SOULS FROM THE DEEP: A SURVEY THROUGH A STICKY UNIVERSE

by Isabelle Andriessen

We live in a time in which the earth's system is highly disrupted; biotic and abiotic components are merging, due to the synthetic materials and toxicities which we allow to spill into our environment, like oil, lithium, plastics, hormones, and chemicals that do not decompose – leading to more and more life forms that can endure increasingly extreme climates. In the face of this daunting new material reality, I envision resilient and unsettling specimen or entities that reside in the interface between the human and non-human, the living and non-living.

I investigate ways to physically animate inanimate materials in order to provide them with their own metabolism, behavior, and agency through both my sculptural work and material research. In so doing, these works become agents that inhabit a liminal space between sculpture and performance, composed of synthetic materials that both act and evolve, seemingly beyond control and often irreversibly. Deriving their anatomies from science-fiction and scientific narratives, these alien animatronics are 'sticky' and 'fluid' life forms. They continuously creep, ooze, and spread. My sculptures can be read as future fossils evolving and enduring an environment under severe pressure. They also make for an uncanny landscape, as if infected by a strange virus.

My artistic practice is driven by the paradox between the beauty of transformation and the continuous loss inherent within it, which is both material and perceptual. I force ceramics, aluminum, wax, silicon, and plastics to react to heat, cold, chemicals, or electricity so that the materials start to interact, crawl, grow, sweat, and move. The underlying motivation is to obscure and to stretch the boundaries between what we call living and non-living materials. It is exactly this agency, which is imposed on my work, that showcases the passage of time and makes the sculptures resemble eerie performers.

This project began in 2016 with *Resilient Bodies*[1], a series of ceramic, fossil-like shapes that are heated by electricity to a temperature of 80°C, thereby causing the wax and plastic forms to melt and deform. The materials transformed and morphed over the course of the exhibition into scrap leftovers, leaving a sticky pool in which the sculptures seemed to bathe.

Tidal Spill [2](2018) is a series of four ceramic sculptures from which crystals grow on the surface over the course of several exhibitions. The sculptures' insides contain different chemical solutions that are being absorbed by the ceramic skin, leaving it to crystalize over a period that can take years. Their skin-like ceramic surfaces display signs of fever, tumors, and rashes as if the sculptures are contagious.

A more parasitical relationship becomes evident in *Terminal Beach* (2018), which consists of three large-scale ceramic sculptures, from which chemical crystals also grow on the surface over time. The sculpture contains an iron II sulphate solution that is being absorbed by the ceramics, leaving it to crystalize over a long period. Sweating aluminum 'braces', which are connected to a system that cools the aluminum down so that it absorbs moisture from the air, is also mounted onto these sculptures. This moisture is then collected by the sculptures, feeding the growth of the crystals over a long period of time in the process.

My latest production is *DORM* (2021), a series of sculptures that aims to reveal the uncanny nature of synthetic materials. This large-scale solo exhibition consisted of three works: *Necrotic Core*, *Bunk Beaks*, and *Idle Knights*. These pieces actively address negative space, thereby straddling the line between automata and mineral concoctions, between futuristic machines and cybernetic systems. The title refers to a 'dormitory', a room, or a kind of cell in which a collection of bodies can be restored, in order to carry on with their functional duties. The term 'dorm' also comes from the word 'dormant', which is the physical state of being asleep or inactive. Something that is dormant is unasserted, inactive, or growing but with the imminent possibility of suddenly being awake. These two definitions strangely merge through a dark and hidden interaction: a room in which entities exchange air, perspiration, and other metabolic access.

---

[1] Documented at: https://gallericc.se/Isabelle-Andriessen

[2] All other works referenced throughout the text are documented at the artist's website: https://www.isabelleandriessen.com/work/

Each of these works obviously derives from a new strand of material research. Even though I have been working with scientists since 2016, I have still not found a way to successfully apply material innovations into my sculptural practice. I reached out to Dr. Lee Cronin because I wanted to learn more about his approach to living and non-living materials at the beginning of 2020. I was curious about how he was developing self-organizing synthetic materials and if this knowledge could be applied in the field of sculpture. He invited me to apply for the Biofaction residency shortly thereafter, so that I might collaborate with him and his team on my artistic research. We then met online in May of that same year. During our conversation, we discussed the parameters that he uses to look for new definitions of life.

My initial motivation to apply for the residency was to develop a new set of synthetic materials that would physically animate, deform, or reform over the course of time, while being applied to a new set of sculptures. I aimed for the collaboration to result in sculptures that consisted of materials that require electrical and chemical interventions to maintain their transformation into a semi-living state; this was so that I could make them behave like weird organisms of a speculative future, and which when combined form an otherworldly and parasitical ecosystem that develops in an autonomous and unpredictable way, as if infected by a strange virus or illness causing entity.

The proposal's underlying motivation was to address plausible speculations for new life forms to arise from a toxic environment, much like that of hydrothermal vents, e-waste sites, or lithium mines. The new 'life' forms depend upon the power of (chemo)synthesis or 'alien' synthesis in order to evolve into living matter from the waste left behind. What life forms may inhabit our Planet in the future? How would this semi-life fuse, adapt, or mutate alongside these disregarded (plastic) remains, and create digestive systems or anatomy? What if evolutionary roads take us to entities that can live off of e-waste?

In the early stages of my contact with Cronin, I imagined the outcome of his research to be in a much more physical or material stage than actually feasible in real life. Over time, I learned that the Cronin Group is researching and developing materials on a molecular scale, oftentimes only visualized in mathematic equations and, if you are lucky, recorded in petri dishes. The Cronin Group's research scope is vast and very abstract. It contains some level of 'living' material, but it is more based on mathematics and molecular science. Developing materials on a microscopic level, however, is not

my preferred medium, given that the bodily encounter with the time-based sculptures is a crucial element in my work.

This condition forced me to review how this collaboration would translate into a narrative that could be used as a basis for my research and upcoming projects. Therefore, I decided to focus on finding entry points into the more sublime aspects of Cronin's research by zooming in on specific aspects through the materiality of film. In so doing, I aimed to capture a (potential) lifeform as it developed over time in the lab. How were they looking for life, animating life, or revealing material agency?

When we first met, Dr. Lee Cronin had started to conclude on his principle and mathematical equation concerning self-assembly. The self-assembly theorem is a breakthrough formula to prove natural selection mathematically. Cronin was formulating the self-assembly theory as a method to trace back the origins of life that is encoded (or stored) in each material. Assembly theory compares how complex a given object or material is as a function of the number of independent parts or molecules. A given fact is that living materials have a much higher level of complexity than non-living materials. In short, the equation of self-assembly proves natural selection, which can give us a lot of insight into the development of life in other Earth-like systems.

The Cronin Group is also working with widely used instruments to develop, what they call, the self-assembly index: a parameter to detect biosignatures – chemicals that point to living systems. This is a revolutionary approach that is useful in investigations of (alien) material obtained during space expeditions, in order to measure if the same material also appears on our planet and what range of evolution took place prior to the formation of the material's molecular compound, for example. Different teams are collaborating on building 'chemputers' that would be able to build living materials from chemical, non-living materials. These 'chemputers' can also be applied to 'print' drugs or other on-demand medical needs. A part of the team is also working on downscaling these 'chemputers' so that they can easily be installed in space expeditions.

Cronin and his research team are creating artificial life forms from non-biological chemistries that mimic the behavior of natural cells in an attempt to understand how life itself originated from chemicals. These chemical cells are called 'Chells'. Despite our research questions overlapping in many ways, our approaches and results are completely different. They are trying to formulate and to catalogue overlapping parameters that define what the signatures of life are with the help of measurement instruments like Mass

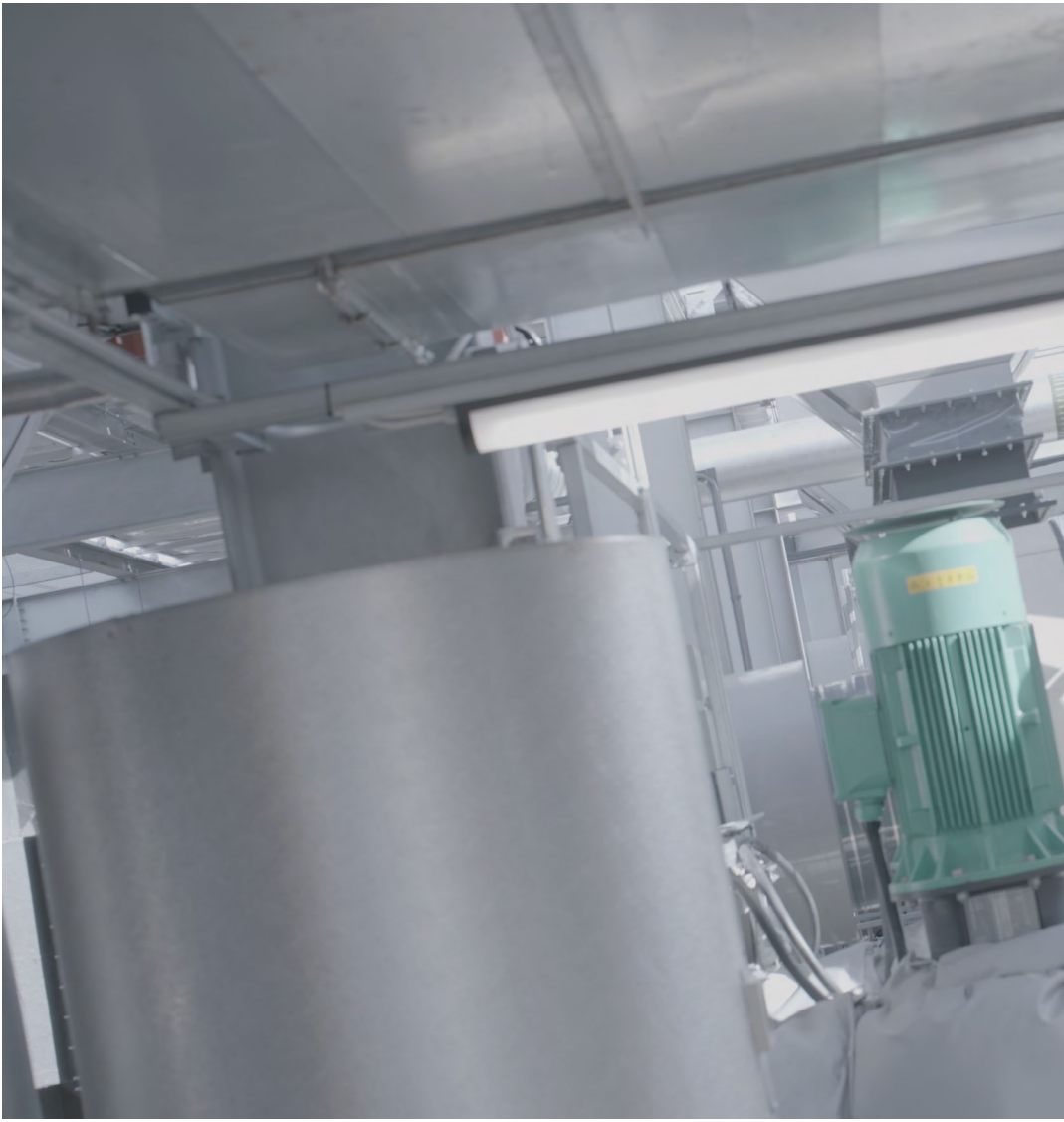

fig. 3.12 Film still.

and NMR spectrometers, as well as ICP. This information will serve as the basis for future research on identifying extra-terrestrial life forms.

My decision to translate this residency's research into film is especially fitting because it allowed me to express my translations of scientific narratives into another medium than sculpture. A reoccurring aspect of my work is the notion of worldbuilding, given that each individual sculpture anticipates its own imaginary narrative, influenced by scientific knowledge. I think the Cronin group's abstract theories are a lot harder to fathom in sculpture, because of their rather mathematical and molecular nature.

During my working period, I anticipated being able to capture these grim outcomes by tracing the behaviors and agency currently happening in the labs. The result of this is an uncanny surrealist science-fiction film, in

fig. 3.13 Film still I.

which the Cronin Lab functions as an environment or a landscape in which the film's narrative unfolds. I aimed to develop a project that allowed for Cronin's research to be able to become a more tangible experience for the viewer. As a result, this film's material is partly taken from the research lab and has been combined with CGI animation.

What would happen if these instruments in the lab were left running, of their own accord, either on our own planet or left behind after a space expedition? What if these 'chemputers' got hacked or controlled by a virus or immortal cell mutation? What is the dystopia contained within these processes? In what ways could the self-assembly theorem, as formulated by Lee Cronin, influence future life forms, and how would they emerge? Can synthetic materials develop memory and consciousness? I believe that it is this

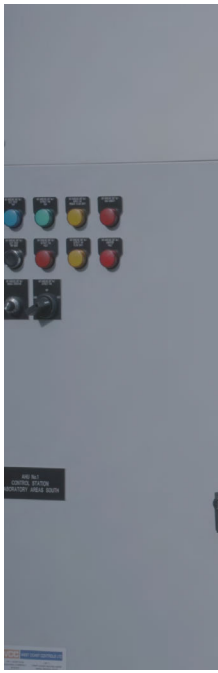

fig. 3.14 Film still II.

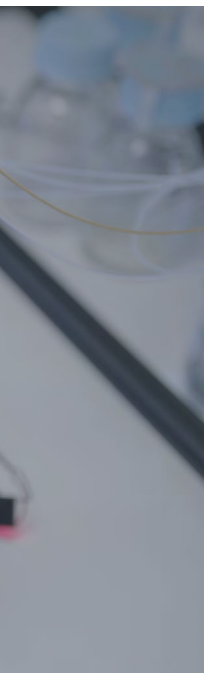

fig. 3.15 Film still III.

friction, or this space addressed by this friction, where the sublime aspect of Cronin's theories can creep under the skin.

In the film, the Cronin Lab is a seemingly abandoned place in which 'chemputers' are up and running at full speed. It is on the verge of an apocalyptic event, or perhaps this had just happened recently. Throughout the film, a voice-over narrates fragments of different events. Eventually, it is likely that this voice is also that of the protagonist – an automata – calibrating the sequence of events and navigating its surroundings and finding its way in this abandoned place, piecing what happened previously back together.

What it is that they are doing remains unclear. Other 'chemputers' operate inside the lab, attempting to communicate with aliens and other non-human entities. An alternative life form is being developed by the automatic instruments in the lab. The film sustains a slow-paced level of suspense.

The research team and surrounding staff members were very welcoming and helpful throughout the entirety of the residency. I greatly appreciated their openness and the fact that everyone seemed to be comfortable having me there. Many of them were eager to show me how they operate their research in the 'chemputers', both 'on' and 'off' set. Without their time, patience, and enthusiasm, I could not have been able to produce this film. In the end, the 'chemputers' turned out to be major actors in this film. I was very impressed with the amount of information they entrusted me with, given that what the team is working on is highly confidential. Since I do not have a scientific background at all, I relied on them to explain their knowledge in a rather basic way, yet it felt like I was able to engage in their research on an abstract level.

Needless to say, I am in awe and have nothing but respect for the research conducted by Lee Cronin and his team. I worked with a number of researchers over the course of the residency and I found working with the Cronin Group really rewarding and enriching. I am extremely impressed with the level of operation, and how this is all managed and directed by Lee Cronin. His scientific and business strategies are very inspiring and, to me, even revolutionary. For this reason, it was amazing to finally, after two long years, work in the Cronin Group's research lab. Even though I collected as much visual and theoretical material beforehand as possible, it is hard to imagine how the 'chemputers' and all of the different engines function. I was blown away by the scale of the laboratory.

The collaboration with the Cronin Group occupies the heart of this film project, yet I also collaborated with a team of specialists from different

fields. For this reason, the residency did not begin from the moment that I arrived in the research lab. Prior to my arrival in Glasgow, I spent a considerable amount of time with a selection of essays, interviews, and general (and advanced) introductions to the Cronin Group's material research and ambitions.It was crucial for me to understand the bigger picture, not just to understand how the team and their tools/engines are structured, but also what the ambitions, the driving force, long-term goals, and benefits are.

Upon my arrival, I met the different research teams individually. By doing so, I could get a better sense of what each team was responsible for as well as how they collaborated. In the days that followed, I joined Dr. Lee Cronin and the different teams in their meetings, presentations, and discussions. During the week that I was present, I got sufficient insight into their research to know how to include it in the film. In the second week, Clemens Stump (scenographer and camera man) arrived so we could get started with the actual filming. Prior to his arrival, we had worked on the cinematography, light design, and location scouting within and around the research lab. During the filming process, we focused on the visual output, functions, and behavior of the 'chemputers'. An important question was: is it possible for the camera to capture these different processes, following them and recording them fully?

In relation to this, we rented the recently released DJI Ronin 4D camera, which was a big investment. Since it was not available in Glasgow, we had to bring it from the Netherlands, which limited the amount of time in which it was possible to film and experiment. Nevertheless, it was worth the investment, as the results really conveyed the non-human camera movement that we were looking for. The camera films in 8K, and its most special feature is the 4 axes lens that can be directed to move around robotically/mechanically. In this way, the lens moves around like a robot or automatic non-human entity, and inevitably, this is crucial for the viewer's non-human perception/experience.

I would have appreciated, if I had had the chance to be in direct contact or conversation with Dr. Lee Cronin, but I estimated that it was also an unprecedented busy period for him and his team. Due to COVID-19, he and his team were mainly working from home, and on top of that, he had to transfer his entire laboratory to another building, while at the same time setting up the Chemify company. Another challenge to the process was the fact that the research lab is located in a non-EU country, forcing me to wait for the permission to travel until corona travel measurements were abolished.

Then, when it was finally possible, Dr. Lee Cronin was in the process of moving his entire research lab, which caused subsequent delay.

In order to introduce my artistic approach to the Cronin Lab's research group upon my arrival, I gave an online lecture to the lab team in August 2020. However, I wondered if it would have been more helpful to have given a shorter and more visual introduction to my practice and residency proposal. For some reason, I sensed a lack of interest in my work from the scientists, although they were highly cooperative. During our conversations, neither Dr. Lee Cronin nor any of the other scientists asked about my practice. It is really a pity that the exchange between us seemed only one-sided, while it could easily have been an enriching interaction for the research group, as well. The reason might be that contemporary art was not so much in their scope of interest or maybe the majority of scientists had a very rationalistic approach to material and information and, therefore, they could not relate to my way of working. I cannot really grasp the reason for this disinterest, although I can imagine that my practice seemed as abstract to them as theirs did to me.

I think that the hardest part of this project is that instead of having two years to work on it, I only had a couple of months to develop the entire working material and to turn that into a final product. Throughout this period, I had very little or no response from Lee Cronin, nor any leads or follow-ups from him or his team members. This resulted in a lack of a sense of collaboration or exchange, with the exception of the dialogue that I established with the material I found about his research online. At the same time, I put a lot of effort into searching for fundraising options for the project, through sponsorships from other foundations – the allocated funds from Biofaction's stipend could not, by any means, cover the expenses of making a high-quality film production. I am proud to say I have succeeded in this and that this project is now a co-production, with a fifth of its budget being covered by Biofaction, and the rest by Amarte Foundation and Stimuleringsfonds.

These two months were really challenging, given that this residency is the start of a much larger production; it was the most unrealistic request I have ever tried to live up to, but me and my team are striving to complete this film production, even if it takes non-human powers to do so.

Within the production of the film my roles are mostly that of being the (art) director, scenographer, and scriptwriter. I am also working alongside a major group of artists: Clemens Stump (cinematographer no. 1 and co-producer) who also acted as camera man in this project, Nikola Lamburov (photographer and cinematographer no.2), Becket Flannery (play writer 1), Valerian Gago Beaufour (assisting editor and sound designer), and Marian

Rosa Bodegraven (production manager and assistant). These people are mostly involved with the featured aspects of the film. The CGI animation will be developed by a group of (game) designers that are skilled in programs like Unity and Blender. Again, this project proves that my work is made by many hands, always seeking for the potential that lies in collaboration.

Concluding on my residency, and having had the chance to process all of the information and findings, I am thrilled about the fact that we, humankind, continue to be surrounded by the unknown, no matter how many decades we have evolved alongside technology, no matter how much we can reveal or measure. The more we zoom in on these molecular identities, the more complex life turns out to be. This makes me wonder; will we be stuck with these unknown entities and agency – aliens – forever? These aliens in our bodies, on our skin, in our phones and computers, our architectural systems, our oceans, in the sky and air. What if the alien is so alien that one might not even recognize it as such?

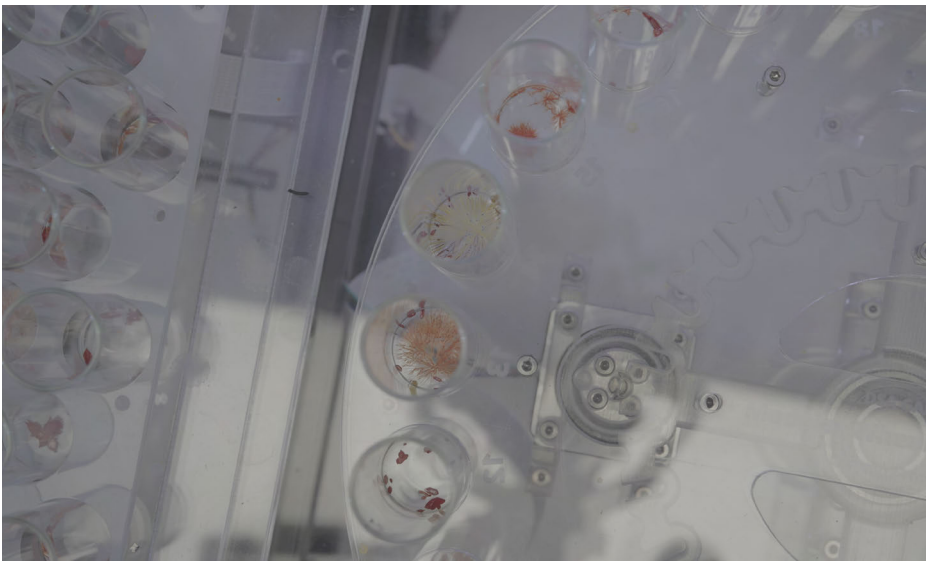

fig. 3.16 Film still IV.

The trailer of the film is available at the following link:
https://vimeo.com/723349549