Spiders do not have an auditory apparatus, and yet sound makes up an important part of their lifeworld. Through vibrations in their webs—whether from noise, wind, or prey caught in their sticky patterns—spiders can tell the size and distance of an object of interest. Jumping spiders (Phidippus audax), researchers found in 2016, can detect human speech in the vibration of the hairs on their legs.

Music, conversely, is considered one of the highest human achievements, with opera being perhaps the most elaborate form of (Western) culture. The vibrations of vocal cords, the resonance in the singer's body, and long training bring forth extraordinarily moving experiences.

We do not usually think of spiders and opera together. And yet the patterns of the spider's web bear a resemblance to the mathematical figures of music. Both are full of sensuality—the silky elasticity of the web, which responds to its surroundings through vibrations, and the singer's vocal eruptions, which quiver in the listener's body. We may think of a spider's web as a stringed instrument, and a voice may carry vibrations through the air to take hold of the web's tissue and temporarily move it to its frequency. Both invite us to become attuned to our surroundings and to sense that which goes beyond the retinal, beyond that which can be seen.

More-than-humans brings together two exceptional artists whose work is inspired by research yet transcends modes of knowing intellectually, considering that which cannot be explained by the rational anthropoid mind. In bringing together outstanding works by Dominique Gonzalez-Foerster and Tomás Saraceno from the Thyssen-Bornemisza Art Contemporary (TBA21) collection, the exhibition invites visitors to explore questions of human and nonhuman technologies, culture in the Anthropocene, our own intelligence and that of other species, haunted presences at the edge of disappearance, and the power and attraction of the unknown.

Dominique Gonzalez-Foerster searches for what exists behind images and visual experiences. Her work is inspired by modernism, architecture, literature, and cinema, and yet she is less interested in narrative than in the pleasure of the image's atmosphere. Nineteenth-century photography is a recurring source of inspiration, as artists often used it in search of the uncanny or supernatural. *Opera (QM.15)* (2016) draws on early holographic techniques—speculative simulacra conflating different temporal and spatial dimensions. In the work Gonzalez-Foerster appears as the soprano Maria Callas (1923–1977), dressed in the iconic red garments of her last performances while lipsyncing to some of her most famous early recordings. Callas is one of a series of personalities, including the actresses Marilyn Monroe and Sarah Bernhardt, who appear in installations that Gonzalez-Foerster refers to as "apparitions," as if they were, in the words of the artist, "a kind of

The letters QM in the title are inspired by Bernhardt's maxim "quand même," which translates as "even so" or "nevertheless." To Gonzalez-Foerster, the expression resonates with the lives of the personas she appears as: "They can't stop, and art is their vehicle; their very lives must become works of art, no matter the cost. The supreme excitement is the artistic experience." Throughout their lives, Bernhardt, Callas, and Monroe had to shield their private lives against public interest. Living for their passion—their art—their lives were prone to drama. Numerous rumored love affairs contributed to the enigma surrounding them. As women they had to negotiate expectations placed on them, which in the case of Monroe famously led to her death by suicide at age thirty-six. Callas similarly passed under mysterious circumstances, and Bernhardt was fascinated by death throughout her life. When she played death scenes on the stage, audiences were often in tears, contributing to her prominence but also to the mystery of her persona and her legacy.

The three women's passion for art and their uncompromising ways of living their lives, as well as a fascination with the otherworldly, the haunted, and the thin line between this and other worlds, crystallize in Gonzalez-Foerster's QM series, including *Opera (QM.15)*, on view in this exhibition. The performances function as what the psychoanalyst Donald Woods Winnicott calls transitional objects, a bridge between the real world and the world of the imagination. Psycho-sensitive as they are, they may activate unconscious feelings and memories.

Since she participated in the visual arts opera *Il Tempo del Postino*, curated by Hans Ulrich Obrist and Philippe Parreno in Manchester in 2007, Gonzalez-Foerster has been searching for an impossible opera. The work on view is such a science-fictional attempt to communicate with specific spirits and inhabit their afterimages. It may be a reaction to the grid and rules of rational, efficient, digital life, in search of the uncontrollable, the ghostly, the more-than-human. According to Gonzalez-Foerster, "artists, like scientists, generate a kind of 'artificial life'; artworks can become types of monster."

Tomás Saraceno is known for his speculative research projects, such as *Aerocene*, an interdisciplinary artistic inquiry into alternative modes of transportation that do not require fossil fuels, and for his collaborations with spiders. The Arachnophilia Team at his studio homes in on lively multispecies ecologies, cultivating different "arts of noticing," a phrase coined by the anthropologist Anna Lowenhaupt Tsing. Collaborators from various disciplines, from arachnologists to entomologists to ethologists to geographers, come together to explore complex forms of spider

architecture or culture, together with the spiders and through different socialities. In workshops and discussions organized on the occasion of his exhibitions, Saraceno has invited collaborators to explore areas such as biotremology— the vibrations produced, dispersed, and perceived by spiders—and develops playful ways of encountering webs by readings conducted with his Arachnomancy divination cards. This take on tarot cards formed part of his *Spider/Web Pavilion* 7 at the 2019

Venice Biennale. These readings propose a non-anthropocentric way of storytelling involving practitioners from different fields, who interpret the structure and vibrations of a spider/ web.\*

Drawing on age-old forms of storytelling that resonate with cultural, spiritual, and scientific realms, these readings highlight the interwoven histories, presents, and futures of humans, spiders, and other species. The Western trope of human exceptionalism and agency set apart from our interactions with other beings is here undone for speculative interpretation of how our shared ecologies might play out in the Chthulucene. The feminist theorist Donna Haraway has proposed this term as an alternative way of conceptualizing our current epoch, describing it as a time when the (Western)

Anthropos ceases to be a destructive force on the planet and acknowledges and enjoys its kinship with many other forms of life and nonlife.

The works on paper Solitary semi-social mapping of HS 1700+6416 by a solo Nephila senegalensis—one week and a solo Cyrtophora citricola—three weeks (2016) and Solitary semi-social mapping of Ceginus by a duet of Nephila senegalensis—four weeks, a triplet of Cyrtophora citricola—three weeks (2018) were each made in collaboration with two different spider species. In bringing together genera that would not normally collaborate, Saraceno, his studio, and their spider collaborators bring forth hybrid spider/ webs created in multispecies gatherings. The series of Spider/Web prints offer a different way to read and interpret the architecture of the spider/ web: as a topological map of movements and temporalities that trace the intricate complexities of these silken sculptures.

The installations Hybrid semi-social solitary Instrument HD74874 built by a triplet of Cyrtophora citricola—four weeks—and a solo Angelena labyrinthyca—one week (2019) and How to entangle the universe in a spider web? (2018) form part of Saraceno's celebrated studies of spider/ webs, whose complex structures resemble tiny universes, surpassing many of the architectural and other constructions made by humans, resonating across scales with the cosmic web. Some scientists have observed that complex, three-dimensional spider/webs resemble computer simulations of the cosmic web. In the second installation, a laser sheet bidimensionally intersects the spider/web. The visual vibratory signals of the laser reveal the hidden architectural entanglements woven by the spiders. In other works Saraceno amplifies the vibrations of spider/webs as if they were musical instruments, making them audible for human participants. These entangled floating landscapes create sensorial

and living connections across ecosystems, resonating among participants to create a fuller awareness of the unheard and unnoticed voices that surround us.

Webs and networks are a ubiquitous reference in culture today, and yet the spiders' complex webs and lifeworld still seem alien to us. The video *Living at the bottom of the ocean of air (Underwater spider)* (2018) focuses on a particularly curious arachnid, the diving bell spider (Argyroneta aquatica), a species that lives almost entirely underwater in lakes, ponds, and marshes. Surrounding its abdomen is an air bubble captured with its hairs and giving it a silvery appearance. The spider surfaces only briefly to replenish its air supplies. Underwater it resides in its air bell, dashing at prey that touch the silk threads attaching it to plants. This unique behavior highlights the capacity of certain species to transform their way of life to adapt to new environments. In this way the underwater spider sounds an invitation for biospeculation, calling us to question the unexplored possibilities of our future environment.

Saraceno's works show the spiders from their perspective and within their *Umwelt*, since, in the slightly amended words of the sociologist Bruno Latour (who wrote about humans in this passage), "no visual representation of [spiders] as such, separated from the rest of their support systems, makes any sense today." In doing so, the works invite us to veer from arachnophobia to arachnophilia, acknowledging our sympoietic entanglements and, in tune with the philosopher Isabelle Stengers, working toward cosmopolitics, a new attention to our shared ecologies with nonhumans.

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