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*«And it hit me then, that if dirty old nature could be kept under the proper degree of control (sex left in, streptococci taken out) by other means, the United States would be happy to dispense with architecture and buildings altogether.»*

# BEING IN BUBBLE<sup>(1)</sup>

## Cristiano Aires Teixeira

Cristiano Aires Teixeira, born 1988 in Portugal, moved to Los Angeles after graduating with a Master's degree from ETH Zurich (2014), where he worked as an architect at Escher GuneWardena Architecture on a wide range of projects — from residential projects, to monasteries, to exhibitions — and conservation of mid-century homes. After moving back (2019), he joined the lectureship of BUK / Building Technologies and Construction of Daniel Mettler/Daniel Studer — at ETH Zurich as a teaching and research assistant and works part-time at :mlzd. He is the founder of RSTXR.

«And it hit me then, that if dirty old nature could be kept under the proper degree of control (sex left in, streptococci taken out) by other means, the United States would be happy to dispense with architecture and buildings altogether». <sup>(2)</sup>

There used to be doors. Doors were opened to get out. We opened doors to let guests in. But nowadays, we do not want anything to intrude, to disturb, to pollute our air. We do not know what could possibly make its way in as there is much we do not see nor understand. In order to keep the interior sterile and clean, we sealed it. In order to not break the seal, we erased every form of opening.

### The description of an image <sup>(3)</sup>

There is a grey mass outlining a landscape with an elevated peak and a drop. On top of the land-mass, a blob form is balancing. Lines show three layers to the blob. An exterior layer and an interior layer create the blob's form. A third layer is spanned horizontally across the interior to create an almost level surface. There are three defined spaces. One in between the exterior and the interior layer. The third layer divides the interior into a space above the platform and one underneath. There is a point, where the platform intersects the inner layer dividing the bottom space into two. The inner layer never touches the outer one. In the centre, a three-winged apparatus is hovering above the platform. There are hinges, there are sorts of antennae appendages and more technical elements. It is the most detailed object within the image. Around the apparatus, three naked male figures sit on the platform, three to the left and two to the right. Four of them are looking at the apparatus. Three of them have the same head, are bearded and wear sunglasses. But one of the three is smoking a cigar, another is lifting his left arm upwards and the third one is staring back at me.

*«Biological forms have always been taken as a model. The visible, tactile and tangible shapes of each time period form the environment».* <sup>(4)</sup>

When everything turned to extremes, we had two paths to choose. Either we run and hide and find a place of refuge «under a rock, tree, tent or roof» or we actually try to «interfere with the local meteorology» <sup>(5)</sup>. But how large can a geographical area be for us to manage and manipulate its local conditions? We tried one entire city. We tried one part of New York. We domed hoods with its skyscrapers, the parks with its trees, the streets leading nowhere out with its people. The most effective way was encapsulating ourselves in the smallest familiar unit possible in order to minimize the amount of resources — material and energy — we needed to invest. As per science: the bubble is the most effective way of enclosing the largest volume within the least surface area;  $A/V = 3/r$ .

*«cheap nature is at an end; cheapening nature cannot work much longer to sustain extraction and production in and of the*

*contemporary world because most of the reserves of the earth have been drained, burned, depleted, poisoned, exterminated, and otherwise exhausted».* <sup>(6)</sup>

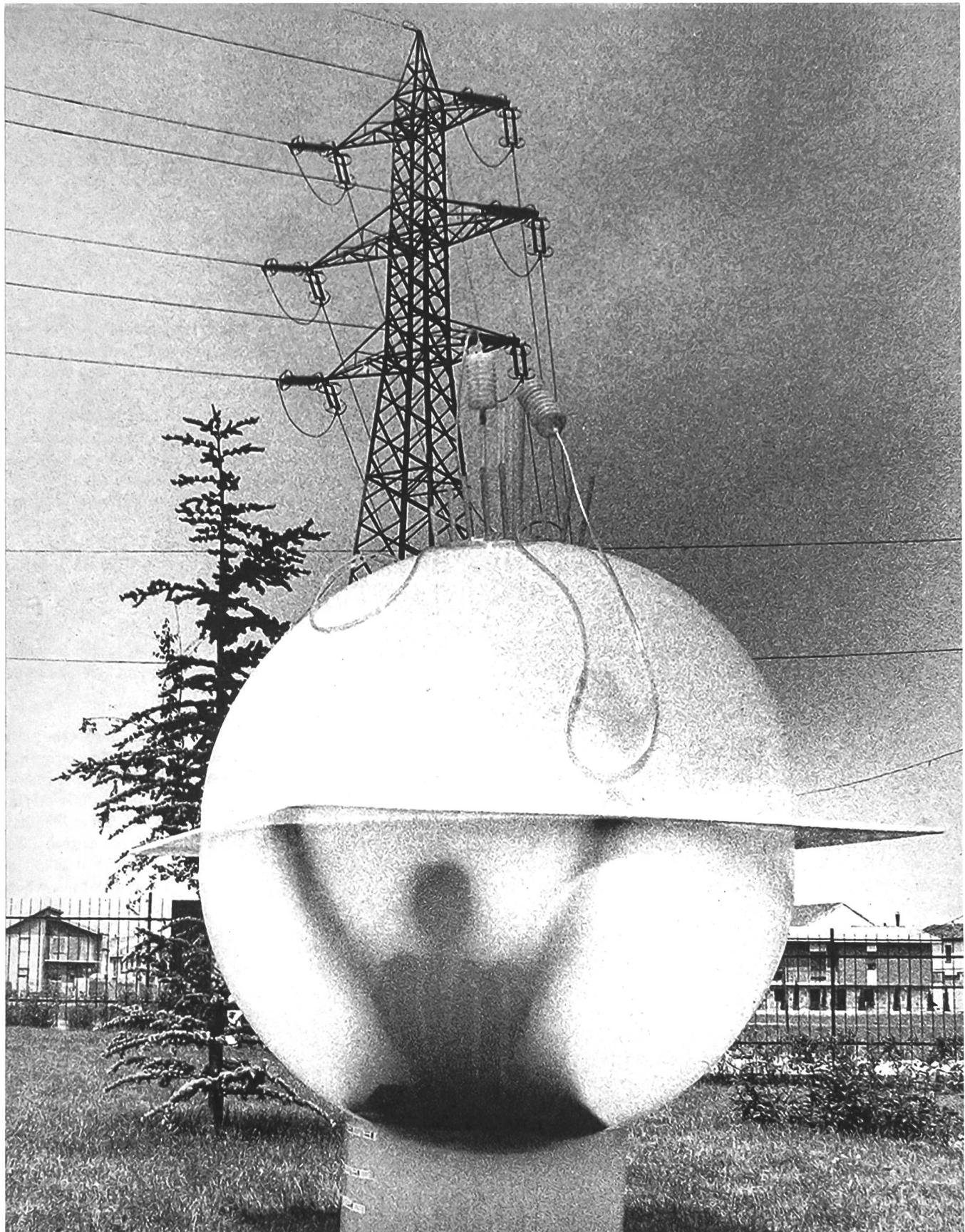
On the focal point of our sphere we have located our backbone, our standard-of-living package. <sup>(7)</sup> It is our light, it is our warmth, it is our air, it is our cleanser, it is our filter, it is our entertainment, it is our voice we listen to, it is our solar power plant, it is our battery, it is our controller, it is our pump, it is our weather, it is our light, it is our foundation, it is our skeleton, it is our organ. So, we gather around the centre and tell each other stories.

*«We are all chimeras, theorized and fabricated hybrids of machine and organism — in short, cyborgs. The cyborg is our ontology; it gives us our politics. The cyborg is a condensed image of both imagination and material reality, the two joined centers structuring any possibility of historical transformation».* <sup>(8)</sup>

We were promised total freedom of movement. The valleys, the mountains, the beaches. On earth or on another planet. Off we go to settle on the waste lands. Taking the invention of the first inflatable, the hot air balloon by the Mongolfier brothers further, we cannot only travel but also live wherever our inflatable takes us. We are life in nature. Like nomads, traveling around with the possibility to blow up our own environment — wherever, whenever it suited us. We were not in need of a floor, a foundation, as our bubbles were all encompassing — it was the cover above as well as underneath us, detaching us from any property restrictions. Leaving the overcrowded, noisy cities with their polluted air and oppressive structures. Soon to realize that in order to create a comfortable living environment, we depend and are bound to human-made infrastructures. These are anchored to the ground and cannot move with us, so we were anchored just the same. Creating bubble sprawls along the existing infrastructure grids, as hanging on an infusion or on a life-sustaining umbilical cord.

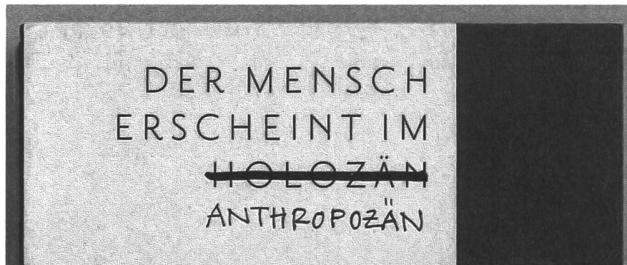
*«Looking for new sites to create spheres, chytrids are ever on the lookout for new beings and things to grasp with their rhizoids, seeking to enfold novel entities into emergent phenomenological bubbles. Once lodged onto a stratum, after they find an advantageous place on it, they experiment with the opportunities it offers».* <sup>(9)</sup>

We always wanted to connect the interior with the exterior. We built large panes of glass. At one point in time, windows became so large, that the whole building was a window. Our surrounding nature always present. But we wanted an architecture of air. Something like our own private troposphere. So we contained air within plastic bags. The technical machine provides the plastic membrane with its structural support — the tension — through compression, hot air, giving us a roof through the powers of pneumatics. Its physical properties: not only transparent and recycled but also «flexible, shock-absorbing, heat-insulating, acoustically absorbent and selectively responsive to reflecting light. (Also smelly and difficult to keep clean? So are you, hypocrite lecteur!)» <sup>(10)</sup> The new material for «a new atmosphere of human intimacy».



(fig. a) Ugo La Pietra, Immersion «Uomouvosfera», 1968.  
Image: Archivio Ugo La Pietra

«When chytrids are surrounded by other entities, when they live in worlds with other beings and things, they often inhabit different ontologies. Novel structures emerge, which are never seen in isolated cultures, amid multispecies intra-actions.»<sup>(12)</sup>



(fig. b) Max Frisch, «Man in the Holocene», 1979.  
Book cover

*«The Holocene was the long period when refugia, places of refuge, still existed, even abounded, to sustain reworlding in rich cultural and biological diversity.»<sup>(13)</sup>*

There are many words to describe the bubble, but these vary slightly in meaning. Sphere, balloon, foam. All of them describe a form in an unstable condition. Similar to the bubbles of economic markets, they could burst. The soft bubble architecture replaced by a hard one, one made of walls, made of stone, timber, steel, leaving behind any representation of power or status through decorum or monumentality. At the moment of birth, we are all the same and now wander around wearing our uniform, portable plastic homes. All you can see are living settlements made of equal domes, transient, translucent. And at night, the bubble lanterns brighten up the darkness like fireflies.

*«There are no individuals plus environments. There are only webbed eco-systems made of variously configured, historically dynamic contact zones.»<sup>(14)</sup>*

I like to call it skin. Our skin is vulnerable, so we needed a second. Like a protected shield it extends our body and encloses us with a smooth second layer. Laying my hand on the shield, it moves, it is soft, it deflects its form through my interaction. «Our spaces are pulsating balloons. Our heartbeat becomes space; our face is the façade». <sup>(15)</sup> It is as much me as I am it. The same is true from the outside. When the strong winds are blowing, the bubble gets compressed and adapts its form to be more aerodynamic. Together, we form a symbiotic organism in perfect homeostasis, a dynamical balancing of our inner environment and reacting to exterior conditions — a responsive environment.

*«But then, one has discovered the gateway to the environments, for everything a subject perceives belongs to its perception world, and everything it produces, to its effect world. These two worlds, of perception and production of effects, form one closed unit, the environment.»<sup>(16)</sup>*

And, you may ask, how did we get here?!

1. Unwarranted apology
2. Environmental management
3. a dark satanic century
4. The kit of parts: heat and light
5. The environments of large buildings
6. The well-tempered home
7. Environment of the machine aesthetic
8. Machines à habiter
9. Towards full control
10. Concealed power
11. Exposed power
12. a range of methods<sup>(17)</sup>

The range of methods produced many prototype projects. All of them carrying promising names: Fiberthin Airhouse, Astroballs, Cushicles, Dymaxion, Pneumacosm, Suitaloons, Mind Expander, Oasis No.7, Luna and many other projects — nowadays also fashionably summarized under the term bubbleecture. Bubbles for a head, bubbles as a suite, bubbles for two, responsive bubbles, restless bubbles, bubbles as protest, bubbles as art, built bubbles, metaphorical bubbles, environmental bubbles, environments in bubbles, bubbles you can DIY.<sup>(18)</sup> All wanted to «transform [not only] the spiritual [but also] climatic conditions on the surface of our earth.»<sup>(19)</sup> All of them being closed worlds, like space capsules or submarines, self-sustaining artificial environments.<sup>(20)</sup>

*«We need stories (and theories) that are just big enough to gather up the complexities and keep the edges open and greedy for surprising new and old connections.»<sup>(21)</sup>*

All across the planet it was freezing cold. All across the planet it was burning hot. All across the planet it was raining masses. All across the country it was bone dry. But inside our bubble it is constantly 21°C. It is always warmly bright. The air saturated with oxygen and our skin perfectly moist. We mastered our interior environment's specifications. We are our own artificial microcosmos where we float naked inside, inside our Klimahülle. We did that to tomatoes, when we sheltered them in hot houses and provided with the perfect, constant environment to grow. Larger. Faster. All year round. I ask myself, are we growing faster and stronger or is our flavor just fading?

Why do hot house tomatoes taste different?

Researchers found that the glass walls of the greenhouse block UV light, which can cause stress in tomato plants that may alter the fruits' ultimate flavor. 21 Sep 2016

<https://www.vocativ.com/greenhouse-tomatoes>

Scientists Discover Why Most Tomatoes Taste Awful—And How To ...

(fig. c) People asking the Google Search Engine

Maybe we have always been in a bubble. We are in planet Earth's bubble. Inside each bubble there is another bubble. We are in the bubble of our species, region, culture, gender, profession, generation, language, just to name a few. We

might need to think that our neighbour is inhabiting a totally different bubble. My bubble is just my world and there are the elements important to me, the features accessible to me. Maybe we just wanted to materialize our bubble, to accentuate the differences there are between me/us and others, in order to further keep us apart. My bubble is me, my bubble is home.

«Every environment is a closed unity in itself, which results from the selective sampling of a series of elements or «marks» in the Umgebung [surrounding], which, in turn, is nothing other than man's environment [Umwelt].»<sup>(22)</sup>

Organizationally, only inside or outside exist. Things which belong and things excluded. Within the sphere there is no direction, there is only a centre and periphery. All elements which a given creature is in a relationship with is within its environment, its bubble. Me as a subject within my bubble have a multitude of objects perceived by me through marks within my «perception world» and elements I produce setting out marks into my «effect world». <sup>(23)</sup> All stimuli, all objects from outside have to pass through the filter of my membrane. The view towards outside gets perturbed by the angle of refraction, so does the light coming in. Sound gets damped. Smell doesn't enter. Everything is filtered or sampled anew before it reaches me and can be processed. But then, in a world full of stimuli, full of images, full of information, full of innovations, we are flooded, agitated, in panic. Within we can return and concentrate on ourselves, our minds, our bodies. So, the membrane is a shield, is a defense system. But protecting me from what?

«We comfort ourselves all too easily with the illusion that the relations of another kind of subject to the things of its environment play out in the same space and time as the relations that link us to the things of our human environment.»<sup>(26)</sup>

There used to be elephants, in Africa, in Asia, dolphins in the Amazon, whales, blue ones, gray ones, ones with fins, bow-headed ones, some with horns, even a shark one, ice bears, penguins, polar this, polar that. We used to go to zoos, nothing else than — an accumulation of artificial environmental bubbles for respective species — to watch them walk, eat, carry us, entertain us. Now it is us being exposed. Through our skin you can see our core, our living mechanisms — our environment. But we can also see out, out to a space with all the missing things.

There are «an infinite variety of perceptual worlds that though they are uncommunicating and reciprocally exclusive, are all equally perfect and linked together as if in a gigantic musical score.»<sup>(25)</sup>

Have you read «The Word for World is Forest» by Ursula le Guin? For some beings their bubble is the forest. Or even just a tree.

THE SAME SUBJECT AS OBJECT

IN DIFFERENT ENVIRONMENTS

Because me as a subject am at times just an object and perceive all surroundings just in subjective ways.

Man remains an amateur.

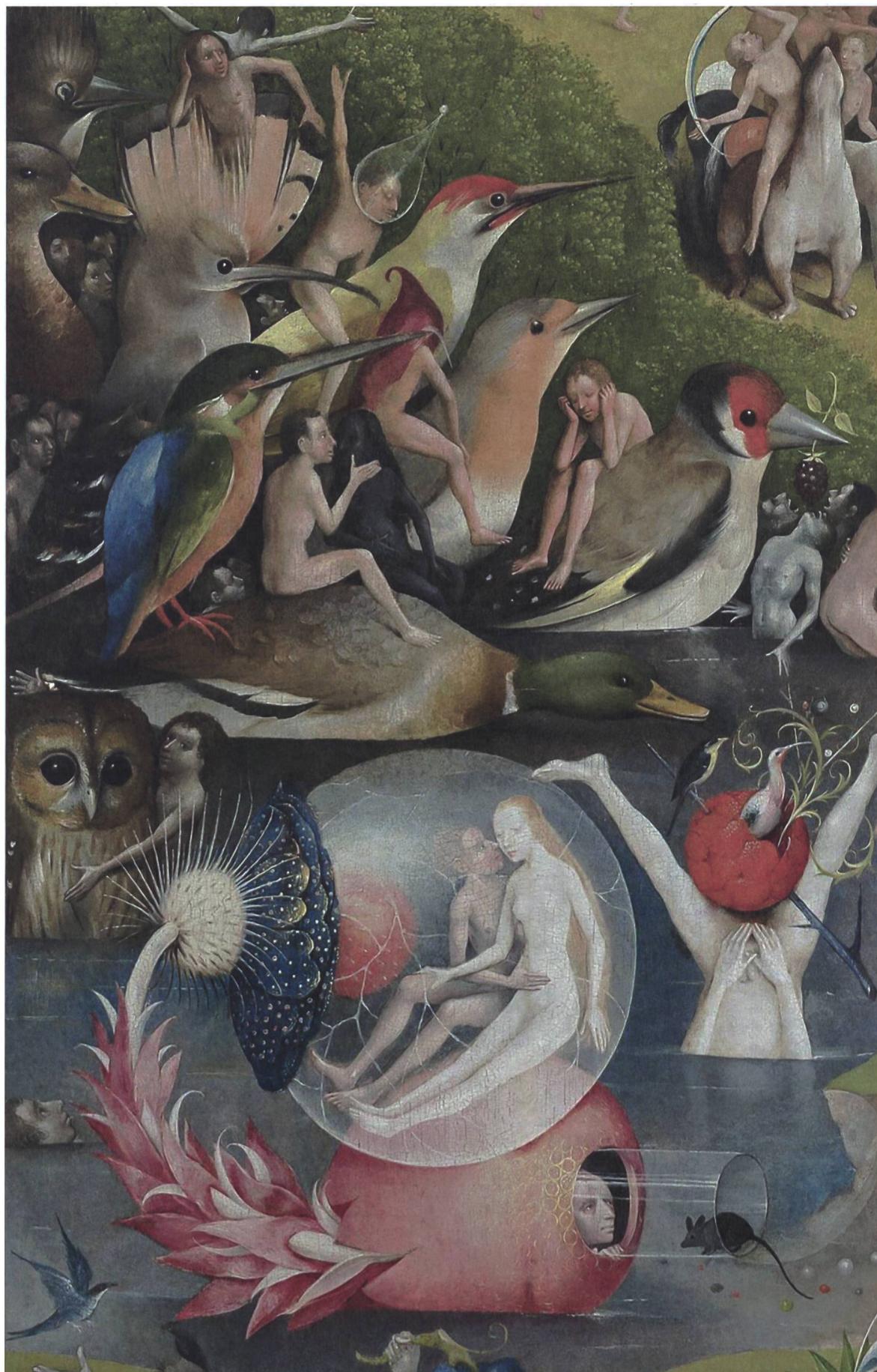
Times ago there was a boy named David Vetter. The world was dangerous to his body. Directly after leaving the mother's womb, David transitioned into the plastic germ-free environmental bubble that would become his home. His bubble had gloves attached for him to get touched and the air compressor was so noisy, for him making out what was being said to him was difficult from inside his chamber. Everything getting transferred into David's environment had to go through a long procedure of being intoxicated first and neutralized again. Nonetheless, he wanted to explore everything he could see from outside his window and on television. He passed away at age 12.<sup>(26)</sup>

Playing: The Boy in the Bubble  
by Paul Simon<sup>(27)</sup>

**G C D**  
These are the days of miracle and wonder,  
**G C D C D C D**  
This is the long dis - tance call.  
**G C D**  
The way the camera follows us in slo-mo,  
**G C D C D C D**  
The way we look to us all.  
**G C D**  
The way we look to a distant constel - lation  
**G C D C D C D**  
That's dying in a corner of the sky.  
**G C D**  
These are the days of miracle and wonder  
**G C D C D C D**  
And don't cry baby, don't cry, don't cry.

(fig. d) Chorus 1.

At night, I can sometimes hear the chirping of nearby crickets. I step closer to the membrane and try to figure out where the sound is coming from. It won't get close to the perimeter as my flood lights illuminate the surrounding and hence stays invisible to me. Only the high-pitched sound penetrates and the sound slightly amplifies by the reflection of it hitting the interior curvature. Does the cricket have a bubble of its own? I heard that the male crickets chirp in order to find their female companions hiding somewhere in



(fig. e) Hieronymus Bosch,  
«Garden of Earthly Delights», ca. 1480—1505. Detail

the tall grass. They sing a song to not be alone. I also recall learning that the rate of the chirping can be used to calculate the exterior's temperature. So, I sit still, listen, count and divide.<sup>(28)</sup> After all, the song was meant for me as well.

- $\text{temperature} = 50 + (\text{chirps\_per\_min} - 92) / 4.7$   
- another formula for **snowy tree cricket** (Further Notes on Thermometer Crickets, by C.A. Bessey and E.A. Bessey, 1989)
- $\text{temperature} = 60 + (\text{chirps\_per\_min} - 19) / 3$  -  
formula for **common true katydid**

The equations should work especially well over a range of about 55 to 72 °F and they are not used in the temperatures below 50 °F, as that's the threshold when the crickets stop singing.

*«Each bubble shelters other places, and in each are also found the directional planes of effective space, which give a solid scaffolding to space. The birds that flutter about, the squirrels hopping from branch to branch, or the cows grazing in the meadow, all remain permanently enclosed in the bubble that encloses their space.*

*Only when we can vividly imagine this fact will we recognize in our own world the bubble that encloses each and every one of us on all sides. Then, we will see each of our fellow human beings as being enclosed in bubbles that effortlessly overlap one another because they are made up of subjective perception signs. There is no space independent of subjects. If we still want to cling to the fiction of an all-encompassing world-space, that is only because we can get along with each other more easily with the help of this conventional fable.»<sup>(29)</sup>*

I daydreamt of a bubble encompassing a blooming meadow. Inside were bubbles of various sizes. Bubbles for plants, flowers, fungi, animals — any critters. A state of excess expressed through diversity. Two bubbles touching each other. Their membranes joined where they intersected to become just one — a new construct. A sudden gravitational pull invited — me to come and enter this sphere. I notice how the many bubbles around me start to reconfigure once I enter. Some distance themselves and retreat into their hideouts, whereas others step closer to observe. From inside, I could see the interactions differently, some affecting me, me affecting others. But in this world unknown to me, all species, all bubbles, after taking notice of me, go on with their businesses within their worlds. And it hit me then, that the meadow was just having me as a guest. While leaving, I glance back again and where I was standing, my bubble has left the grass squashed, leaving behind a large round footprint, which was much larger than my feet.

Maybe there is not just one world even when there is just one planet Earth.

Maybe us retreating into a comfortable bubble after leaving the planet damaged is just the easy way out.

Maybe our human bubble is not of interest to other species' bubbles and our interference is unwanted.

Maybe we have to leave bubbles as refugia for others.

Maybe our human blob does not sit elevated above the others.

And maybe everything else is not just a grey mass.

*«A new world arises in each bubble.»<sup>(30)</sup>*

