist and to ‘nature’. All four follow the same working processes, only their ability differentiates the final products. The juxtaposition of form and matter, which is thought of as a dichotomy of active force-shaping power and passive shape-receiving material, is of greatest importance with regard to God and his creation, which stands as a model both for the visual artist as well as the alchemist, who tries to recreate natural processes according to his will.”
natural <thing> and of one nature conquering all." That single nature expresses itself through a spirit that is shared across creation, from humanity to ores and metals and to other parts of creation. Profound sympathies among all aspects of the world informed not only alchemy, but also notions about farming and agriculture, astronomy and physics. Stephanus knew that copper, for example, had both soul and spirit, and he said so explicitly, even to the point of ascribing those same natural attributes to copper as humanity. Fire gives spirit to metallic bodies, though in different measure, and copper can achieve gold’s perfection through that element, even more stainless than gold.

This common energy or spirit allowed the possibility of transmutation of metals, and if all these materials, like humanity, were enspirited, recipes for changes could leaven the process of alteration. In this sense, sulphur water can work like yeast on metals. It aids spirit in lessening any resistance on the part of the metal and allows that metal body to be transformed into a purer form. Likewise, gold leavens: “In fact, just as yeast, though in small quantity, ferments a great mass of dough, likewise also this little portion of gold perfects all the xerion and makes everything ferment.” A small amount acts as a catalyst for the movement of spirit and for the realization of an alteration of base matter toward a larger quantity of gold, optimally.

Colour and Soul

Such views were not held universally, and these sources themselves reveal some of the points of contention between this particular type of philosopher and those arguing from other positions. However, one does not have to assert that alchemists were typical to understand that aspects of their position had wide currency in late antiquity and Byzantium. Their language, method, and goals were special to them, but their understanding of the world as somehow ensouled and mutable was a commonly assumed position among many in this period. An early eighth-century poem, commonly attributed to a Theophrastus, shows that these notions continued to be expounded and explored, sometimes—it seems—in the face of opposition,

How then can those vile critics censure us,
They who in secret learning are inept,

27 Ideler 1842/1963, 2,200.32–34; Linden 2003, 55; Taylor 1937b, 123.
28 Sympathies and antipathies in nature are also seen in agricultural and botanical handbooks, such as Lelli 2010; Dalby 2011; Grélois and Lefort 2012; and Thomson 1955, 66–73. See also Lefort 2013.
30 Ideler 1842/1963, 2,210.12–20. And see Papathanassiou 1990, 126: “The physical bodies are said to be composed of the four cosmic elements, which are in a dynamic state having births, destructions, changes, and reversions from one to another. This is the physical principle underlying the possibility of the transmutation of various metals to gold.”
31 Berthelot and Ruelle 1888/1963, 2:145 (3.10.3).
And who in sophic wisdom have no share?
[...]. They ask how gold is ever to be made,
How that can change which has a nature fixed,
Placed there of old by God the demiurge,
Who formed its substance never to be moved
From that position which from early time
Was its abode and destined resting place;
They say gold thus abides, nor suffers change,
For naught can be transmuted from the class
Or species where its origin took place.33

Evidently, critics of these philosophers had argued that nature could not be changed,
once formed by God. But changeability in nature is still latent in the natural and made
worlds, as attested by numerous accounts in chronicles, hagiographies, and council acts.
The goal of making gold is the serious divergence, I would argue, in these conflicting
positions revealed in that passage of the poem. And indeed, the unchanging aspect of
matter was readily conceded by Theophrastus as a sign of agreement with those who
diverged from his position. But that concession was only partial, since altering matter
was not the object of alchemists’ enterprise, but rather altering the outward appearance
of matter; the essence, the abstract nature, remained the same, but the alchemical
change directs itself at form. Likewise, the process was compared to the sun, which
passes through seasons of hot and cold, dry and moist, and yet remains the same essential
body throughout.34 Theophrastus claimed a clear path to knowledge, but neither language nor meaning is fully lucid—or else the knowledge would have been commonplace, one presumes. And yet he insisted on the facility of the method leading to recogni-
tion of essence at the centre of all creation:

But we will show the end of this our art,
An end most useful and most quickly learned,
For nothing strange it needs save that one stock
From which all things by Nature are produced.35

The question that arises then, naturally, is how one recognizes when change in the form
of an essential component in matter occurs, regardless of the technique employed to
effect that change. The answer is the most obvious, but also the most difficult in many
ways: colour.36 This visual but vital aspect attached itself to metals, which were other-
wise unstable; once it was joined, metals such as gold became themselves, as it were. Olympiodorus the Younger (ca. 495–570) wrote that colour is deeply dyed into matter
and in fact fixes its state,37 and as stated above, the language and terminology of alchemy
moved across many disciplines, including dyeing. Moreover, the word used to describe a

33 Ideler 1842/1963, 330.7–21; Linden 2003, 63; Browne 1920, 196.
Lindsay 1970, 111–12; Hopkins 1938; Hopkins 1927; Pfister 1925; as well as Smith 2010.
37 Berthelot and Ruelle 1888/1963, 2: 77–78 (2.4.15); and see Hopkins 1938, 328.
dipping process whereby a metal might approach goldness in some manner is a cognate for baptism or *baptizein*, that is, *baptein*. The dyeing, tincturing, and colouring of metals were often conflated with the sacrament of baptism, as well as with death and resurrection: “Each metal, the same as man, becomes endowed with the triple hypostacy of body, soul, and spirit [sic].”\(^{38}\) The colour or tincture is the indelible aspect of their state, but one that could be changed, so that gold was not only a colour, but also a sign that a material shared in goldness, the quality most elevated among metals and most sought after by alchemists across the ages. Theophrastus stated this belief as clearly as alchemy’s conventions permitted,

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The white, augmented thrice within a fire,  
In three days’ time is altogether changed  
To lasting yellow and this yellow then  
Will give its hue to every whitened form.  
This power to tinge and shape produces gold  
And thus a wondrous marvel is revealed.\(^{39}\)
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That process of colouration is ascendant and determinant of purity, though here, the final and best colour is not mentioned: purple. The range of coloration runs in value from black to white to yellow to purple, so that if the alchemist can manage to create the colour, along the ascending scale, he has, on some essential level not knowable beyond visual perception, made the real thing. In other words, everything that glows like gold is gold.\(^{40}\)

Many types of gold were possible, just as many types of apples once were available—and as with that variety now diminished, we find one gold valued in our culture.\(^{41}\) The processes by which colours were changed and essences arrived at also revealed these types. At the end of the whitening process, or *lefkosis*, silver possesses a golden gleam, and that coloured shimmer showed the presence of gold in the silver and the distance along the spectrum that metal had travelled to get closer to purity.\(^{42}\) In the same way, copper could receive that enspiriting colour by combining with silver to produce a straw-tinted alloy, the colour revealing its relative proximity to purity.\(^{43}\) And in theory—alchemical, that is—even the commonest metal could become gold.

Mercury was the catalyst for changes in many versions of alchemical technique and belief. It was the basic component that spanned the properties and natures of metals, because it could alter from a silvery, fluid condition to vapor when heated; it was both matter and spirit in these varying conditions.\(^{44}\) Such views are attested in late antiquity

\(^{38}\) Browne 1920, 203. And on soul and body, according to Stephanus; see Papathanassiou 2005, 123–27.

\(^{39}\) Ideler 1842/1963, 2,331.30–35; Linden 2003, 64–65; Browne 1920, 203.

\(^{40}\) But Psellus warned against greed for just that reason; the soul of the alchemist needs purification, just as he purifies matter. See Albini 1988, 56–58.

\(^{41}\) A comparison made by Wallert 1990.

\(^{42}\) See Hopkins 1938, 328–29.

\(^{43}\) See Browne 1948–49, 19.

\(^{44}\) See Smith 2010, 39–41.
and Byzantium and continued to circulate well into the early modern period. For example, Synesius of Cyrene (ca. 373–ca. 414) wrote a letter to Dioscurus with annotations on a treatise by pseudo-Democritus, and in it, he described the power of mercury to control other metals and cause colour change in each:

> For just as wax takes the color that it received, so also mercury, o philosopher, whitens all metals and attracts their spirits, refines them for cooking and absorbs them. It is arranged for the purpose and has in itself the principle of each liquid, once it has undergone decomposition, causes every color change. It forms the permanent base, as colors have no foundation of their own. Or rather, mercury, coming then to find itself deprived of its foundation, becomes modifiable by treatments performed on the bodies and their materials.45

The material traverses the metallic spectrum on account of its motility, and it gives the basis for colour to set, to fix. In other words, colour is the means by which the true identity of materials is revealed. As Synesius wrote, "Mercury has been classed in both catalogues, both in the yellow, which means gold, and in the white, which means silver."46 And by that description of mercury’s ambivalence, he was noting the element’s presence in the colours—and natures—of silver and gold.

**Gold and Silver Abstracted in Exhibition**

This discussion of alchemical processes and beliefs is necessary not only for understanding the possible meanings inherent in materiality of late antiquity and Byzantium, but also for describing the effects and agencies objects had—and can still have—when in the world.47 A history of materials—of their perceptions and explanations—is naturally a social history,48 and exhibition provides environments where those perceptions and explanations can be explored, justified, and imagined.49 Contemporary exhibition attempts these processes in the historical presentation of a development of making and speculation among alchemists, but also among modern artists, for some of whom alchemy was a compelling way to think through transformation of and through materials.50 The transformative aspect of James Lee Byars’s making of *The Halo* is impressive: 219.7 cm in diameter, the PVC piping was covered in brass and gilded (Figure 24).

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47 Remarks on the early modern period by current scholars can be productively applied to Byzantium, I believe. See Smith 2010 and also Rublack 2013, 43: “A strictly sociological perspective occludes the ways in which matter interrelates with the meanings humans ascribe to things and how matter can therefore become an aesthetic category. In short, how objects were made and what they were made from may have a bearing on how they were perceived and gained significance.”

48 Conneller 2011, 4–7, uses examples of descriptions of gold in a modern chemistry textbook and an eighth-century Persian text on alchemy to ask what a material is.

49 See the stimulating remarks by Cole 2011.

50 I am thinking particularly of the exhibition *Kunst und Alchemie: Das Geheimnis der Verwandlung*, held at the Museum Kunstpalast in Düsseldorf from April 5 to August 10, 2014, with an excellent
The transcendence is implied in the title, and the piece nearly reaches that level of existence, but leaning against a wall, it also is always grounded, active within perceptual reach. Byars’s other work likewise plays on these transformative positions. For example, “Einstein, Stein and Wittgenstein,” and “The Three B’s: Beuys, Broodthaers, Byars” (both 1984–89, gilded stones) are altogether six small rocks coated in gold leaf, but the stones are named and become material metaphors, one might say, for personal transfiguration that leads toward an unself-assuming perfection. Alchemy was never about personal gain, among its most dedicated practitioners, but was concerned with the exaltation and perfection of matter, including the human. These small gestures in the stones parallel other performance pieces Byars performed over his life that ironically and playfully mapped possibilities of transformation in our world-bound existence. No one working with gilding and natural or machine-made materials could not be aware of the alchemical basis of his or her operations. Indeed, that awareness permitted a means to overcome even the limitations of “artist,” for real alchemists discovered secrets of materiality and did not simply mimic those deep truths, as painters and sculptors could have been accused of doing.

Alchemy could provide someone like Byars a way to exceed his entire enterprise.

The metaphor of alchemy is still used for a transformative, enchanting heightening of common experience, and exhibition can also perform alchemy in that sense, too, while also allowing us to probe implications of understanding more fully than usual what alchemy, or historical chemistry and geology, “do.” Analyzing how alchemy, for example, operated as framework within which categories worked and meant can be revelatory for us. Exhibition can work as inspiration, as a catalyst for thinking historically; it can

catalogue (Dupré et al. 2014). Less successful, in my opinion, but still noteworthy is the exhibition held at the Kunsthalle Bremen from October 19, 2019 to March 1, 2020, _Ikonen: Was wir Menschen anbeten_; see Grunenberg and Fischer-Hausdorf 2019.


52 For example, see Newman 2014, 118.

53 See Peers 2018c.

54 I am thinking in particular of Morel 1998; but also Didi-Huberman 1995. See, also, Merianos 2017.
begin with an argument and still lead to another explanation that gives unanticipated historical grounding.

In that same way, geology can be demonstrative of widespread assumptions about the nature and activities of the earth, even if not everyone in that culture would have expressed those common assumptions in similar terms. The belief in an organic nature of metals is largely impossible for us now, but it was widespread in the ancient world, including Byzantium. Metals could grow like plants, and so they were dependent on environment for their qualities and peculiarities. For example, the amount of silver in gold was not explained by natural occurrences of alloys in the earth, but in terms of the natural occurrence of silver in gold that was transforming, eventually, into full gold. Stones, likewise, grew and formed, rather like plants again, but also with a stony logic and pace that often stood outside human abilities to perceive and measure. Descriptions of how stone made itself and transformed, too, paralleled alchemical discussion in its insistence on vitalism and primary matter as foundational aspects of the natural world's order. Stones and minerals aided in health, generation, and fertility throughout creation, including in humans. Modern science is revealing it, too. Scientists have studied the spermatozoa of gold miners and have found that traces of gold in sperm increase the motility of sperm. In the past, gold was vital, and now science is explaining it in a different way. Gold—like all matter—transforms life mutually.

The investigation of nature was infused—or infected, depending on one's perspective—by a kind of animism, with or without the word being uttered. Moreover, workers who dealt with the earth for their livelihood knew that extrahuman forces were at

55 On the earth’s womb and the early modern move to the extractionist position that we carry on, see Usher 2019, 42–48.
57 Usher 2019, 34.
58 See Sahab et al. 2011.
59 And see Haug 2014, 90: “Almost all theories offer a dualistic system that operates on the dichotomy of a primary passive substance acted on by a potent cause. The involved antagonists are matter and an active formative power, or in other words: a creator and a material in which the creation can manifest. This duality of primordial passive matter and active forming principle can be thought of in terms of natural procreational processes which approximates the third—mineralistic—to the other two reigns, the floral and the animalistic, where by seed or semen procreation and growth is initiated. If this biological analogy taken from the animal and herbal kingdoms is applied to the mineral, it can be extended to metallogenesis: if in the field of animals and plants male and female beings can be found who procreate by the union of the active and formative male seeds or semen and the female passive receiving matter—and if this means that this species can recreate self-reliantly—then it is not too far fetched to suspect comparable ways of reproduction and growth in the reign of minerals and assume the existence of metal ‘semen.’”
60 On animism and its modernist enemies, see Peers 2012b; for geological and alchemical commonalities, see Morel 1998, 37–38; and on animism’s presence in the absence of its naming, 26–27: “Même si toute référence animiste est à exclure, la terre en gestation est donnée à voir comme une sorte d’organisme pourvu d’une circulation interne et de cavités-réceptacles qui sont les conditions physiques (de lie and de movement) de ce processus génératrice.”
work on the materials they sought. Stars and planets affected the growth and quality of metals, so naturally sympathetic bodies played a role in the generation and regeneration of metals, most clearly the sun on gold and moon on silver.\footnote{See, for example, Bailly-Maître 2002, 159–75; Sébillot 1894; and Daubrée 1890. And gendering of the natural world, sometimes a kind of human projection of binaries, also occurred. See Browne 1920, 205–6, as well as Foxhall 1998.} Exhibition can show that life, too, as it turns out. It can show the ways in which sympathetic things enter into fluid communities where materials and forms show common purpose and where they can also reveal their irreducible selfness, freed from the constrictive regime of representation.

Habit-Deadened Life

This chapter has argued, elliptically, against symbolism, against representation, and it adheres strongly to materialist understandings of the world, to taking the world, including its Byzantine antecedent, as itself and nothing more. In one sense, it colludes with T. J. Clark’s description of Picasso’s project in 1920, when the artist was “wrestling with the problem of how best to state—to show—what it is to be an object.”\footnote{Clark 2013, 42.} Imagining how to be an object entails equalizing the world—adopting a fundamentally democratic approach to materiality.\footnote{This position has a long literary history in modernism, though not a happy one. See Steiner 2011 and Steiner 2010.} Everything is an object or a thing. Such a position is nearly impossible, and it constantly challenges itself. Historically, it is even harder to sustain.
Not that it was hard in the historical past, but it is very difficult for us to believe in a divergent set of assumptions about being a subject or thing in the world. The last work one saw when leaving Byzantine Things at the Menil was Untitled by Cy Twombly, a large canvas with grey wash and trailing horizontal lines that do not parallel, coalesce, or directly signify (the materials are oil, house paint, and wax/oil crayon on canvas) (Figure 21). The lines and ground do not provide symbols, nor do they represent, but they strongly realize in their similarities and relationships a concomitant, spontaneous development and growth. The rich grey ground of the painting is evocative of other fields outside it, but it is also just itself; its elusive qualities enfold and open out, and its gentle instability denies reference and just allows reception, absorption. The picture is a sensitive guide, especially as articulated by Richard Shiff, to the recognition of the flows of life among nondiscrete things when we instead are accustomed to seeing habitually, regularly, all the apparent “dead things” in the world. The philosopher Charles Sanders Pierce wrote in 1891 about this dispiriting aspect of our perceptions, “Matter is merely mind deadened by the development of habit.” One too easily loses the charm of the world.

Abstraction in part restores needed enchantment and charm. It provides means to recognize unexpected, arbitrary, unpredictable, and deep workings of our world. The glow of the Menil’s gold box abstracted it to its essence of pure relation, and the figures on the silver plate reduced and expanded to a sheen that enlivened and touched one. Alchemy, for all its logical, epistemological shortcomings, was more than a historical curiosity, and it allowed a transformational wonder, even as it constantly pushed back at habit. So, by analogy, can exhibition.

64 This passage owes a great deal to Shiff 2008.