Displays of Power: Imperial Ideology on the Coinage of Galba during the Crisis of 68/69 A.D.

Klerk, Gabriël de

Displays of Power: Imperial Ideology on the Coinage of Galba during the Crisis of 68/69 A.D.

Gabriël de Klerk

The death of Nero in 68 A.D. plunged the Roman Empire into a state of total crisis. In the last years of his reign, the unpopular Nero already faced major uprisings in Gaul and Rome.[1] Once he was declared a public enemy by the senate, he committed suicide. Plutarch compares the perilous situation following Nero's death, which marked the end of the Julio-Claudian dynasty, to the revolt of the Titans in Greek mythology. The empire, he writes, was "torn into many fragments, and again in many places collapsing upon itself" because "the house of the Caesars ... received four emperors, the soldiery ushering one in and another out, as in play."[2] This is hardly an exaggeration: in just one year and 195 days, four emperors donned the purple: Galba, Otho, Vitellius, and Vespasian.

69 A.D. was a year of great upheaval and civil strife. This year was a period of transition from the Julio-Claudian dynasty to the Flavian dynasty with a heavy focus on the unprecedented role of martial imperative in the formation of imperial power. Each emperor had to seek different ways to mobilize support for their cause, not in the least because their claims were almost always attested by other opportunistic senators and generals.

In recent decades, many monographs have studied the events of 68-69 A.D. Among the most influential are *The Year of the Four Emperors* by Kenneth Wellesley and the nearly synonymous *69 A.D.: The Year of the Four Emperors* by Gwyn Morgan.[3] Most

[1] Suet. *Ner.* 49.
[2] Plut. *Vit. Galb.* 1.
[3] Wellesley, *The Year of the Four Emperors.*

research into this period, including that of Wellesley and Morgan, fails to consider numismatic evidence. This research misses an important opportunity, as ancient coins are much more than simple monetary instruments. Above all, they are tools of political communication. Studying the numismatic sources from 68-69 A.D. offers vital insight into how emperors responded to crisis. Only in the last decades of the 20th century have scholars concluded that imagery on Roman coins communicated specific political messages to explicitly delineated audiences.[4] In 1988, Niels Hannestad first considered Roman coins as articles of propaganda. Coins, he argues, are the best sources available for studying Roman political history because although "the information they provide is perhaps distorted, ... they are authoritative in that they represent the officially formulated views of the ruling powers."[5] Likewise, Reinhard Wolters argues in a 1999 study that the Romans continuously changed their coin designs because these images communicated specific messages.[6] In more recent scholarship, Erika Manders argues that any media form can contain visual compositions representing imperial ideology. According to Manders, the ideological dimension of ancient coinage is best exemplified

> by the fact that emperors, the short-lived ones included, issued coin types immediately after their accession, that even usurpers who claimed the imperial throne for a short time minted their own coins and that the minting of coins by other persons than the emperor was considered a challenge to imperial power.[7]

In this article, I aim to fill a lacuna in numismatic research of political ideology. I seek to address how Roman emperors used coinage as a medium for political ideology and how this coinage allowed emperors and their imperial administrative bodies to advance claims to the imperial throne. This will be done through an extensive study of imperial coinage minted during the reign of

[4] Kemmers, *The Functions and Use of Roman Coinage*, 16.
[5] Hannestad, *Roman Art and Imperial Policy* , 11.
[6] Wolters, *Nummi Signati*, 256.
[7] Manders, *Coining Images of Power*, 29.

Servius Sulpicius Galba, who ruled over the Roman Empire from June 68 A.D. to January 69 A.D. The reasoning for studying coinage minted under Galba is threefold: first, such research might provide new insights into how emperors utilized coinage to negotiate times of crisis; second, the reign of Galba signaled the end of the Julio-Claudian dynasty, which had ruled over the Roman Empire for 95 years. Galba, who had no lineage with the Julio-Claudians, had to provide some sort of legitimation for his usurpation. Justifications for Galba's claims to legitimacy might be found in the numismatic evidence; third, the imperial coinage of Galba has not been extensively studied in such a fashion. For this reason, a better understanding of his coin-types might provide new insights into coinage as a medium for political communication.

The imperial coinage of Galba comprises 521 coin-types, which were minted at the imperial mints of Taracco, Vindobona, Narbo, Lugdunum, Rome, and Carthage. The primary source evidence studied in this article appears in the second edition of the *Roman Imperial Coinage, vol. I*-catalogue (henceforth *RIC*). All references in this article to the coinage of Galba and his predecessors will therefore be taken from this catalog. One series mentioned in the *RIC* deserves extra clarification: 143 coin-types do not refer to any emperor and date from between Vindex's revolt and the Nero's death. These coins have strong correlations with some coin-types minted under Galba but were most probably minted in anticipation of the excommunication of Nero, prior to the official ratification of Galba as emperor. This series is referred to in this article as the "Civil Wars"-series.[8]

This article will study the coinage of Galba by first providing an overview of the factors that led to Galba's rule and how this rule eventually collapsed. Such an overview is necessary to place the coin-types of Galba in the context of his reign. After this overview, I will discuss Roman coinage as vehicles for imperial ideology. This discussion will substantiate the claim that the Roman administration used coinage to convey political messages. I will also discuss the government body was responsible for the minting process. Subsequently, I will analyze Galba's coin-types by examining both

[8] Sutherland and Carson, *The Roman Imperial Coinage*, 197.

sides of his coinage, with an emphasis on the reverse (the back face of the coin). I will argue that Galba wished to convey three distinct images through the inscriptions and images on the reverse side of his coinage: that of the rebellion of Galba that led to the downfall of Nero, that of the subsequent era of internal peace, and that of Galba's competence and magnanimity.

Galba's revolt, reign, and downfall

In 68 A.D., Vindex, the governor of Gaul, launched a revolt against the corrupt government of emperor Nero. Instead of proclaiming himself as ruler, Vindex reached out to Servius Sulpicius Galba, the governor of Hispania, to lead the revolt. Galba accepted his request and was hailed emperor in Nova Carthago around April 68. He sent messages to the inhabitants and governors of neighboring provinces asking them to support his claim, while Nero hastily tried to raise armies to defend Italy. It was during this time that the praetorian guard chose to abandon Nero; shortly after, the senate proclaimed him an enemy of the state. Upon learning this, Nero lost all hope and committed suicide on the 9th of June 68.

Despite Nero's suicide, the rebellion did not run as smoothly as Vindex had hoped. Forces that remained loyal to Nero's rule defeated Vindex near Vesontio. After this defeat, Vindex was either killed or committed suicide. Upon hearing the news of Vindex's death, Galba quickly retreated to the Spanish town of Clunia. He came out of hiding only after learning that, after Nero had died, he himself had been ratified by the senate as the new Roman emperor. Upon receiving this news, Galba triumphantly marched on Rome.

Imposing heavy taxes and financial sanctions, Galba quickly made himself unpopular with the Roman armies, praetorian guard, and aristocracy. According to Cassius Dio, he "collected money insatiably, since he required much, and spent of it very little."[9] Galba tasked himself with replenishing the state treasury, emptied by the free-spending Nero, and this job won him few friends. Cassius Dio tells us that Galba refused to reward the praetorian guard with the bonuses that were promised in exchange for their support, as "I

[9] Cass. Dio, 64.2.

[Galba] am accustomed to levy soldiers, not to buy them."[10] Galba also refused to reward the legions of Upper Germany, retaliating because they had previously fought, on Nero's orders, against the armies of Vindex.[11] Concerning the aristocracy, evidence suggests that Galba only granted offices to those who did not seek it, while simultaneously revoking grants made under Nero.[12] In January 69 A.D., the legions across the Rhine border mutinied, rallying under the banner of Vitellius, governor of Germania Inferior and future emperor. After slighting his confidante Marcus Salvius Otho by appointing someone else as his successor, Otho, feeling betrayed, secured the support of the praetorian guard for a claim to the throne, leading a plot against Galba which resulted in his assassination on January 15th, 69 A.D.[13]

Roman coinage as vehicles of Imperial ideology

Broadly speaking, Roman imperial coinage served two purposes. First, coins were monetary units functioning as means of exchange. Above all else, they served as economic instruments. Their second function, however, was as vehicles for the distribution of images and messages.[14] On the one hand, imprinted images lent coins credibility. These images helped make coins appear to their users as valid instruments of monetary exchange in the Roman empire. On the other hand, the images and inscriptions on the coins contained informational that served purposes other than facilitating economic exchange. I have already briefly noted above how different historians tended to approach coinage in light of these purposes. Here I will elaborate on these approaches.

Andrew Wallace-Hadrill proposes four functions of imperial coinage. First, he argues that obverse and reverse images convey imperial authority not only by signifying the emperor as the head of state, but also by implying his authority through a wide variety of images that portray his grandeur, his qualities, and his virtues. Second, he argues that both sides of the coin are value-laden: the

[10] *Id.*,64.3.
[11] Suet. *Galb.* 16.2.
[12] *Id.*, 15.1
[13] Morgan, *69 A.D.,* 31-56.
[14] Manders, *Coining Images of Power,* 29.

emperor and any references made to him serve to strengthen the narrative of the emperor as the focal point of the Roman empire and to emphasize that he is to be worshipped. Third, the coin is persuasive. "It is the coin that speaks, not the emperor," Wallace-Hadrill writes. By this, Wallace-Hadrill means to draw attention to the fact that the coin functions as an independent agent that appeals to an ideology outside of itself. When the coinage honors the emperor, it does so as a seemingly autonomous institution and persuades the user to grant the emperor the same honor. Finally, as I have briefly noted above, the coin derives its meaning from its economic value, but this economic value, in turn, is the result of its non-economic image.[15]

As Wallace-Hadrill emphasizes, coinage was much more than a mere instrument of exchange. Coinage had an undeniable economic function, but it also disseminated imperial messages. These messages were not simply depictions of the emperor and the imperial family. A wide variety of images, including of deities and personified virtues, functioned as symbols of imperial ideology.[16] As Olivier Hekster argues, this distribution of messages might parallel the modern marketing strategies of consumer product brands such as Coca-Cola and Levi's: both the coins and modern brands aim "to create a good name for themselves, for now and posterity, in an empire where most of the inhabitants would never physically see their ruler."[17] This kind of branding might be interpreted positively or negatively, a variability described in a passage of Arrian:

> But I mean the things which belong to him as a man, the marks (stamps) in his mind with which he came into the world, such as we seek also on coins, and if we find them, we approve of the coins, and if we do not find the marks, we reject them. What is the stamp on this Sestertius? The stamp of Trajan. Present it. It is the stamp of Nero. Throw it away.[18]

---

[15] Wallace-Hadrill, "Image and Authority in the Coinage of Augustus," 69-70.
[16] Norena, "The Communication of the Emperor's Virtues," 154.
[17] Hekster, "Coins and Messages: Audience Targeting on Coins of Different Denominations?," 24.
[18] Arr. *Epict. diss.* 4.5.9-10.

According to Arrian, a coin's user would attach positive and negative attitudes towards the coin independent of its monetary value. It is the emperor's face – the "branding," to use Hekster's terminology – that determines whether or not the coinage is desirable.

The question arises of who was responsible for determining the images which appeared on coin-types. Was the emperor himself concerned with the imagery and inscriptions on the coinage, or was an imperial administrative body in control of the imperial mints? This question has puzzled many modern scholars for years. While several administrators, such as the *triumviri monetales* (monetal supervisors), the *a rationibus* (secretary of finance), or the *procurator monetae* (mint director), were tasked with at least one part of the minting process, their exact responsibilities are not recorded in the ancient sources.[19] As a result, we do not know the extent of their artistic constraints, or whether these constraints left space for the emperor to influence the design process. The coins are the only sources that leave room for interpretation.

Earlier numismatists such as Buttrey and Levick have argued that the emperor in all probability did not play any part in the design process, and that if he did, his preferences would have played an insignificant role. According to these numismatists, the mint-masters decided what was to be placed on the coinage.[20] Later numismatists have left some more room for imperial interference. Wolters, among others, argues that the emperor intervened in the work of the minters when it did not correspond with his wishes. Under normal circumstances, the plans for coin designs would have been brought to him for review and were either circulated or dismissed according to his decisions.[21] By now, however, it is generally accepted that the question of the emperor's role in the design process cannot be conclusively answered. Regardless of what this role may have been, in all cases it was the imperial court, which centered around the emperor, that issued orders for coin designs, sometimes also actively intervening in the minting process. As Hekster put it, "it seems inevitable that these decisions originated at the top and that coins,

[19] Claes, "A Note on the Coin Type Selection by the *a rationibus,*" 163-164.
[20] Buttrey, "Vespasian as Moneyer," 108-109; Levick, "Propaganda and the Imperial Coinage," 107.
[21] Wolters, "Die Geschwindigkeit der Zeit," 189.

thus, propagated the ideological claims of the ruling regime."[22] Howgego shares Hekster's view, arguing that regardless of who made the final decision, the coins ultimately showcased how the emperor wished to be seen — or at least, how his close associates thought he wished to be seen.[23] Significantly, while in theory the emperor did not actively make design choices for every coin-type, in practice he was held accountable for all of them. It was not only *his* coinage with *his* portraiture that circulated in the empire; the coin-types reflected *his* ideologies and *his* attitudes.[24] "Galba's" coinage, then, does not necessarily refer to pieces that he personally admitted for circulation, but rather to coins that were circulated in his name which therefore reflect his official imperial authority.[25]

The Coinage of Galba

I have demonstrated above that Roman coins are not mere monetary units, but moreover can be understood as vehicles of imperial ideology. Furthermore, I have demonstrated that even if the emperor himself may not have been actively involved in the design decisions, the coin-types still convey his imperial messages. The designs were not randomly chosen but rather reflected particular ideologies that an emperor, or at least his administration, would have wanted to disseminate. Let us now consider the question of what ideology the coinage of Galba reflects. First, I will discuss the obverse's of Galba's coin-types. After this, I will study the relevant reverse coin-types, observing on them three distinct themes that Galba wished to convey.

The obverse of Galba's coinage

In almost all instances, the obverses show either the head or the bust of the emperor. In just a handful of cases, they depict Galba riding a horse.[26] The reason for the representation of Galba on horseback is that the mints did not have an official portrait of the emperor

[22] Hekster, "The Roman Army and Propaganda," 349.
[23] Howgego, *Ancient History from Coins*, 70.
[24] Ellithorpe, "Circulating Imperial Ideology," 66.
[25] Manders, *Coining Images of Power,* 32.
[26] *RIC* I. Galba, 1-3 (Taracco), 85-94 (Vindobona).

readily available.[27] While it might be tempting to assume that the horseback depiction of Galba is an explicit reference to his military career, it should not be read in this way. Rather, it is best understood as a temporary substitute for the head of the emperor that otherwise decorated Roman coinage.

The inscriptions on the obverse list the different honorary and political offices that Galba held. In doing so, the coinage legitimizes Galba's position as head of the state and aligns him with his predecessors. They refer to his declaration as *imperator* (IMP), his acceptance of the *tribunicia potestas* (TR P), his role as *pontifex maximus* (PONT MAX), and his honorary titles *Caesar* (CAESAR) and *Augustus* (AVGVSTVS). These titles are by no means merely honorary in nature; they also have political significance. The *tribunicia potestas* were a series of privileges that in Republican times were only reserved for the *tribuni plebis*, while the *pontifex maximus* was the religious head of state. The title *imperator* referred to the emperor's *imperium*. Augustus was the first emperor to hold held these titles, and it became a custom for his successors to be given similar honors.

The titles *Caesar* and *Augustus* explicitly align Galba with his Julio-Claudian predecessors (see figure 1). All emperors before Galba received and accepted these titles based on their familial ties to Julius Caesar or the emperor Augustus. Suetonius tells us that upon hearing of Nero's death, Galba assumed the title Caesar.[28] It is probably around the same time that Galba also adopted the title Augustus. Hekster argues that the appropriation of the hereditary titles can be understood as an attempt by Galba to align himself with the *domus augusta*, thereby solidifying his legitimate claim to the imperial throne.[29] Of course, the employment of *Caesar* and *Augustus* might also signal a broader transformation of hereditary titles into non-hereditary imperial designations. This view, however, is untenable in light of the fact that emperor Vitellius only employed the title "imperator." If "Caesar" and "Augustus" were simply imperial designations, Vitellius would certainly have used them. While Galba's use of the titles *Caesar* and *Augustus* does not

[27] Sutherland and Carson, *The Roman Imperial Coinage,* 218.
[28] Suet. *Galb.* 11.1.
[29] Hekster, *Emperors and Ancestors*, 53.

preclude the view that for him these designations referred generally to his supreme position at the head of the Roman Empire, it does show that Galba aligned himself specifically with the Julio-Claudian dynasty. Let us now turn to the reverse of the coinage of Galba and consider the first of the themes that appear here: Galba's rebellion against the reign of Nero.

The first reverse theme: Galba's rebellion

Images on the reverse of the coinage allude in several ways to the rebellion that Galba and Vindex led against Nero. One way they do this is by depicting personifications of Hispania and Gallia and referencing the city of Clunia. These depictions refer to the region where Galba accumulated the base of power that facilitated his rise to emperor, serving as reminders of how and by whom the tyrannical Nero was overthrown. These images also depict Mars Victor, who symbolizes the successful conclusion of the civil war and the restoration of order within the Roman empire.

Hispania is invoked both through personification, appearing as a female bust or figure, and through the legend HISPANIA.[30] Likewise, the province of Gallia, the original location of Vindex's revolt, is personified and appears as a female bust or figure accompanied by the inscriptions GALLIA or IMP.[31] The two female figures appear on particular coins either by themselves or together jointly clasping hands. When they appear together, they are supplemented by the legend GALLIA HISPANIA (see figure 2).[32] Four other coin-types depict three female busts with the inscription TRES GALLIAE (see figure 3).[33] This immediately recalls the opening phrase of *De Bello Gallico* of Julius Caesar: "Gallia est omnis divisa in partes tres."[34] But rather than referring to the war of Caesar in Gaul, these coin-types allude to the union of the region's three parts under Galba's rule.

---

[30] *RIC*I, Galba 1-3, 50 (Taracco), 86 (VIndobona), 144, 155, 190-193, 225-226 (Rome), 515, 516-518 (Carthago).
[31] *RIC*I, Galba 85 (Vindobona), 145, 156, 227-228 (Rome).
[32] *RIC*I, Galba 15-18 (Taracco), 109 (Narbo), 154 (Rome).
[33] *RIC*I, Galba 89-92 (Vindobona).
[34] Caes. *BGall.* 1.1.1: "All Gaul is divided into three parts."

The coinage pays homage to important geographical locations in the revolution that overthrew Nero's reign and led to Galba becoming emperor. Furthermore, while the coinage makes no direct mention of Vindex, because Vindex was of Gallic descent one could suggest that the invocation of Gallia on the coinage alludes to him. The effigy of Gallia and Hispania clasping hands is a particularly strong image. It represents the harmony of the two provinces, projecting an appearance of cooperation between Galba and Vindex, and their legions. This was not the first instance that such harmony had been represented on coinage, as already in the Civil Wars-series Gallia and Hispania were depicted together on the reverse of one coin-type. Tellingly, the inscription on these coin-types reads CONCORDIA HISPANIARVM ET GALIARVM (Harmony of Hispania and Gallia).[35] Similarly, the reverse inscription on five coin-types reads HISPANIA CLVNIA SVL S C (see figure 4).[36] This inscription refers to Clunia Sulpicia, the city in northern Hispania to which Galba retreated when he learned of the defeat and death of Vindex. It was while contemplating suicide there that Galba heard of Nero's death and his own proclamation as new emperor by the senate. Why would the coin-type so explicitly refer to Galba's place of refuge and recall the death of his ally? It could be argued that Galba did not associate Clunia with those unhappy events. Considering that Clunia was the location where he learned of his elevation to the principate, Galba may have wished to honor the city as the birthplace of his reign. This theory is strengthened by the fact that after becoming emperor, Galba elevated Clunia to the rank of *colonia*.[37] Furthermore, Galba held an additional connection with Clunia: it was here, or so Suetonius tells us, that Galba received favorable auspices from a priest of Jupiter and was encouraged by a young girl to take on the role of emperor.[38] The invocation of Clunia on his coinage, therefore, not only refers to Galba's revolt but might also serve to reinforce the myths around his persona as emperor.

---

[35] *RIC* I, Civil Wars, 15 (uncertain mint).
[36] *RIC* I, Galba 469-473 (Rome).
[37] Haley, "Clunia, Galba and the Events of 68-69 A.D.," 159-160.
[38] Suet. *Galba* 9.2.

Figure 1: Obverse of Galba with imperial titelature. *RIC* I. Galba 55 (De Nederlandsche Bank).

Figure 2: Reverse of Gallia and Hispania. *RIC* I. Galba 18 (Münzkabinett Berlin, inv. No. 18227154).

Figure 3: Reverse of Tres Galliae. *RIC* I. Galba 92 (Münzkabinett Berlin, inv. No. 18215155).

Figure 4: Reverse showing Clunia. *RIC* I. Galba 473 (Münzkabinett Berlin, inv. No. 18215158).

Figure 5: Reverse depicting Libertas with inscription LIBERTAS PVBLICA. *RIC* I. Galba 328 (De Nederlandsche Bank).

Figure 6: Reverse depicting Pax. *RIC* I. Galba 277 (Münzkabinett Berlin, inv. No. 18227781).

Figure 7: Reverse depicting arch surmounted by two equestrian statues, three captives with officer; inscription reads QVADRAGENS REMISSAE. *RIC* I. Galba 80 (Münzkabinett Berlin, inv. No. 18215166).

Figure 8: Reverse depicting Livia; inscription reads DIVA AVGVSTA. *RIC* I. Galba 55 (De Nederlandsche Bank).

Figure 9: Reverse showing adlocutio of Galba. *RIC* I. Galba 463 (De Nederlandsche Bank).

Finally, the reverse of two coin-types depicts Mars, the god of war, accompanied by the inscription MARS VICTOR S C.[39] While both figures and busts of Mars had previously appeared on the coinage of Augustus and of the Civil-Wars series, it is novel to see such depictions together with the epithet "the victorious." This pairing suggests that all parties who were involved in the tumult and civil strife of 68 A.D. felt the war had been concluded and that, with Galba as emperor, order in the empire was restored.

The second reverse theme: a new era of internal peace

The second theme that Galba's reverse coinage addresses is peace. The coinage represents Galba's reign as the peaceful conclusion to a period of turbulent upheaval. This is done through depictions of a wide array of deities and virtues: Libertas, Salus, Securitas, Roma, Victoria, and Pax. All convey the message that Galba's rule must be understood as the antithesis of what had been a state of crisis: the conclusion of a period of civil strife and the beginning of a new era of peace and prosperity.

Libertas is always accompanied by the legend LIBERTAS RESTIVTA or LIBERTAS PVBLICA (see figure 5). Coinage with the former inscription carries images of a female figure,[40] a standing Libertas,[41] and Galba.[42] The symbolism of this coin-series is ambiguous: on the one hand, the inscription and the depiction of Libertas clearly refer to the primary ideological justification for Galba's revolt: to free Rome from the yoke of Nero's tyrannical reign. This aim can be traced back to the Civil Wars-series, where the inscription LIBERTAS RESTITVTA is found.[43] On the other hand, the reverses that depict Galba show the emperor lifting up a kneeling Libertas. The submissive posture of Libertas — only able to stand upright with the assent and aid of the emperor — has been read to mark a transition from principate to outright autocracy.[44]

Coinage with the inscription LIBERTAS PVBLICA is

[39] *RIC* I, Galba 481-482 (Rome).
[40] *RIC* I, Galba 8-9 (Taracco).
[41] *RIC* I, Galba 37-39 (Taracco).
[42] *RIC* I, Galba 479-480 (Rome).
[43] *RIC* I, Civil Wars 24-27, 132-133 (uncertain mint).
[44] Kraay, *The* Aes *Coinage of Galba*, 42.

likewise attended by images of a female figure[45] or Libertas.[46] The inscription and the image of Libertas on this coinage indicate a similar communicative intention as that of the RESTITVTA-series: to proclaim a new freedom. But unlike in the RESTITVTA-series, freedom here means "freedom of the people."[47] The coinage is reminiscent of another series of coin-types: those that depict a female figure, with the inscription SALVS GEN HVMANI: "safety for the human race."[48] While the SALVS-types "ask" for the welfare of the people, the LIBERTAS- category proclaims it.

These are not the only of Galba's coin-types to express a desire for the welfare of the Roman people. Securitas, the deity for security and stability, is attested on three coin-types.[49] That the inscription SECVRITAS ROMANI appears on these coin-types indicates that the deity is invoked to convey a desire that the Roman people enjoy security and stability. While Securitas is attested on the coinage of Caligula and Nero, it is only during the Civil Wars-series that the inscription is related to the welfare of the Roman people. Here, the inscription reads SECVRITAS P R.[50] Other coinage in this series commemorates the revival of Rome through a series of closely related references. This is mainly done through depictions of the deity Roma, who is personified as a helmeted woman, at times in a military outfit, at times draped. Some of the coins depicting Roma have inscriptions reading either ROMA RENASCENS or ROMA VICTRIX. The former inscription emphasizes the same sentiment as invoked by the LIBERTAS RESTITVTA-coins: that of a renewed, reborn, Roman people.[51] The latter inscription corresponds to that of MARS VICTOR, although it places special emphasis on the strength of Rome.[52] Neither inscription has been

[45] *RIC* I, Galba 138-139 (Lugdunum).
[46] *RIC* I, Galba 22-23, 56, 68-76 (Taracco), 136-137 (Lugdunum), 158-159, 237, 275-276, 309-310, 318, 328, 346-349, 363-367, 372-373, 387-391, 423-427, 459-461 (Rome).
[47] Boruch, "Galba's Propaganda Motifs," 74.
[48] *RIC* I, Galba 146-147, 171-172, 205-214, 231-232 (Rome), 96-97 (Narbo).
[49] *RIC* I, Galba 504-506 (Rome).
[50] *RIC* I, Civil Wars 37-38 (uncertain mint).
[51] *RIC* I, Galba 24-29, 40-43, 57-58 (Taracco), 87-88 (Vindobona), 95 (Narbo), 160-162, 194-204, 229-230 (Rome).
[52] *RIC* I, Galba 44-45, 53, 59-60 (Taracco), 130 (Lugdunum).

attested in the numismatic output of the Julio-Claudians, although some coin-types from the Civil Wars-series do bear the same inscriptions.[53] On the reverse of the ROMA VICTRIX coin appears a kneeling Roma holing up a child to a gesturing Galba, a scene which is reminiscent of the LIBERTAS RESTITIVA coin's depiction of Galba and a kneeling Libertas. The inscription appearing alongside this scene reads ROMA RESTI S C.[54] The scene can be read allegorically: Galba, in the role of *pater familias* deciding on the fate of the newborn, is the sovereign who decides on the future of a newborn Rome.

There are two further types that must be considered. The first is that of the deity Victoria, who is invoked on a considerable number of coin-types.[55] The inscriptions on these coin-types read either S C, VICTORIA GALBAE AVG, VICTORIA IMPERI ROMANI S C, VICTORIA P R S C, or VICTORIAE IMP GALBAE AVG. While it might be tempting to read these as simple proclamations of victory, the fact that Victoria has been used by all the Julio-Claudian emperors that preceded Galba means that the appearance of Victoria on Galba's coinage is best understood as a continuation of a numismatic policy already put in motion by Galba's predecessors. The second type that must be considered is that of PAX (see figure 6).[56] On this coin, the deity of peace is accompanied by the inscription AVGVST(I). We find similar inscriptions on the coinage of Claudius, who employed the plural PACI AUGUSTAE.[57] Alisdair Gibson argues that this inscription honors the peaceful character of Claudius' reign, which followed that of Caligula, and announces a return to the glorious era of the *pax Augusta*.[58] The fact that references to peace on Galba's coinage are reminiscent of references to peace on Claudius' coinage suggests

[53] For ROMA RENASCENS: *RIC*² I, Civil Wars 8-9, 10 (uncertain mint); for ROMA VICTRIX: *RIC*² I, Civil Wars 59 (uncertain mint).
[54] *RIC* I, Galba 485 (Rome).
[55] *RIC* I, Galba 10-11, 48 (Taracco), 98, 110-113 (Narbo), 131-133 (Lugdunum), 148, 173-175, 215-217, 233-234, 250-258, 313-315, 350-357, 397-403, 456-458, 490, 510-514 (Rome), 519-520 (Carthage).
[56] *RIC* I, Galba 129, 140 (Lugdunum), 277-285, 319-323, 368-371, 413-415, 444-445, 496-498 (Rome).
[57] *RIC* I, Claudius 9-10, 22, 27-28, 38-39, 46-47, 51-52, 57-58, 61-62 (Rome).
[58] Gibson, *The Julio-Claudian* Succession, 117-118.

that Galba may have pursued similar goals as Claudius and wanted to emulate both his and Augustus' reigns. Telling in this respect is that in the Civil Wars-series, when peace was far from established, we find coin-types with the aspirational inscription PACI AVGVSTAE.[59]

The third reverse theme: Galba's competence and power

Let us now turn to the third theme that is reflected in Galba's coinage. This coinage uses a number of rhetorical strategies to assert Galba's military and political prowess. Where the coinage discussed above contained messages relating to the wellbeing and the peaceful state of the Roman Empire, this series contains representations of Galba as supreme leader of the state. As I will show, these representations draw on legend of his "abolishment of the fortieth," images and inscriptions of Augusts' wife Livia, and the depiction of Galba's *adlocutio*.

Several of the coin-types concerned with asserting Galba's military and political prowess carry the inscription QVADRAGENSUMAE REMISSAE. This refers to Galba's "abolishment of the fortieth", an act by which Calba ended a litigation tax that Caligula had imposed several decades prior.[60] This inscription is the only reference on Galba's coinage to a political policy he implemented during his reign. It is telling for the role of coinage that such a financially strict emperor as Galba would have publicly advertised his suspension of a tax. The inscription is even more interesting in light of the imagery that accompanies it. In eight instances, an image of a standing Libertas accompanies the inscription.[61] In eight other instances, the reverse shows an arch on top of which are two equestrian statues. Three captives and an officer proceed towards the arch (see figure 7).[62] How might this scene be interpreted? We know from Suetonius that Galba was awarded the triumphal regalia for his service in Africa and Germania.[63] Those governorships, however, dated from the reign of

[59] *RIC* I, Civil Wars 56-57 (uncertain mint).
[60] Pölönen, "QVADRAGESIMA LITIVM," 80.
[61] *RIC* I, Galba 293, 296, 327, 422, 438-441 (Rome).
[62] *RIC* I, Galba 77-84 (Taracco).
[63] Suet. *Galb.* 8.1.

Caligula and Claudius and were too long ago to be held eligible for a triumph. Another possible interpretation is that it signifies Galba's military triumph after defeating Nero's forces. This answer can be discredited, however, given that no ancient source mentions that Galba had a triumph instituted for his victory in the civil war and given the fact that celebrating a triumph over other Romans was looked down upon.[64] Yet another possible interpretation is that the triumphal arch signifies the victory of Rome and Galba's forces *an sich* and was not meant to refer to any particular conflict or bloodshed. But this idea might also be discredited, given the fact that the coin explicitly depicts captives in chains. In the past, emperors such as Augustus, Claudius, and Nero had adopted a triumphal arch on their coinage, but this coinage did not also depict captives. The fact that Galba's coinage depicts captives when his predecessors' coinage did not suggests that these captives have specific identities. According to Sear, the "three prisoners doubtless represent Nero's rapacious procurators in Spain who, having denounced Galba at the time of his revolt, later paid the price with their lives."[65] It could be that Nero's procurators in Spain were those who, according to Suetonius, were instructed by Nero to have Galba killed.[66] There is no doubt that before Galba left Spain to march on Rome, he put to death loyalists of Nero.[67] Again, the depiction of Roman administrators in chains on coinage conflicts with Roman values.

Outside of this scene and the other two images previously mentioned, two additional distinct scenes can be found on particular coins with the litigation-tax inscription QVADRAGENSUMAE REMISSAE. One coin depicts Galba being crowned by Victory.[68] The significance of Victory has already been discussed above and will not need further clarification. The other coin, however, carries an image relating to a series of coin-types that has not yet been discussed. It features a depiction of Livia, the deified widow of emperor Augustus.[69] As many as 31 other Galba coin-types also

[64] Lange, "Triumph and Civil War in the Late Republic," 71-72.
[65] Sear, *Roman Coins and their Values.*
[66] Suet. *Galb.* 9.2.
[67] Morgan, *69 A.D.,* 38.
[68] *RIC* I, Galba 134 (Lugdunum).
[69] *RIC* I, Galba 433 (Rome).

depict Livia, either seated or standing (see figure 8).[70] All of these coin-types are inscribed with DIVA AVGVSTA ("the deified Augusta") and refer to Livia's official deification during the reign of emperor Claudius. Only one earlier coin-type, from the reign of Claudius, depicts Livia.[71] Why would Galba depict the former empress? The most obvious answer is that Galba, according to Suetonius, had a close relationship with Livia and owed much of his fortune to her. She elevated his position in the inner circles of the Julio-Claudian dynasty and left him a sum of five million *sestertii* in her will.[72] Furthermore, the reference to Augustus' widow also could have been related to the *pax Augusta* trope found in the internal-peace series of coin-types. The portrayal of Livia thus not only emphasizes Galba's fondness for the former empress but also establishes a dialogue between Galba's times and those of Augustus, which Galba wished to recreate.

Finally, another series of coin-types with the litigation-tax inscription QVADRAGENSUMAE REMISSAE depicts Galba standing in military dress alongside several officers. Standing with the officers on a raised platform, he addresses a handful of soldiers. The inscription reads ADLOCVTIO S C (see figure 9).[73] It is clear that the coins depict Galba addressing the praetorian guard. Coins from the reigns of Caligula[74] and Nero[75] similarly portray the emperor addressing the praetorian guard. The inscription confirms that the reverse refers to the custom of adlocution, in which an emperor performatively establishes the legitimacy of his power through a speech to his personal guard. At the same time, these coin-types symbolize the basis of Galba's power: it was only after his military support for Vindex's rebellion and his subsequent victory over Nero's armies, that the senate proclaimed him emperor.

---

[70] *RIC* I, Galba 142-143, 150-153, 184-189, 223-224, 331-338, 432 (Rome), 13-14, 36, 52, 55, 65-67 (Taracco).

[71] *RIC* I, Claudius 101 (Rome).

[72] Suet. *Galb.* 5.2.

[73] *RIC* I, Galba 462-468 (Rome).

[74] *RIC* I. Caligula 32, 40, 49 (Rome).

[75] *RIC* I. Nero 95-97, 130-136 (Rome), 371, 386-388, 429, 489-492, 564-565 (Lugdunum).

Reflection

When studying the ways Galba and his administration used imperial coinage as a device of political communication, it becomes clear that with this coinage Galba wanted to convey three themes in particular: first, his connection with and original base of power in the regions of Hispania and Gallia; second, the coming of a new period of stability and prosperity; and third, Galba's own military and political power. It is interesting to note that these third coin-types do not always coincide with Galba's actual military and political policies: no mention is found of his financial discipline and in only one instance (RIC^2 I, Galba 77-84: reverses depicting the triumphal arch with prisoners) a reference is made to his political persecutions. The plethora of coin-types issued during Galba's brief reign falsely suggest that this period was a prosperous and kind one, laden with financial remissions and political stability. Despite these false suggestions, however, Galba's coinage clearly projects Galba's legitimacy as the head of state. These coins imply unequivocally that Galba — not the senate nor any other military figure who might have opposed him — held the position of highest authority. To project legitimacy, Galba aligned himself with his predecessors by adopting their titulature and, in some cases, their numismatic symbolism. His use of the titles *Caesar* and *Augustus*, references to the Julio-Claudian dynasty, are the clearest examples of this.

It must be stated that this article has not covered every deity or reference that has been employed by Galba's coinage. Multiple references to, for example, Asclepius, Vesta, Ceres, and Pietas are attested, but because these deities or personifications were also such a substantial part of the symbolism of Galba's predecessors, their appearances on Galba's coins did not function to distinguish Galba's reign from those of his predecessors. The practice of referencing such figures on coinage was already widely established before Galba came to power and would endure years after his death. For this reason, they do they do not carry any specific political meaning in the context of Galba's reign.

During his reign, Galba, the first emperor in decades to bring civil war to the Italian peninsula, also dealt with military crises across the Rhine border. None of these events are reflected in his coinage. While the coinage clearly functions to establish Galba as the

supreme leader of the Roman Empire, it does not address directly the military mutinies and other challenges to power that he confronted. This fact shows that in times of crisis, coinage was not used to address specific internal struggles, but much rather to formulate a broad counter-message: one of internal prosperity with a strong leader.

It is telling that Vespasian, the fourth of the emperors that ruled between 68-69 A.D., borrowed quite a lot of numismatic symbolism of Galba. Becoming emperor after defeating Vitellius in several battles, Vespasian possibly found himself in a similar situation as Galba. Both led revolts against an emperor who was officially recognized as such by the Roman senate, and both were burdened with the task of uniting an empire that was stricken with civil war. It is therefore not surprising to find that many of the deities Galba employed to symbolize internal peace and stability also appear on Vespasian's coinage. Examples of such deities are Libertas Restituta[76] and Publica[77], Securitas Romani[78], and Roma Victrix.[79] While the full significance of Vespasian's coin-type choices can only be explained in a study specifically devoted to his numismatic output, the parallels between the coinage of Galba and that of Vespasian suggest a continuity between Galba and the Flavians that was not disrupted by the reigns of Otho and Vitellius.

Conclusion

While the coinage of Galba does not contain references to the ongoing political crises and civil wars that threatened the existence of the Roman Empire following the death of Nero, it certainly chooses to obliquely respond to this crisis in a number of ways: first, it clearly reflects on the origins of the revolt against Nero through numerous references to the provinces of Hispania and Gallia and the town of Clunia. The depiction of Mars Victor, in turn, signifies the ending of the civil war and introduces the second theme Galba addresses through his coins: the new era of internal peace. The frequent depictions in his coinage of Libertas, Salus, Securitas,

[76] *RIC* I, Vespasian 52, 88-89.
[77] *RIC* I, Vespasian 63, 82-87, 137, 141, 173-174, 237, 272, 309.
[78] *RIC* I, Vespasian 38, 281, 326-327.
[79] *RIC* I, Vespasian 196, 397, 506, 619.

Roma, Victoria, and Pax enable Galba's administration to propose an antithesis to the times of civil war and crisis. Finally, through the references to the repeal of the litigation tax of Caligula and to Galba's *adlocutio,* the coinage legitimizes Galba's claim to the imperial throne and his imperial policy.

As stated above, the coinage does not refer to Galba's financial policies other than his repeal of the litigation tax. In this, we see clearly that Galba's coinage only conveyed the messages that Galba and his administration wished to send and only depicted Galba as he wished to be depicted: as a benevolent and just ruler of the Roman Empire ushering in a new era of prosperity and peace after a time of crisis. Mutinies across the Rhine border quickly gave the lie to this narrative. After Galba's assassination, Galba's successors used imperial coinage as a tool to convey different messages informed by their own particular interests and ambitions. When Galba's brief and tumultuous reign came to an end, Galba's portrait was replaced on new coinage by that of Otho, and in just the same way, the messages on the reverse of those coins reflected Otho's ideology rather than that of Galba.

Bibliography

Boruch, Wojciech. "Galba's Propaganda Motifs on Vespasian's Coins." *Notae Numismaticae* 1 (1996) : 74-81.

Buttrey, Theodore. "Vespasian as Moneyer." *Numismatic Chronicle* 12 (1972): 89-109.

Claes, Liesbeth. "A Note on the Coin Type Selection by the *a rationibus.*" *Latomus* 73, no. 1 (2014): 163-73.

Ellithorpe, Corey. "Circulating Imperial Ideology: Coins as Propaganda in the Roman World" PhD diss., University of North Carolina, 2017.

Gibson, Alisdair. *The Julio-Claudian Succession. Reality and Perception of the 'Augustan Model'.* Leiden: Brill, 2013.

Haley, Evan. "Clunia, Galba and the Events of 68-69 A.D." *Zeitschrift für Papyrologie und Epigraphik* 91 (1992): 159-64.

Hannestad, Niels. *Roman Art and Imperial Policy.* Aarhus: Aarhus University Press, 1988.

Hekster, Olivier. "Coins and Messages: Audience Targeting on Coins of Different Denominations?" In *The Representation and Perception of Roman Imperial Power. Proceedings of the Third Workshop of the International Network Impact of Empire (Roman Empire, c. 200 B.C.- A.D. 476), Rome, March 20-23, 2002,* edited by idem, Paul Erdkamp, Gerda de Kleijn, Stephan Mols, and Lukas de Blois, 20-35. Amsterdam: Brill, 2003.

---. "The Roman Army and Propaganda." In *A Companion to the Roman Army,* edited by Paul Erdkamp, 339-58. New Jersey: John Wiley & Sons Ltd, 2007.
---. *Emperors and Ancestors: Roman Rulers and the Constraints of Tradition.* Oxford: Oxford University Press, 2015.
Hjort Lange, Carsten. "Triumph and Civil War in the Late Republic." *Papers of the British School at Rome* 81 (2013): 67-90.
Howgego, Christopher. *Ancient History from Coins.* Leiden: Brill, 1996.
Kemmers, Fleur. *The Functions and Use of Roman Coinage. An Overview of 21st Century Scholarship.* Leiden: Brill, 2019.
Kraay, Collin. *The* Aes *Coinage of Galba. Numismatic Notes and Monographs no. 133.* New York: The American Numismatic Society, 1956.
Levick, Barbara. "Propaganda and the Imperial Coinage." *Antichton* 16 (1982): 104-16.
Manders, Erika. *Coining Images of Power. Patterns and Representations of Roman Emperors on Imperial Coinage, A.D. 193-284.* Leiden: Brill, 2012.
Morgan, Gwyn. *69 A.D. The Year of the Four Emperors.* Oxford: Oxford University Press, 2006.
Norena, Carlos. "The Communication of the Emperor's Virtues." *The Journal of Roman Studies* 91 (2001): 146-68.
Pölönen, Janne. ""QVADRAGESIMA LITIVM" Caligula's Tax on Lawsuits." *Cahiers du Centre Gustave Glotz* 19 (2008) : 77-109.
Sear, David. *Roman Coins and their Values. Vol. 1. The Republic and the Twelve Caesars 280 BC – AD 96.* London: Spink & Son Ltd, 2000.
Sutherland, Humphrey, and Robert Carson. *The Roman Imperial Coinage, Volume 1. Revised Edition.* London: Spink & Son Ltd, 1984.
Wallace-Hadrill, Andrew. "Image and Authority in the Coinage of Augustus." *The Journal of Roman Studies* 76 (1986): 66-87.
Wellesley, Kenneth. *The Year of the Four Emperors.* London: Routledge, 1975.
Wolters, Reinhard. "Die Geschwindigkeit der Zeit und die Gefahr der Bilder: Münzbilder und Münzpropaganda in der römischen Kaiserzeit." In *Propaganda-Selbstdarstellung- Repräsentation im römischen Kaiserreich,* edited by Gregor Weber & Martin Zimmermann, 176-204. Eurasburg: Franz Steiner Verlag, 2003.
---. *Nummi Signati. Untersuchungen zur Römischen Münzprägung und Geldwirtschaft.* Munich: Verlag C.H. Beck, 1999.

Sensing the Anthropocene – The Permanent Ice in Contemporary Art

Chiara Juriatti

In the time between the first Arctic ice recordings in the 1970s and today, forty percent of the Arctic's ice area has vanished.[1] Human greenhouse gas emissions explain this alarming trend.[2] The dire consequences of Arctic ice shrinkage are clear considering the important roles ice plays in different aspects of the Earth's ecosystem. Among its many roles, Arctic ice cools the climate by reflecting sunlight, forms a habitat for humans and animals, and stores the vast majority of the Earth's fresh water. The disappearance of this natural biome not only leads to what is commonly referred to as the "climate crisis," but also to social and political crisis.

Philosopher Bruno Latour criticizes the phrase "climate crisis" and argues that the word "crisis" misleadingly indicates that climate change is something humanity can endure and leave behind. Climate change, he writes, may once have been merely a crisis, but due to humanity's lack of response to it, this crisis has become an "alteration of our relation to the world."[3] For Latour, humanity must not merely tackle climate change, but more broadly change the way it perceives and behaves toward nature. Latour states that due to the assumption that there is a normative model of nature that can be consulted in times of crisis, discussion about climate change is dominated by facts. Facts deriving from natural laws, for Latour, convey the impression that we are looking at the problem from the outside as detached observers. Such detachment, he writes, does not

[1] Wadhams, *A Farewell to the Ice*, 1.
[2] *Id.*, 52.
[3] Latour, *Facing Gaia*, 8.

move humans toward action.[4] Latour therefore sees a need to raise awareness of environmental processes through something that "touches our hearts," thus making humans sensitive to and moved by the environment.[5]

Informed by Latour's assumption that affect must be added to the climate debate, this article will investigate the potential of artworks to engage people at this level. As a way of pointing to the grave ecological, social and political problems that result from the vanishing of permanent ice, environmental artists have turned to ice as an ephemeral medium capable of shifting in aggregation state. In this article, I will study four ice-based contemporary art responses to climate crisis, installations which function as intermediaries between the consequences of human agency and humans themselves. More than through scientific reports and media coverage, ice-based art allows for an immediate understanding of climate change through multisensory engagement.

The first work that I will analyze is *The Taste of Discovery* (2009) by Mathias Kessler. This immersive installation is experienced in part through sensation of temperature. The work partly consists of a room cooled to -20°C room containing pictures of Arctic icebergs photographed at night. In the second and third work that I will analyze, sound takes center stage. Katie Paterson's sound installations *Langjökull, Snæfellsjökull, Solheimajökull* (2007) and *Vatnajökull (the sound of)* (2007/08) primarily address the viewer's acoustic sense, transforming the materiality and sound of four different Icelandic glaciers into intimate sound artworks. Lastly, I will examine Olafur Eliasson's installation *Ice Watch,* which addresses the viewer's sense of touch. Eliasson places twelve blocks of arctic ice harvested in Greenland in three different city centers. Passers-by are allowed to touch the ice blocks, decreasing the distance between themselves and the polar environment. The four works I will discuss are particularly relevant to the question of the future of the permanent ice because they not only include features of ice that appeal to multiple human senses, but also touch

[4] *Id.*, 49.
[5] *Ibid.*

upon social problems that are connected to the disappearance of glacial ice.

To approach the multisensory qualities of these works, my analysis will make use of Arnold Berleant's theory of aesthetic perception and sensibility and Simon O'Sullivan's account of affect theory. Guided by the frameworks offered by Berleant and O'Sullivan, my objective is to show that by appealing to more than just the visual sense, ice installations have a great potential to influence people's understanding of the climate crisis and their relationship with nature. I aim to demonstrate that the sense-centered characteristics of ice installations can increase public understanding of the problem that led to climate change — namely, human agency — and can make its threat to our world more comprehensible. I am primarily interested how contemporary artists use and portray the materiality of permanent ice, as well as how its multi-sensory experience can create an aesthetic field that allows for discussions about climate change and, more generally, about humans' impact on nature.

Ice as a Medium

The rising temperatures and increased melting of permanent ice observed in recent decades is not a result of environmental events predating industrial times, but specifically a result of human pollution of the Earth's climate since the start of the Industrial Revolution.[6] Since the early nineteenth century, human actions like concrete construction have resulted in CO_2 emissions with measurable adverse effects on the Earth on topographical, biological and chemical levels.[7] This leads chemist Paul Crutzen to coin the term "Anthropocene," describing the geological epoch that discloses human activity as the primary force shaping the Earth's geology. The climatic and geological changes caused by human activity can be observed by the archival aspect of permanent ice, which shows a steady increase in carbon dioxide and methane emissions since the late eighteenth century.[8] Contemporary transformations of permanent ice are amongst these implications. Studying the positive

[6] Zalasiewicz et al., "The new world of the Anthropocene," 2229.
[7] *Ibid.*
[8] Crutzen, "Geology of mankind," 23.

feedback loop of rising temperatures, arctic scientist Peter Wadhams comes to the conclusion that anthropogenic climate change will not cause another ice age.[9] On the contrary, it would prevent a future ice age from happening if the Earth's orbit were to return to the position it occupied in the time before the Holocene glacial retreat.[10] Ice, therefore, plays an important role in assessing the extent of anthropogenic environmental damage because, on the one hand, in its ice layers it stores information about the concentration of chemicals in the atmosphere, and on the other, as a fragile ecosystem it is endangered itself. This dual function means that ice serves as an ideal medium for artistic response to the Anthropocene and its climate changing processes.

The material qualities of ice are intrinsically tied to the climate. Because of its bright white color, ice reflects sunlight and cools down the earth. Furthermore, ice possesses dynamic features, characteristics that demonstrate its agency. Ice moves and ice floats. Most importantly for the Earth's climate, ice, alternately freezing and melting, is constantly in flux. It acts upon and is acted upon by outside influences that provoke it to change phase. This entangled movement is what Latour calls "agency:"

> [W]e encounter, ... an agent which gains its name of "subject" because he or she might be subjected to the vagaries, bad humor, emotions, reactions, and even revenge of another agent, who also gains its quality of "subject" because it is also subjected to his or her action. ... To be a subject is not to act autonomously in front of an objective background, but to share agency with other subjects that have also lost their autonomy.[11]

Humans cannot call themselves the only subjects or agents because their agency influences the environment and provokes dynamic

[9] This bold assumption is supported by Andrew J. Weaver and Claude Hillaire-Marcel (2004) who argue that anthropogenic climate change will lead to a shut-down of Atlantic meridional overturning circulation that works as a cooling of the Earth by transporting warm water to the sea ice.
[10] Wadhams, *A Farewell to the Ice*, 44-45.
[11] Latour, "Agency in the Time of the Anthropocene," 5.

reaction. As human agency triggers changes in glacial ice and these changes in turn influence the human subject, it is necessary to acknowledge nature's agency.

Permanent ice should not only be seen as a material, the changing aggregation which visualizes the implications of climate change, but also as a medium that tells about the social and environmental context in which the ice is situated. Recognizing weather and atmosphere as media, Janine Randerson remarks, allows climatic conditions to be understood as central to and determinative of — rather than simply a background for — human life.[12] Understood as a form of media, ice again demonstrates its agency. In that the body always senses temperature, the coolness of ice connects humans to their environments and makes apparent their bodily dependency on the climate. According to Desiree Förster, it is possible to sensuously perceive the factors leading to the processual emergence of climate.[13] Ice lends itself well to such sensuous perception. One's being located in a glacial environment, for example, makes it possible to observe changes in ice and the influences of these changes on one's human body. These observations make comprehensible the circumstances that lead to the particular composition of one's environment — for example, the causal relation between rising temperatures and the vanishing of ice — and in this, the entanglement of humans and nature.

Permanent Ice in Contemporary Art

In contemporary art, the vulnerability of permanent ice in the Anthropocene is often approached through installations that call for multi-sensory perception. These approaches invite us to consider the link between sensory experience and aesthetics. According to Arnold Berleant, who has studied this link, the etymology of aesthetics shows its intrinsic relation to sensuous experience: the term "aesthetics" stems from the Greek words *aisthetikos* meaning "of or for perception by the senses" and *aisthanesthai* meaning "to perceive, to feel."[14] Berleant uses this definition to identify two ways of understanding a work of art: "As an art object it is the product of

[12] Randerson, *Weather as Medium, Toward a Meteorological Art*, xvii.
[13] Förster, *Aesthetic Experience of Metabolic Processes*, 81.
[14] Berleant, *Sensibility and Senses*, 20.

some activity; it is something made. As an aesthetic object, it is the object as it works in perception."[15] Aesthetic experience of a work of art is not defined by the constructed nature of the work, but can be understood as a directed perception of a situation capturing human attention.[16] To describe this attentive perception, Berleant uses the word "sensibility," which describes aesthetic experience as inherently conscious. That is to say, when humans perceive an object or a situation aesthetically, they do this with focused attention and high awareness of the object or situation they are looking at.[17]

According to Berleant, aesthetic perception is free of judgement, but not free of filters. As a result, any individual's aesthetic perception is shaped by cultural, political, and social influences.[18] Berleant remarks that these filters are what turn sensation into experience: While sensory perception is a neutral process in the human body, experience is mediated by pre-existing conceptions and makes meaning out of the perceived situation. Thus, he argues, meaningful experience must not be confused with physical sensation, which precedes it.[19] Berleant furthermore mentions the unique character of aesthetic experience in relation to other forms of experience such as the religious:

> [U]nlike the religious, it [the aesthetic] requires no myth or doctrine to explain and justify itself, nor does it lead us beyond to a different realm. The aesthetic is content to remain exactly what and where it is, and to elaborate skeins of memory, understanding, and especially of active and intense perceptual awareness on its own. In this sense, the aesthetic is self-sufficient and self-gratifying, and therefore, I believe, most authentic.[20]

[15] Berleant, "Aesthetic Sensibility," 6.
[16] Berleant, *Sensibility and Senses*, 22.
[17] Berleant, "Aesthetic Sensibility," 5.
[18] Berleant, *Sensibility and Senses*, 21-22.
[19] *Id.*, 27.
[20] *Id.*, 30.

Berleant makes clear that no beliefs or tools are requisite for aesthetic experience. This experience takes place without — but at the same time is always interpreted through — pre-existing knowledge and attitudes.

From this discussion of aesthetic experience arises the question how aesthetics relate to ethics. Emily Brady, engaging with the topic of aesthetic values, states that, "[t]he careful perceptual attention required and exercised in the experience of art may enable one to more carefully observe important features and detail in a complex moral problem."[21] She argues that through a practiced aesthetic perception that makes the perceiver attentive to the qualities of the object or situation, a better knowledge of the very object or situation can develop. From this knowledge can arise a ground for moral understanding, although there is no guaranteeing the direction in which such a moral understanding evolves, whether toward an object, situation, or environment.[22] If one's moral understanding evolves from cherishing a certain environment, Brady states, one will most likely make sure to care for the well-being of this environment.[23] Like Berleant, Brady accentuates the significance of multi-sensory engagement as a facilitator of aesthetic experience, mentioning the "penetrating" and memorable effect of aesthetic perception on its perceiver.[24]

Ice as Materiality

Because the aesthetic is a way of perceiving the world that goes beyond the apprehension of beauty, it can reconnect its perceivers with the environment that surrounds them, allowing them to relate to this environment not from the outside as neutral bystander, but as integral part of the ecosystem. The aesthetic does not take the form of graphs and numbers but of something perceivable by the senses. Simon O'Sullivan puts forward this understanding of the relationship between the human, the aesthetic, and the environment in his account of affect theory. Affect, according to O'Sullivan, is a

[21] Brady, "Aesthetics in Practice," 280.
[22] *Ibid.*
[23] Brady, "Aesthetics in Practice," 280.
[24] *Ibid.*

"reaction in/on the body at the level of matter,"[25] and therefore connects it primarily to humans' materiality. An affect is an impersonal reaction, as O'Sullivan describes it, because it is a way the human body responds to the materiality of its surrounding environment. In this, art does not represent a specific object, but rather initiates an effect on the human body that makes invisible entities sensible.[26] Melting ice materializes an ecosystem in transition. The artwork changes from being an object to being what Berleant calls an aesthetic field, a space that possesses its own agency.[27]

Thus, the first step for aesthetic perception of an environment has to be to attribute materiality to both the perceived environment and the perceiver. In the context of permanent ice, the materiality of the environment is as Petra Lange-Berndt phrases it: "materials are neither objects nor things."[28] Following Lange-Berndt, we can draw a distinction between ice as *object* and ice as *material*. Ice as object would be glacial ice as instrumentalized for political and economic purposes, ice that humans use for their own agenda. Ice as material, on the other hand, is pure ice itself: a nonhuman entity with its own agency.

To materialize permanent ice means to de-objectify it and acknowledge its material agency. As an agent, ice is not a mere carrier of information, but an inherent part of a changing environment. Monika Wagner states: "Material needs no longer to be understood as a detachable carrier for a form or an idea, but can be regarded as indissolubly interwoven with it."[29] In ice-based art installations, the visitor encounters ice as the natural material that it is: it is not a symbol, not a vehicle for meaning, and it cannot be *used* for any human ends.

[25] O'Sullivan, "The Aesthetics of Affect, " 126.
[26] *Id.*, 128-129.
[27] Berleant, *Sensibility and Senses*, 76.
[28] Lange-Berndt, "Introduction: How to be complicit with materials," 13.
[29] Wagner, "Material," 27.

Artist Mathias Kessler, for instance, departs from the ice as an object to contrast it with the ice as a material. The installation *The Taste of Discovery* (Fig. 1) originated from Kessler's expedition to the Arctic, where he took nocturnal pictures of icebergs. The installation is divided into two separate rooms. One is a cramped room in which visitors can experience the inside of an expedition cabin with all their senses. An electric generator produces a foul smell, deafening noise, suffocating warmth. This disagreeable space de-romanticizes the idea of an Arctic expedition. The second room of the installation is a freezing black box. The room has a temperature of approximately −20°C, which is maintained by the generator in the first room. In this room appears one of Kessler's iceberg photographs, separated from the viewer by a glass wall. On

Figure 1: Mathias Kessler, *The Taste of Discovery*, 2009, Photo © Mathias Kessler, 2009, installation view Kunsthalle Dornbirn

the floor behind the glass is water.[30] In Kessler's installation, permanent ice manifests itself materially not as photographed icebergs but as the water. By directly contrasting two states of aggregation through the photograph and the water, the vanishing aspect of permanent ice is accentuated. Kessler juxtaposes the Romantic sublime landscape with the reality of the vanishing material.

Kessler comments on Arctic expeditions that coincided with the era of Romanticism, a period when the British navy, in pursuit of new territories, sought a Northwest passage connecting the Atlantic and Pacific oceans.[31] Artworks of the time reflect the idea that it was heroic and patriotic to risk one's life for Arctic exploration. Alongside the landscape painting *The Sea of Ice* (1823-24) by Caspar David Friedrich, the "great painting" *The Icebergs* (1861) (Fig. 2) by Frederic Edwin Church is one of the most famous paintings from its time depicting the northern ice. Created from descriptions of the Arctic, the painting captures the magnitude and danger of the icebergs as well as the aesthetic and spiritual character of the scenery. The viewer is confronted with huge floating icebergs

Figure 2: Frederic Edwin Church, *The Icebergs*, 1861, oil on canvas, 163.83 cm x 285.75 cm, Dallas Museum of Art, gift of Norma and Lamar Hunt, 1979.28, Image Courtesy Dallas Museum of Art

[30] Kunstraum Dornbirn, "Mathias Kessler – The Taste of Discovery."
[31] Officer and Page, *A Fabulous Kingdom*, 63.

which hint at their even-greater underwater magnitude. The overwhelming character of their grandiosity is highlighted by the fading light of the afternoon sun and the mast in the foreground of the painting. An overturned ship points to the fate of many expeditioners that did not make their way back home, symbolizing man's powerlessness against the forces of the ice. This motif points to the risk explorers must take in order to achieve great things for their nations. It reflects the aesthetic concept of the "sublime," a typical motif in Romanticist paintings. Iain Boyd Whyte describes the sublime as an affect or experience: when confronted with a sublime landscape, the perceiver feels overwhelmed and threatened by the magnitude and force of nature.[32] Immanuel Kant states that the sublime leads the individual to feel superiority over the natural landscape, because even if the sublime thing threatens material life, the conscious soul is eternal.[33]

By the fact that he captured the iceberg photographs appearing in his installation while on his own Arctic expedition, Kessler refers to the sublime pursuit of the Arctic. He also refers to this pursuit through the form and content of the photographs themselves. They show pristine icebergs floating in dark water. Through this stark contrast, Kessler portrays the ice both as an aesthetic entity and a menacing imposition. With his installation Kessler does not attempt to replicate the Arctic sublime paintings of the nineteenth-century; rather, he is critical of Romantic depictions of nature, arguing that they are the source of our contemporary misguided understandings of nature:

> Think about Romantic landscape painting in the context of greenwashing. Think about mimesis and how artworks reproduced the world around us. ... Since then, I feel strongly that the idea of mimesis and abstraction have created a second world on the Internet, allowing us to slowly remove ourselves from the actual place in which we live.[34]

[32] Whyte, "The Sublime: An Introduction," 16.
[33] Kant, *Critique of the Power of Judgment,* 144.
[34] "A Conversation between David Ross and Mathias Kessler," 217.

Romanticized conceptions of nature, according to Kessler, make their way into the virtual realm where they create a world detached from its actual material conditions. In a way, Kessler's visual presentation of ice photographs in *The Taste of Discovery* refines Kant's notion of the sublime: instead of the eternal life of the conscious soul, it is virtual technology which represents human superiority over nature. In placing the iceberg photographs in close proximity to the cramped room containing an electric generator — the human world dominated by fossil fuels — Kessler reveals the environmental burden of the production of such pictures. This de-romanticizes the experience of Kessler's installation.

The two juxtaposed depictions of ice in the installation are based on the two different notions of ice. Firstly, in the photography, ice is displayed as a solid object that can be looked at from a distance. The ice is something to be marveled at by the human spectator, who takes a detached position. This is equivalent to the position people take when looking at catastrophic climate change scenarios as if they were not implicated, even though these scenarios are consequences of humanity's willful lack of response to the climate crisis. Secondly, in the installation's use of water, ice exhibits its materiality, its capacity to melt and otherwise change in response to outside influences. The transition from one aggregation state to another — solid to liquid — shows the material's agency. In portraying the different aggregation states of the ice in connection to human actions, *The Taste of Discovery* gives ice visual and material identities.

The human observer and the materiality of glacial ice are connected through the prevailing cold temperature in the room containing photographs of icebergs. The coldness of the room has an effect on the visitors' body. They start to experience ice not exclusively with their eyes but also partly with their bodies. Hairs begin to rise, muscles to contract and noses to run: the ice's immanent materiality influences the human body; thus, an aesthetic field develops wherein humans' experience of their own materiality fuses with their perception of an environment. This can be considered as an affect, as O'Sullivan describes it: an impersonal bodily reaction to the surrounding environment. Clearly, the affect arising from entering the cold room is based on an utterly

impersonal process: every human involuntarily responds to temperature with their matter. In stimulating a physiological response through the artwork, Kessler invokes affects that intertwine perception of the environment with the perception of one's own body. The artwork situates humans in an ecosystem — where Latour argues humanity must urgently see itself situated — and creates a bond between the two entities.

Acoustic and Visual Sensation

Unlike experiencing the physical materiality of ice, experiencing the sound of ice seems more difficult. While other natural phenomena like wind, fire, and water have a variety of specific and identifiable sounds, ice would seem limited in its noise-generating qualities. Ice makes a sound when it crushes under tension and makes some other sounds related to changes in its aggregation state, as when it melts into water or freezes from water. Other than that, ice is fairly quiet. In order to grasp sound, a special physical process is required. Sonic perception sets itself apart from the other senses in that, in addition to the perceiver and the perceived, it also includes the proximate environment into the interaction. Sound arises from the vibration of an entity which produces waves moving through space.[35] The characteristics of the milieu in which the sound is generated, therefore, have a great influence on the quality of the sound. But sound also connects humans and the environment in a non-auditory way, as Makis Solomos remarks. Due to the physical genesis of sound, humans are able to feel it.[36] Thus, sound is a trace of agency and constitutes agency's immersion in its environment. According to O'Sullivan's understanding of affect, to place one's corporeality into such a sound environment is to open up new worlds of reference.[37] Being affected by materialities allows for what O'Sullivan calls "resingularisation," the reconfiguring of our position in the world.[38] In other words, sensing ice on an auditory level helps to develop an understanding of the environment and to discern the place humans take up in the modification of the environment.

---

[35] Solomos, "From Sound to Sound Space," 95-96.
[36] *Id.*, 99.
[37] O'Sullivan, The Aesthetics of Affect, 129-130.
[38] *Id.*, 129.

Katie Paterson's artwork *Langjökull, Snæfellsjökull, Solheimajökull* (Fig. 3) consists of three records that are made not out of vinyl but glacial ice water. During a residency in Iceland, Paterson recorded the sounds of three different glaciers melting and preserved their melted water. Subsequently, she froze the water again and pressed the resulting ice into three phonograph records, each with a track containing the recorded sound of their original melting. It takes the records an approximate duration of two hours to completely melt again. The artwork's short lifetime stresses the comparably fast progress with which permanent ice is now disappearing. Moreover, the unrepeatability of the record track reflects the uniqueness of its natural source; once the ice is gone, it is gone forever and only a digital testimony of its disappearance remains. The seeming assimilation of the artwork and the natural environment, however, also highlights their difference: the artwork can be played over and over again in the form of a video, but the source of the material and the sound — namely the arctic ice — cannot on the basis of current scientific knowledge be rehabilitated.

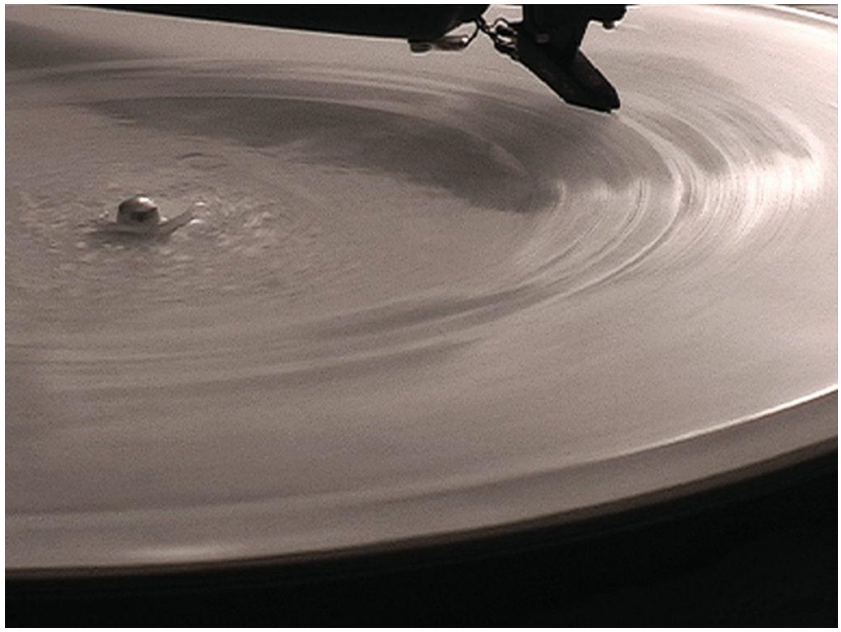

Figure 3: Katie Paterson, *Langjökull, Snæfellsjökull, Solheimajökul*l, 2007, Film Still

Paterson makes the many lives of permanent ice — ranging from its past materiality to its future negativity — accessible through the intimate medium of sound.

The sound installation aligns space with time as Paterson creates an aesthetic field in which space and materiality are experienced through time. This entanglement refers to the specific function of permanent ice as the Earth's archive. Every layer of the centuries-old ice provides information about climate conditions throughout history. The ice becomes a witness to human agency. As reports show, human agency can already be detected in the ice in the form of microplastics.[39] Paterson's records illustrate this inextricability of human time and Earth time, their spaces and their materiality, by recontextualizing vanishing ice within the human activity of listening to music on a phonograph record. As the artist explicates, her work is informed by an "understanding that we are not separate from the Universe, but are intrinsically linked."[40] As the time and space of the Arctic ice environment comes to an end, the time and space of humans will too, making the artwork an illustration of the Anthropocene and attempt at envisioning the direction in which Earth in the Anthropocene is headed.

In that sense, the artwork utilizes the absence of sound as a trigger of affect. The inevitable decay of the records ultimately results in silence. This draws attention to the silencing of the glacial environment brought about by climate change.[41] The silence Paterson's stages takes its gravity from the fact that it explicitly grows out of a sound. *Langjökull, Snæfellsjökull, Solheimajökull* not only visualizes and materializes the implications climate change has on permanent ice, but also gives it an acoustic form. Silence in Paterson's work, therefore, is not a meaningless void; it is the sequence of the art installation most pregnant with significance because it foreshadows the Earth's future.

[39] Kanhai et al., "Microplastics in sea ice and seawater," 1.
[40] Ball, "Artist of deep time," 457.
[41] McKinnon, "Dead Silence," 74.

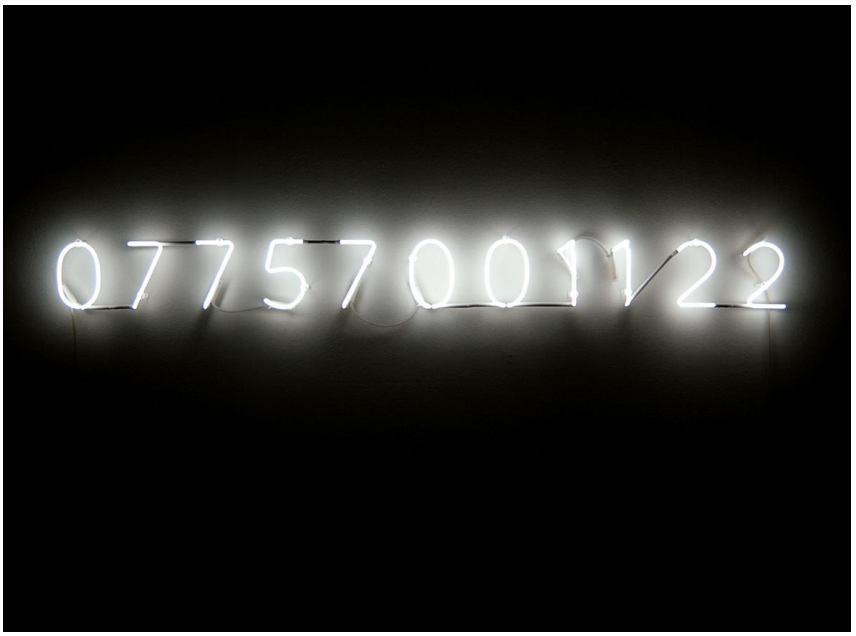

Figure 4: Katie Paterson, *Vatnajökull (the sound of)*, 2007/8, Photo © Katie Paterson, 2008, installation view, Modern Art Oxford

Paterson's sound installation establishes an intimate connection between humans and vanishing ice, yet the ice in this installation lacks agency and resists being known other than as an object to be observed. Paterson grants ice agency in her installation *Vatnajökull (the sound of)* (Fig. 4), which consists of a telephone number made out of neon lights on a wall. When calling this number, visitors were connected to a live phone line placed on the Icelandic glacier Vatnajökull. Though the telephone connection, the visitor could hear the glacier melt in real time. In this work, like *Langjökull, Snæfellsjökull, Solheimajökull*, the geological time of the glacier and human time are aligned.[42] The physical distance that lay between the human caller and the glacial environment is overcome, bringing close what is distant. The connecting phone line creates a space that for a moment of time is prepossessed by both parties of the call. The caller experiences sound in a familiar situation of intimate communication, a situation that brings with it particular expectations for conversational behavior. This makes it

[42] McKinnon, *Dead Silence*, 74.

possible to experience the ice as a dynamic entity on Earth equal to oneself. The caller hears the melting ice's dripping sound not as a melody to which they listen to, but as part of a conversation between two parties. The conversational situation of the phone call prompts a response. The glacier on the line not only elicits a literal response but also a metaphorical one: the environment calls on humans to respond to the climate crisis.

Multi-sensory interaction

Having demonstrated the potential of contemporary art to visualize the materiality and agency of ice, I will turn to an ice installation by the artist Olafur Eliasson. This work offers a further possibility for sensory experience of ice: engaging the viewer's sense of touch. In 2014, Eliasson worked with geologist Minik Rosing to develop the installation *Ice Watch* (Fig. 5). This installation was a response to the Intergovernmental Panel on Climate Change's publication of the *Fifth Assessment Report on Climate Change*. *Ice Watch* consist of twelve large ice blocks placed for exhibition not in museums or galleries but outdoor public spaces in Copenhagen, London, and Paris. Viewers freely approach and experience the ice blocks

Figure 5: Olafur Eliasson and Minik Rosing, *Ice Watch*, 2018, bankside, outside Tate Modern, London, Photo © Justin Sutcliffe, 2018

without a formal exhibition framing. Although the installation is conceived as an answer to the IPCC report, this is not made explicit on site. In this, Eliasson creates a space for aesthetic experience informed principally not by the artist's own interpretation of his own work, but the viewer's physical sensations and affects.

That said, Eliasson and Rosing construct the installation in a way as to intervene in the climate debate. In a prominent public location in the city of its installation, the twelve blocks of ice are arranged to form a circle, as if each one was a number on a clock face. The blocks, which were found freely floating in a fjord in Greenland, together weigh 80 tons, the same amount of ice that melts in the Arctic every millisecond.[43] Through the visual representation of a clock and artwork's ongoing melting process, Eliasson and Rosing imply that time is running out to prevent further environmental damage. Furthermore, the placement of the ice in the city shows that the atmosphere that humans create — whether it is climatic or political — is threatening the environment. The artwork becomes a call for action, predominantly one directed at people of power because of its temporal overlap with the publication of the IPCC report. In addition to a clock face, Eliasson calls the circular composition a "parliament,"[44] a name which indicates the importance of human political involvement in responding to the climate crisis and the ice's own agency that makes us aware of this crisis.

The work visualizes and materializes the ice' agency: its melting process. The visitors are encouraged to touch the work and thereby come into direct physical contact with the melting ice. Eliasson breaks with the habit of displaying art at a distance, where guards customarily supervise gallery and museum visitors and ensure that they keep a distance from the art and remain merely spectators rather than participants. Rather, Eliasson and Rosing's ice blocks immersively engage the humans who wander amongst them. As Hélène Frichot notes about Eliasson's works, "the atmospheric pressure of Eliasson's work is such that it demands the visitor's engagement beyond that of a mere onlooker; it is an interaction that

[43] Eliasson, "Ice Watch."
[44] *Ibid.*

encourages the mutual transformation of both the visitor and the work."[45] The performance of *Ice Watch* entails both the vanishing of the ice blocks and of the visitor's preconceived notions about bodily engagement with art. The bodily behavior that the work encourages is inherently different from the behavior that museum visitors must show when moving through a gallery space. As a video of the installation illustrates, people touch the ice and press their ears to it, listening for the sound of its melting, and children play on it.[46] Allowing unrestricted access to their work, Rosing and Eliasson want to underline the importance of discussing climate change in a way that is based on appreciation of sensory experience rather than assignment of guilt.[47]

With the viewer's simple experience of ice's coolness, the artwork creates an aesthetic field that engages the human body. Eliasson imagines that his atmospheric works of art might have transformative potential: "We learn to see ourselves in a different light."[48] Frichot, writing of this potential, argues that affect in Eliasson's work is not an evocation of an emotional state but the performance of a shift in emotional states, as for example from happy to sad.[49] The affect, rather than corresponding to specific emotions, is a play of intensities that enables the reordering of the human world. It supports the rethinking of preconceived concepts because it makes abstract information comprehensible. Although it is common knowledge that ice is cold, directly experiencing this coldness intensifies such knowledge. The direct experience of vanishing ice can lead to a similar intensification. A multitude of reports and statistics illustrate scientifically the accelerating melting process of glacial ice and attribute this clearly to human activity. But in directly perceiving the vanishing of ice, an affect is inscribed in the viewer's body which shifts the bodily state of the viewer from detached observer of the problem to active participant. The outcome of this shift — whether this leads the viewer to feel a sense of active participation in the process of destroying nature, or to the

[45] Frichot, "Olafur Eliasson and the Circulation of Affects and Percepts," 32.
[46] Youtube, "Arctic Ice Art displayed in Paris," Eliasson, "Ice Watch."
[47] Eliasson, "Ice Watch."
[48] Frichot, "Olafur Eliasson and the Circulation of Affects and Percepts," 34.
[49] *Ibid.*

viewer feeling a sense potential to respond to the crisis, is dependent on the cultural, social and political filters with which the viewer approaches the work.

Conclusion

Art installations that thematize the role of permanent ice in the climate crisis predominantly use the ice's melting process to illustrate the urgency of the global situation. All three artists whose works I have considered as case studies portray permanent ice as a vanishing ecosystem and each relates this ecosystem to the human realm: Kessler in disclosing Arctic exploration and fossil fuels as a reason for disappearing ice, Paterson in giving a voice to ice by playing the sound of its melting on a record player and by transmitting this sound through a telephone line, and Eliasson in placing ice blocks in an urban environment. In my analyses, Latour's concept of nonhuman agency played an important role in illustrating the drastic climatic transformations currently affecting the materiality of permanent ice. Unlike in the Arctic landscape paintings of Romanticism, the artists I have studied portray ice as the suffering entity in the human-nature relationship. Putting vanishing ice on center stage, these artists reverse the sublime motif: while in the nineteenth century ice is the threatening entity, in the twenty-first century ice turns into the threatened entity.

In order to make it possible for a viewer to experience the agency of permanent ice, the artists use different strategies to engage the senses, contributing to an expansion of ice-related phenomenological experience. Reaching viewers through modulations of temperature, sound, haptic feeling, and taste, these artists elicit affects having the potential to generate environmental awareness. Although it cannot be stated in what ways the affects elicited by the artworks discussed actually influence moral understanding, they at least establish a space for interaction that provokes a rethinking of the human-nature relationship.

Bibliography

Ball, Philip. "Artist of deep time." *Nature* 568, no. 7753 (2019): 457.
Berleant, Arnold. "Aesthetic Sensibility." *Ambiences* (2017): 1-9.
---., *Sensibility and senses: the aesthetic transformation of the human world*, Exeter: Imprint Academic, 2010.
Brady, Emily. "Aesthetics in Practice: Valuing the Natural World", *Environmental Values* 15, no. 3, (2006): 277-91.
Buchhart, Dieter ed. "A Conversation between David Ross and Mathias Kessler," In *Nowhere to be found*, 216-27. Ostfildern: Hatje Cantz, 2015.
Crutzen, Paul J. "Geology of mankind." *Nature* 415, no. 6867, (2002): 23.
Eliasson, Olafur. "Ice Watch." *Archive Artwork*. Accessed 5 May 2021, https://olafureliasson.net/archive/artwork/WEK109190/ice-watch
Förster, Desiree. *Aesthetic Experience of Metabolic Processes*. Lüneburg: meson press, 2021.
Frichot, Hélène. "Olafur Eliasson and the Circulation of Affects and Percepts: In Conversation."*Architectural design* 78, no. 3, (2008): 30-35.
Kanhai, La Daana K., et al. "Microplastics in sea ice and seawater beneath ice floes from the Arctic Ocean." *Scientific Reports* 10, no. 5004, (2020): 1-11.
Kant, Immanuel. *Critique of the power of judgment*. Cambridge [etc.]: Cambridge University Press, 2000.
Kunstraum Dornbirn. "Mathias Kessler – The Taste of Discovery." 2009. Accessed 4 May 2021, https://www.kunstraumdornbirn.at/ausstellung/mathias-kessler
Lange-Berndt, Petra. "Introduction: How to be complicit with materials." In *Materiality,* edited by Petra Lange-Berndt., 12-23. London: Whitechapel Gallery, 2015.
Latour, Bruno. *Facing Gaia, Eight Lectures on the new Climate Regime.* Cambridge [etc.]: Polity Press, 2017.
McKinnon, Dugal. "Dead Silence: Ecological Silencing and Environmentally Engaged Sound Art." *Leonardo music journal* 23, (2013): 71-74.
O'Sullivan, Simon. "The Aesthetics of Affect: Thinking art beyond representation." *Journal of Theoretical Humanities* 6, no. 3, (2001): 125-135.
Officer, Charles and Jake Page. *A Fabulous Kingdom: The Exploration of the Arctic*. New York: Oxford University Press, 2012.
Randerson, Janine. *Weather as Medium, Toward a Meteorological Art*. Cambridge [etc.]: MIT Press, 2018.
Solomos, Makis. "From Sound to Sound Space, Sound Environment, Soundscape, Sound Milieu or Ambience." *Paragraph (Modern Critical Theory Group)* 41, no. 1, (2018): 95-109.
Wadhams, Peter. *A farewell to the ice: a report from the Arctic*. New York: Oxford University Press, 2017.
Wagner, Monika. "Material." In *Materiality,* edited by Petra Lange-Berndt, 26-30, London: Whitechapel Gallery, 2015.

Whyte, Iain Boyd. "The Sublime: An Introduction." In *Beyond the Finite: The Sublime in Art and Science*, edited by Roald Hoffmann and Iain Boyd Whyte, 3-20. Cary: Oxford University Press, 2011.

Zalasiewicz, Jan, et al. "The new world of the Anthropocene." *Environmental Science & Technology* 44, no. 7, (2010): 2228-2231.

Youtube. "Arctic Ice Art displayed in Paris." Accessed 5 May 2021, https://www.youtube.com/watch?v=Tpe4o9_n8AM