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Captivating objects and the taste of performance: probing the affects of scientific objects

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Abstract

This paper describes a series of experimental set-ups in Rijksmuseum Boerhaave, the Dutch National Science Museum in Leiden, dedicated to probing the affects of scientific objects. These set-ups are part of an interdisciplinary research project centring around the issue of how to present and engage with immaterial or complex science technologies. This research combines two fields of expertise: curatorial practice in a science museum and scholarship in dramaturgy and scenography. It probes the potential of affect, understood as the capacity to affect and to be affected, while finding inspiration in new materialist theory. By using dialogue next to discursive argumentation, the paper discusses some questions and issues that were raised by these experimental set-ups and proposes that a focus on affect and materiality – thinginess, in brief – can inspire the collection and presentation of scientific objects. Attending to thinginess can expand the curatorial agenda and asks for scenographic strategies to support this.

Keywords

affect; new materialism; thinginess; curating; science museum; interdisciplinary exchange

Objetos cautivadores y el sabor de la representación: sondeando los afectos de los objetos científicos

Resumen

Este documento describe una serie de configuraciones experimentales en Rijksmuseum Boerhaave, el Museo Nacional de Ciencias de los Países Bajos en Leiden, dedicado a investigar los afectos de los objetos científicos. Estas configuraciones forman parte de un proyecto de investigación interdisciplinario centrado en el tema de cómo presentar e interactuar con tecnologías científicas complejas o inmateriales. Esta investigación combina dos campos de experiencia: la práctica curativa en un museo de ciencias y la beca en dramaturgia y escenografía. Sondea el potencial de afecto, que se entiende como la capacidad de afectar y de ser afectado, mientras encuentra inspiración en la nueva teoría materialista. Al utilizar el diálogo junto a la argumentación discursiva, el artículo analiza algunas preguntas y problemas que se plantearon con estas configuraciones experimentales y propone que un enfoque en el afecto y la materialidad, en resumen, puede inspirar la recopilación y presentación de objetos científicos. Atender la materialidad puede ampliar la agenda curativa y pide estrategias escenográficas para apoyar esto.

Palabras clave

afecto; nuevo materialismo; materialidad; curaduría; museo de ciencias; intercambio interdisciplinario

Introduction

This paper describes a series of experimental set-ups in Rijksmuseum Boerhaave, the Dutch National Science Museum in Leiden, dedicated to probing the affects of scientific objects. This research combines two fields of expertise: curatorial practice in a science museum and scholarship in dramaturgy and scenography. We share an interest in affective approaches to objects, whether scientific, artistic or ordinary and found a common ground in Jane Benett's *Vibrant Matter* (2010), one of the cornerstone publications of new materialism, an interdisciplinary discourse that spans across quantum physics, (science) philosophy, critical and feminist theory, art and performance studies and more. In this research project, the concept of affect is understood as sensation or intensity, bodily or otherwise, in line with the Spinozist dictum of affect as the capacity to affect and to be affected (Massumi 2002, 15) and inspired by Ernst van Alphen and Tomáš Jirsa's performative take on affects.

Over the past decade, many science museums have taken an affective turn, with exhibitions transforming from hagiographic, information-based spaces into atmospheric, storytelling experiences (Varutti 2022).[1] Instead, we are interested in how a focus on affect may inspire the presentation and collection of scientific objects. In this paper, we aim to "perform" some of the intensities of interdisciplinary exchange, in which we approached the collaboration between curatorial and scenographic knowledge as radically open-ended. Via experimental set-ups in exhibits and in Rijksmuseum Boerhaave's depot, this embodied and experiential research method values the *dialogical*, interdisciplinary exchange, which is reflected in parts of this essay.

We have divided this paper into three parts. Part 1 – "Road trip" – provides some background to both the experiment and the theoretical frameworks we work with. Here, we suggest that affect theory and an approach to scientific objects as vibrant matter (Bennett 2010) can provide an inspiring framework to dive deeper into the affective resonances of contemporary scientific subjects. In Part 2 – "Thinginess" – we focus on the act of probing affects in experimental set-ups, and use the term *thinginess* to address specifically the affects generated by the materiality of objects. In Part 3 – "A tantrum in the depot" – we reflect on our findings and argue that affective curating potentially offers a more egalitarian, inclusive way of relating to (scientific) objects.

Part 1. Road trip

[Liesbeth (the scenographer) and Bart (the curator) in a car on their way to Ars Electronica in Linz.]

B: That's spot on!

L: What did I say??

1. Varutti focuses particularly on a series of exhibitions in Europe and North America.

B: Well, what you were just telling me, about how you look at theatre and scenography as material practices, and how they work through affects and sensations and even material thinking. That's precisely what we need at the museum, too!

L: You mean that curators talk about modes of display, ways of presentation and the like as a form of scenography?

B: Well, that is important too, but no, I mean when you were talking about materiality and affect. It's a way of engaging with an object in a radically different manner than reading a text label describing the function or the object's history, which I find problematic.

L: What is wrong with text labels?

B: There are two science-historical approaches. The first is "tool fetishism", to put it a bit bluntly, in which curators were interested in the material and tangible aspects of artefacts and how traces of use inform about the function of objects. There was this famous remark by the grand old man of the Scientific Instrument Commission (SIC), G.L.E. Turner, some 25 years ago: "If you ask an instrument the right question, it will answer back".

L: What? You're talking to instruments?

B: No, not literally. But it suggests that the stories that scientific objects can tell are completely encapsulated within the object. This method has become totally obsolete, as it reduces an object to its use-value only. We don't talk to objects nowadays, instead we write object biographies[2] – which also has some limitations, in my view. In this biographical approach, curators provide much contextual information, meaning to situate an object within a larger science-historical context. Here, the risk is that object biographies may distract attention from the object itself.

An example of this biographical approach can be found in Maas (2013), who is a curator and historian of science at Boerhaave. He describes Kamerlingh Onnes' helium liquefactor, a sophisticated precursor of the modern-day thermos flask, as a delicate, fragile object with a strong make-do character. It was showcased in the exhibition *Quest for absolute zero* (Rijksmuseum Boerhaave, 2008) accompanied by a text label that noted that the "Mount Everest of cryogenics" was conquered on 10 July 1908. This eloquent description refers to the date when scientists in Kamerlingh Onnes' lab reached the temperature of -297 degrees Celsius (4 Kelvin). This way, the liquefactor was staged as a key piece in a scientific race to absolute zero. Although Maas addresses the object's materiality, there is little attention to the affects that objects can have – even the ugly ones. The liquefactor, despite its unattractiveness, may raise curiosity. Looking at the unspectacular make-do object that won Kamerlingh Onnes a Nobel Prize might leave the spectator in wonder: How did he do that?

In line with Maas, Alberti *et al.* (2018) prefer the context over the object in a co-authored opinion piece on the materiality of science objects. In their reflection on how to collect contemporary technology, the authors describe modern-day objects like iPhones, laptops and petri dishes as "mundane" and unappealing (Alberti *et al.* 2018, 407). One such mundane object is a canister of the Murchison platform's last oil, collected by the National Museum of Scotland. In our view, the canister *can* be appealing. When placing the rusty, battered canister in the centre of the attention and emphasizing its loneliness, it can affectively speak to us, as being the last one, vibrating its own emotions.

B: In this case, I think a short text label indicating that this canister holds the last oil ever pumped up at the Murchison platform would be enough.

L: But not everyone will be affectively touched by the loneliness of the canister?

B: Will you be touched by the information on the history of oil drilling as an important economic industry in Scotland?

L: I think we're supposed to take the left lane here.

B: Yes, that's the A7 / E55 to Linz, that's the one.

So we went to Linz, to Ars Electronica, a conference and exhibition at the crossroads of art, science and technology, all the while discussing affect and materiality as a "new" entryway to approach both art and science objects.

L: So, tell me, if you'd have to summarize, what is affect?

B: I would say affect is an impulse or something radiating from an object that directly addresses the senses. It is different from an emotion. Affect is the onset of a process that leads to a physical or mental emotion, a thought or an association. You get goosebumps, or someone faints at the sight of blood. This is an affective response, rather than an emotional response or feeling.

In their essay "Designing for affect through affective matter," Akari Kidd and Jan Smitheram distinguish between affect and emotion by arguing that emotion is something that can be enunciated – for instance, in a statement like "I feel happy" – while affect precedes emotion and so maintains a degree of autonomy from the subject. This framing of affect offers various ways to conceptualize the pre-conscious, pre-intentional and pre-verbal processes that occur between bodies (Kidd & Smitheram 2014, 82).

L: I totally agree with the focus on the senses rather than on emotions or feelings.

2. Arnold and Söderqvist also discuss the tradition of "objects talking to curators" (or not) while engaging with similar questions of how to present modern bioscience (2021), yet without the focus on affect.

B: Why's that?

L: Ah, I'm just very indebted to thinkers like Gilles Deleuze, Brian Massumi or Kathleen Stewart. I first learned about affect through Deleuze and Guattari, and I remember them describing affects as "blocks of sensation that pass through a body". They're not "of" the body, they just traverse it, they pass through it. And what I find in Massumi and Stewart is that affect is defined as the capacity to affect and to be affected. Affect, thus, exceeds individualism and is intensely relational. This is how art communicates, and I can imagine this is also relevant for a science museum.

This relational, post-structuralist use of the term *affect* is but one of many options. Various scholars observe that *affect* is a slippery term, the plethora of approaches and definitions renders it an empty (buzz)word rather than a concept (Van Alphen & Jirsa 2019, 1). In *The Affect Theory Reader* (2010), editors Melissa Gregg and Gregory J. Seigworth observe that working with such a contested and evasive term can feel like entering a freefall. Scholarship on affect is hugely diverse, ranging from psycho-biological perspectives to media studies and cultural theory to cognitive science, anthropology, social sciences and even economics (Gregg & Seigworth 2010; Van Alphen & Jirsa 2019, 2).[3] Scholars specialized in or close to Science and Technology Studies (STS) have criticized the use of affect in cultural theory.[4] Others note that the term is affiliated with what we sense or feel the word to be in everyday life rather than grounded in a discursive context (Sharma & Tygstrup 2015, 6-7).

Amidst all theoretical turmoil, Ernst van Alphen and Tomáš Jirsa, editors of *How to Do Things with Affect* (2019), provide a valuable dissection of the term that helps to make affect theory productive in museum contexts. As the very title of the volume suggests, Van Alphen and Hirsa focus on what affect is able to *do* and, subsequently, how affects are produced and manifested. Rather than stressing the evasiveness of affect, they examine the performative force of forms and processes that trigger affects, shifting the emphasis from human interiority of personal emotions and feelings towards the agency of cultural objects.[5] The editors identify three phases in affective operations. First, they seek to acknowledge that affects take shape in specific "forms" and processes such as formal dimensions and temporal structures – e.g. lines, colours, light or rhythm in an (art) object – but also in larger-scale social or political situations and practices. Second, such forms and processes (in all their variety) are stimuli that trigger affective responses, which manifest as sensations, intensities or resonances. Third, affects trigger specific responses such as thoughts, feelings, moods, bodily responses or the imagination.

L: Regarding your curatorial practice: in your opinion what's to be gained by focusing on affect?

B: Well, the biographical approach is dominant in science museums. Museums are storytellers and audiences come to our institutions to experience and learn about these stories. But I fully agree with Nicholas Thomas, who, in *The Return to Curiosity*, states that objects are more than historical resources. It's my experience that visitors don't read text labels after a certain amount of time. Do they pick up the stories the objects are meant to be telling? I think not. Objects are not "silent" though. They affect us by their presence and how they are displayed.

Museum's engagement with affect is in itself not new. Museums have been places of spectacle, fascination, awe and curiosity for ages (Varutti 2021, 135; Dahl *et al.* 2013, 116). Nevertheless, Varutti identifies an "affective turn" in museums in the past decades, which entails a shift away from text-centred exhibitions to the use of multimedia and non-verbal channels of communication (2022, 3). However, much of this affective turn is geared towards addressing visitors emotionally, and strengthening the museum as an educational institute, where atmosphere and experience are deployed for communicative aims (Spada 2022, 130; Arnold 2015, 325) or pedagogic strategies (Forrest 2013; Price *et al.* 2021). Rather than solely focusing on the visitors' experiences, we are interested in how affect can inspire curatorial strategies in science museums. Thomas Söderqvist et al. (2009) and Ken Arnold and Thomas Söderqvist (2011) are on a similar mission, yet their inquiries pivot around the notion of "presence" of biomedical objects, whereas we wish to explore the potential of affect. We affiliate with Marzia Varutti's "Affective Encounters in Museums" (2021), who introduces an approach to affect that puts the object centre-stage. Varutti discusses museums in general, whereas we are interested in how affect may serve a specific science museum such as Boerhaave.

B: An affective approach to curating could also be relevant for another problem that contemporary science museums are dealing with regarding curating and collecting modern-day science. Contemporary science has become quite abstract. Dark matter, DNA sequencing, Higgs particles or personalized medicine are just a few examples of how contemporary science has become increasingly complex and intangible.[6] This presents a considerable challenge for science curators. How do you collect a black

3. Melissa Gregg and Gregory J. Seigworth present an insightful overview of various approaches to affect, in *The Affect Theory Reader* (2010, 6-8).
4. In "Biology's Gift: Interrogating the Turn to Affect" (2010), Constantina Papoulias and Felicity Callard critique cultural theory's use of affect research (in science) as being too selective/incomplete and too much in favour of flexible rather than constant cognitive models. It is a rich and well-informed essay, yet what these authors fail to notice or acknowledge is that many humanities' paradigms are grounded in hermeneutics and cultural analysis, where thought models are used to express or reflect on cultural or aesthetic experience. The validity of those models is not primarily assessed by the exactness of the copy (within certain limitations, of course), but by whether this model facilitates reflection on (human) experience in an adequate and meaningful way.
5. The editors take inspiration from film theorist Brinkema, who criticizes affect scholarship for disregarding textuality while privileging the affected subject: "If affect as a conceptual area of inquiry is to have the radical potential to open up ethical, political, and aesthetic avenues for theoretical inquiry, then, quite simply, we have to do better than documenting the stirrings of the skin" (in Alphen & Jirsa 2019, 3).
6. Sarah Cook describes similar developments in terms of the dematerialization of art object, a trend that first emerged in the 1960s, in "Curating data-driven information-based art" (2022, 59). Söderqvist, Bencard and Mordhorst (2009) specifically address similar challenges in biomedical sciences. They explore the value of objects' "presence", whereas we focus on their affect.

hole, for instance? Or how to curate climate change? How do we make it tangible? Which objects can capture this?

L: You mean, other than Olafur Eliasson, who brought a series of melting ice blocks from the Arctic Circle to Paris on the occasion of COP 2015, to literally show people the ice that's actually melting?

B: Well, not different, perhaps, but similar because Eliasson also relied on affect to bring it home to people. There are many images of the project where you can see people wanting to feel the ice, hugging it, and so on.

L: So, the issue is: how to let "things" affect you and how to engage with them, even if you can't touch them. And the thesis is: scientific objects can communicate through affect.

B: Yes.

L: Where objects are a kind of vibrant matter.

B: Vibrant matter?

L: There's this book by Jane Bennett, called *Vibrant Matter.* She's a new materialist thinker. Isn't that an excellent title? I think you'll like it.

New Materialism is a strand of interdisciplinary theory and philosophy which studies both organic and inorganic material as equal matter, in ways that radically expand binary oppositions such as subject/object, body/mind, matter/meaning, nature/culture and other dualistic distinctions (Bennett 2010, Dolphijn & Van der Tuin 2012). Performance scholar Rebecca Schneider writes that "at base, the new materialism takes seriously the idea that all matter is agential and that agency is distributed across and among materials in relation. As such, matter engages with matter as well as with (or without) humans, who are also matter" (Schneider 2016, 7).

This approach has inspired critical theory, gender studies, science studies and a range of other disciplines, yet is also extremely relevant for theatre, performance and scenography, as it is precisely here that bodies, spaces, objects, sounds and other materials come to matter in relation: their concrete materialization on stage is inseparable from how they come to signify and make sense. Such knowledge is relevant for museum practice as well.

Part 2. Thinginess

B: Thinginess!

L: Eh… hmm?

B: I think we should talk about thinginess rather than just object biographies.

L: Eh…. yes…. perhaps… maybe.

B: Look, this is what I showed a group of students today. This is a stone in front of the Boros collection in Berlin. It's an artwork by Mandla Reuter and it's obstructing the entrance. It's actually the stoniness of that large stone that creates the frustration: its immobility, the heaviness. This is all about the stone's *thinginess*. We might define thinginess as the affect that is generated by the materiality of an object. Replacing the stone by a glass object, for example, would radically change the affect.

L: So, thinginess might be a great way to explore vibrant matter.

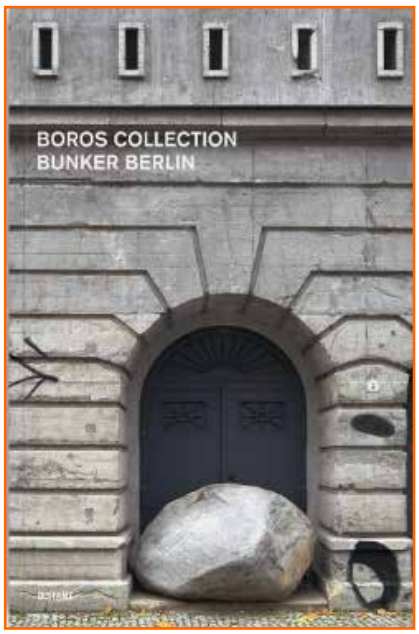

Figure 1. Cover of the *Boros Collection #2* exhibition catalogue depicting Mandla Reuter's untitled work. Source: Boros Collection, Bunker Berlin, photo: NOSHE

2.1. First experiment

Our musings on affective materialities led to designing a workshop for nursing students doing a course in palliative care. Their assignment was to create an Instagram post by photographing an object in the museum connected to the emotions of loss and grief.

Figure 2. Image of a stuffed dog in an interactive exhibition at Rijksmuseum Boerhaave
Source: Rijksmuseum Boerhaave, photo: B. Grob

B: It's surprising what they came up with. The students picked objects that, at first glance, seemed to have nothing to do with grief or loss. For example, one student chose a stuffed dog, basically a prop object in a hands-on exhibit. To him, it spoke about loneliness because it reminded him of an elderly lady who had passed away during his internship, and the dog resembled hers. As the Instagram post, he wrote:

"On your last day, when you need all the support, you realise that you have no one left, but your last friend who can't answer, can make you feel good. She said: 'This will also be my last friend, because I won't be there anymore'."

L: That is touching…

B: Here is another one. A student took a photo of an old X-ray photograph showing the bone structure of a hand, with the text: "A goodbye is not letting go, it is a different way of holding on."

L: These are definitely affective texts, when taking Van Alphen and Jirsa as a point of reference, but how does this tie in with thinginess?

B: That's a good point. Let's explore that a bit more.

2.2. Alternative text label experiments

To explore thinginess further, we designed an experiment in the Rijksmuseum Boerhaave's depot. The exercise was writing text labels that focused on the object's materiality and the affects this might generate. In hindsight, this experiment takes up an invitation by Varutti (2021), who mentions the possibility of "affective words" (136-137). The experiment yielded insightful results. When affect is taken as a starting point, it does not necessarily result in personal texts that can be read (and dismissed) as somebody's individual associations.

B: And just for your information: a text label in our museum only has 50 words maximum. Good luck!

L: Okay, what do you think of this one?

Figure 3. Dried intestines in the Rijksmuseum Boerhaave's depot. Photographed from three different angles. Source: Rijksmuseum Boerhaave, photo: B. Grob

"A rock. Turns into a narrow ledge, like a sharp mountain ridge. Turns into crumpled cardboard. Becomes a relief landscape. Dark and light, soft and sharp. An animal crawls out of the folds and wrinkles. A mouse, a vole, a newborn calf with its legs still covered in mucus, a dog in pain. The hind leg folded double, a front leg sticks out, groping, praying, pleading. Continuing to turn, a hole, a gap where the head would be, pushing the label forward like an alms bowl. Becomes a frog, then a giant lizard. Becomes a stone again, then cardboard, brown, light, dark, silence."

B: This is too long! And way too abstract, no one will buy this. I don't buy it either.

L: Ah, that's a pity, I like it a lot. It's inspired by Kathleen Stewart's *Ordinary Affects*, you know, the book I've mentioned at least 20 times. It is full of close readings of scenes from ordinary life. She is an anthropologist, but the way she tunes into the materiality of things and creates resonances between small worlds and worlds at large is pure scenography, as I see it. Her writing engages with vibrant matter, carefully observing and attending to objects, sites and situations, to what they're made of and what they evoke in terms of sense and sensations – in sum, how they vibrate. In this awareness of and attunement to affect – as the capacity to affect and to be affected – an object becomes perceptible as much more than inert matter. It can come across as lively and vibrant; it may strike you as sharp or soft, broken or violent, creating a sense of lust or nostalgia, and so on. This is the object's "doing", its performativity, which resonates with the senses, worlds and contexts – even though one cannot fully grasp it.

But let's try another one.

B: "You were found in the depot. You looked a bit lost, not quite complete. It seems you were outer category, without any clue allowing us to determine your identity. No object biography for you. We called you the orphan object."

L: This one is getting somewhere. The idea of an "orphan object" triggers thoughts, emotions and associations, in line with how Van Alphen and Jirsa distinguish between stimuli of affect, the affect itself and the response to affect.

What do you think about this one on an insect drawer full of mounted flies:

"Tsip tsip tsip zzzzzz-zik-zik zee-dik! see-dik! dzt! jakoe jakoe, like summer air filled with bird chirps, a sluggish pigeon, the buzzing of bugs slowing down the buzzing until suddenly such a buzz hits the pain limit of the nerves: go away mosquito, go bother someone else. And then suddenly all together in that cabinet, mounted, without any categorization; it's just an apparent order, an attempt at something."

B: This one's spot on for me! This is affective. I can almost see and feel the mosquito is bugging me. Ugh…

L: With Stewart and Bennett's new materialism in mind, I tried to create an ecology or constellation in which all elements have equal value: sounds, movements, the cabinet, but also immaterial "agents" such as the act of collection: these are all forms of matter in a non-hierarchical assemblage, much like how Jane

> Bennett reflects on the coalition (and collision) of both organic and non-organic, material and immaterial agents which jointly produce an ecology of things (Bennett 2010, 20-38).

Although such text labels are a bridge too far for science museums, this experiment does show that text labels can evoke a sense of thinginess and draw the visitor's attention back towards the material qualities of the objects on display. So, how to curate thinginess? For this, we can use scenographic strategies.

2.3. Scenographic strategies in contemporary science exhibits

In "Affective Encounters", Varutti describes how she is drawn to a little statue of a cat, centrally positioned in a dimly lit, small exhibition room in the British Museum, unnoticed by many. She observes how she is affected by the relaxed yet alert posture of the cat, the hollow eyes that seem to gaze into timelessness and the mysterious beauty of this feline creature.

> B: This is how thinginess works, as I see it!
>
> L: Interestingly, this affective response leads Varutti to let go of text labels, initially, and to yield herself over to the encounter with the object fully.
>
> B: But why does she stop at the cat and not at other objects in the room?
>
> L: Well, there are all kinds of scenographic strategies active here: the quietness of the room, the central position of the statue, the dimly lit room.

Scenography is concerned with performance or stage design and deals with the organization and orchestration of space and time using objects, materials, technologies, movement and orientation in space, and more. Originating in theatre, scenography always engages with the spectator relationship, with organizing or orientating the gaze, with managing attention (Groot Nibbelink 2019).

Scenographic strategies can serve both mundane as well as complex objects in science museums: they can place mundane objects in the spotlight, or they can mediate complex objects through affect.[7] Joslin McKinney and Scott Palmer, in *Scenography Expanded* (2017), identify three key components of contemporary scenography, distinguishing between relationality (concerning the performance-audience relationship), affectivity and materiality. We will use these components to analyse a few examples from an existing exhibit in Rijksmuseum Boerhaave.

In Boerhaave's *Big Questions* exhibit, the audience is invited to experience modern-day objects that are either mundane, abstract or intangible. We can recognize a relational component of the exhibition in the way the audience is addressed. Upon entering the exhibit space, a large showcase measuring 3.5 metres tall dominates the room. A wide range of laboratory disposables on display draws the audience's attention. One tiny pipet tip does not make much sense, whereas a large number of them show science in action, referring to the materiality of everyday work as it is done in science laboratories. Embracing the mundane, also due to the lighting, these shiny plastic objects gain much attraction.

Interestingly, this scenographic intervention also attracts a more inclusive audience: professional and supportive staff like lab technicians, nurses or biotechnology assistants can relate to this showcase, as they now see their work represented in the museum.[8]

Another scenographic strategy used in this exhibit is a focus on *form and materiality*. In the same showcase, there are a neutrino detector and a glass sculpture representing the Covid-19 virus (Figure 3). In terms of science, these two objects have nothing in common. Although it seems far-fetched, juxtaposing the two shiny spheres establishes a relation between the objects, fostering visitors' curiosity. The mirroring of forms draws attention to the objects' material qualities and entices visitors to engage with them.

This material engagement with objects moves beyond the functionality of scientific objects and facilitates experiential connections. The tactile quality of a scientific instrument or the visual impact of a well-designed research instrument can contribute to a sense of discovery and engagement. The SPEXone, a measuring device for atmospheric space research, is an example of an exploded view, not to explain what exactly is inside but to draw the visitor closer to the delicate mechanics of the machine. This strategy invites *affective* engagement, as it may raise curiosity, inspire a sense of beauty or even evoke a sigh of awe (Price *et al.* 2021). The idea of the museum as a place of wonder is in itself not new, but a focus on affect can help to include the less spectacular scientific objects as well.

Figure 4. Neutrino detector and glass Covid-19 sculpture in the background. The SPEXone exploded view is visible in the foreground
Source: Rijksmuseum Boerhaave, photo: B. Grob

7. The use of scenography in exhibition design is not novel, see Brejzek and Collins (2022). Scenography is employed in the display of objects or in creating visitor experiences. Our point is that scenography can also draw attention to the materiality and affects of objects.
8. During guided tours, Boerhaave often receives feedback from people working in biotechnology that, finally, this showcase represents their work.

In conclusion, the scenography of scientific objects is a multifaceted process that enables us to focus on their relationality, materiality and affectivity. By considering these aspects, we can better understand how scientific objects are not just tools for scientific research but can also engage audiences affectively, and help to critically analyse (less affective) museum exhibits and collection strategies.

Part 3. A tantrum in the depot

[Back in the depot, we look again at the orphan object, the insect drawer, the dried intestines and other trialled objects on the shelves.]

B: Okay, let's call it a day.

L: ….

B: Shall we go?

L: ….

B: What's the matter?

L: I suddenly feel very angry. I look at these shelves with all these objects, the objects placed rather randomly or chaotically, and suddenly it strikes me that the selection of objects on display in the museum is kind of arbitrary. Why those objects and not others?

B: You're totally right. It's a somewhat arbitrary selection. This is a point made by Thomas in *The Return to Curiosity*. Collections are often presented as "the right choice", but much curating is driven by curiosity.

L: So, there's randomness in the back, here in the depot, but a neat show at the front. On the front side, in the museum exhibits, with all the shiny cabinets and sophisticated text labels, it all looks organised and *ordered*. The show says: we know what Knowledge is, and we tell you what kind of Knowledge you need to know. These exhibitions install a logocentric order in which values like rationality and objectivity are hidden beneath the disguise of Knowledge. What annoys me even more is that, historically, this knowledge hierarchy is installed by men. Where are women? Where are lab assistants? Where are the animals that served the lab experiments?

B: Do you remember the experiment with nursing students? The affective engagement with objects made them write very personal, moving texts. Afterwards, the teacher told me that the students were much more open to discussing their emotions. Affect has a democratizing potential. It can attract other than higher-educated audiences; it does not require canonical knowledge. Instead, affect provides access via experiential and embodied knowledge.

L: Indeed. This also reminds me of that afternoon when we discussed the speculum with your colleagues and talked about our experiences of being medically examined. It did not matter whether they were a curator, a documentalist or a secretary, all of us could relate to that object due to the speculum's affective qualities. The object's thinginess invited the sharing of embodied knowledge rather than imposing it from above.

Conclusion

A museum is more than a location to gather information (Thomas 2016, 99). We appreciate the lineage of the science historian's biographical approach as advocated by Maas and Alberti *et al.*, but to deal with large-scale, complex and immaterial modern-day science, we suggest using object-centred and affect-oriented strategies that draw attention to the material qualities of scientific objects. The inclusion of scenographic strategies in curatorial processes can help support this.

The experiments learned that focusing on the object's affective materiality enables a broader, more diverse audience to recognize themselves in science collections. The affective turn in curating can evoke a polyphony of voices, as it takes care of the inclusion of multiple experiences and perspectives. In line with our findings, Varutti observes how engaging with affect in museums allows for "multifarious forms of encounters between objects, environments and visitors – encounters that are triggered not by interpretation but by intuition, creativity, individuality and that, as a result, might ultimately turn out to be more personal, democratic and ethical" (2021, 135).

This democratic potential is very close to the new materialist agenda, which seeks to move beyond dualisms of mind and body, subject and object and dispense with epistemological hierarchies. What is more, this democracy involves not only the people who engage with objects but also the objects themselves. A focus on affect and thinginess puts the object up front, as we have argued. But it also may change the curatorial practice. It creates space for mundane objects side by side with complex ones and for affective objects that help raise curiosity for the intangible, immaterial agents of contemporary science.

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