



FLESH FICTION

Writing cultivated meat taste

University of Amsterdam, September 2023

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Prologue

The production of animal-based proteins (dairy & meat) is among the biggest sources of CO₂, aggravating climate, and biodiversity crises. In-vitro meat promises to feed the world's growing population, in less resource-wasteful, healthier, and energy saving ways. Cellular Agriculture (Cell Ag) is likely to revolutionize established meat production chains by verticalizing and urbanizing dietary protein production; offering a more technology-based, laboratory-based culturing of protein cells and meat-like tissues, and replacing agrarian and factory farming of animals, promising to reduce the suffering of animals.

Academia and the global players involved in the development and marketization of Cell Ag do not doubt that in-vitro meat will come to the market; the question is at what scale, when and with what effect for the conventional meat industry and the spatial organization of societies and human-animal relations. The geographies of a post-intensive livestock farming world and its extended forms in the enormous extensions of land currently in use for animal feed will look radically different, urging and allowing vast-scale rewilding and restoration of crucial soil ecosystems.

During our 2-day workshop in Amsterdam in September 2023, we engaged in intense ethical and conceptual discussions about potential consequences of a broader shift towards cell culturing in the production of dietary protein with a group of researchers from diverse fields (geography, economy, sociology, anthropology, philosophy, and veterinarian medicine). Following our in-class debates, we visited the lab of one such big player and promoter in the field, Mosa Meat, with its headquarters in Maastricht.

Under the title 'Flesh Fiction: Writing cultivated meat taste', the group then engaged in a creative writing experiment. Prompted by the [story of Ian the chicken](#) – a fictional bird featuring prominently in the promotional material of Just Meat, another Cell Ag company – participants wrote a flash fiction story from the perspective of the animal protagonist. The group took Ian's perspective as a starting point, basing their stories on the idea that after cell extraction for lab cultivation of dietary protein, the chicken joins other creatures at a dinner where everyone eats food made with meat cultivated from Ian's own cells. What kind of recipes are used? How does this food look, smell, and taste? How does it feel to eat something made from your own cells? Which flavors and emotions can you identify and describe? These questions guided the groups' culinary interspecies speculations and narrations. Read a collection of the resulting flash fiction stories and one poem on the imagined flavors of cultivated meat [here](#).

Our activities have received financial support from the Centre for Urban Studies, University of Amsterdam – to which we address our gratitude!

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Ian's report

By Carla F M Molento

September 11, 2023

I wish everybody had seen and felt what my fellow chickens, called 'broilers', go through as they are born in hatching machines, never experiencing an adult chicken presence that could bring behavioral models or emotional security possibilities. Then, terrible transport experiences, life in a barn where 18 of us must share the same square meter. Walking is painful because of our genetics; the floor burns our skin with the ammonia from the excreta of those who came before us. Breathing hurts for the same reasons. Then back to even worse transport conditions, to be slaughtered before we become an adult bird. Very painful I heard, as we hang upside down from our most diseased joints, our legs.

Thus, what I am feeling is the most hopeful experience I could have in life. Perhaps my cells will be my liberation, but what overwhelms me is that they are the liberation of billions. What is a billion chickens? Each with their own perspectives, personalities, wishes and efforts to remain alive and live well. I don't know what a billion chickens is. I suspect humans don't either.

It is sad that all this cell-based stuff is needed, as our cells are not needed for humans to thrive. But the killing machine only grows bigger and bigger. I am so pleased that my cells can replace the billions. I wish no single bird would ever be born again to be killed. Fly dear fellow birds, fly.



Out of Body Experience

By Eline van Oosten

They start by plucking out one of my feathers to get what they need. They work in these big blue suits, their hands in tight gloves, their eyes covered behind plastic glasses. Then they toss me aside. I am no longer needed and am left to my own devices. I am all alone which feels strange after all these years of crowding and just seeing muddy boots every now and then, stepping in and out of where I was. Eating an unlimited amount of food, I would never go hungry. Life was not particularly good, but it was simple and familiar. Now all of a sudden, they have decided I need to be liberated. Years of breeding and handpicking us for our best qualities, I am not made to turn over one year old. By that time my immense appetite has grown me into such a size, I can no longer stand on my own two feet. Now they want me to have a life? They even named me. Have they ever really wondered what this is like for me? For us? Robbed of our conditions they bred us for, transplanted once again into a vision they have for us. This new world is full of strange sensations. The wind is blowing through my feather pack, which has grown substantially since I am no longer there in the old place. The sensation of air is alien to me, the grass tickles my toes and there are all kinds of others here that I do not recognize. A lot of them. I am constantly hungry. Because of my ravenous appetite I pick up some slippery string that moves in the grass. It splashes apart in my beak, salty and slimy, I gag. What a horrible sensation. Am I supposed to enjoy this?

Then a strong smell coming from some steel box, a big alien structure, those legs again moving through the grass. The legs are weirdly naked and move slowly, they all stand around a hot steel box making conversation and laughing. What is that smell? It smells strangely familiar, like it used to smell on a very hot day in my old place but stronger. It offsets a corporeal sensation inside of me, a wave of anxiety moves through my chicken body. I feel a need to flee. Then I smell smoke. Are they grilling me? I feel phantom pains in my breast and fall to the ground. They handle my breasts with tonsils and cover me in a red spicy sauce. My muscles contract. A sizzling sound and dents form in my breast area, they slowly dry out, turn brown. The smoke penetrates my tender meat. I dry up some more and then they pick me up, push on me with their fingers to check if I am done. I am moved around the table: “you want some?” They talk about me, that I am the best chicken. That they grew me in a petri dish and they fed me with only the best ingredients with the most efficient conversion rate, out of that part of me they grew 80.000 more. Suddenly I am back, just in time before they put their shiny white teeth into one of my breasts. I was having an out of body experience.



Eternal Birth

By Frank I Müller

I was eaten by my friends
Who loved my life so much it ends
Showed them my legs until the bones
So they know how chicken clones

First you isolate a bit
Cell be of rat or dog or tit
Then you water me in Science
To shape a tissue-taste-alliance

For reproduction be eternal
You enact Goddess /slash/ maternal
Breed bits 'n' bytes to deceive flesh
Taste like myself turned into cash

So I ask: what am I now?
Am I a sow, a show, a cow?
Am I the dead you wish to save?
Or a life to live in grave?

Am I yet species without spice
To feed waste ethics' plates a slice?

Am I?

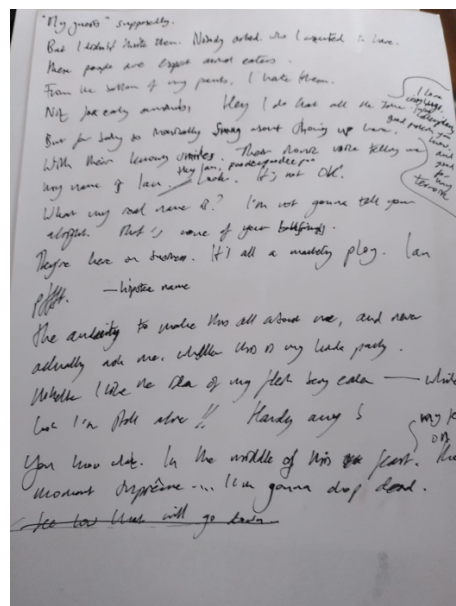
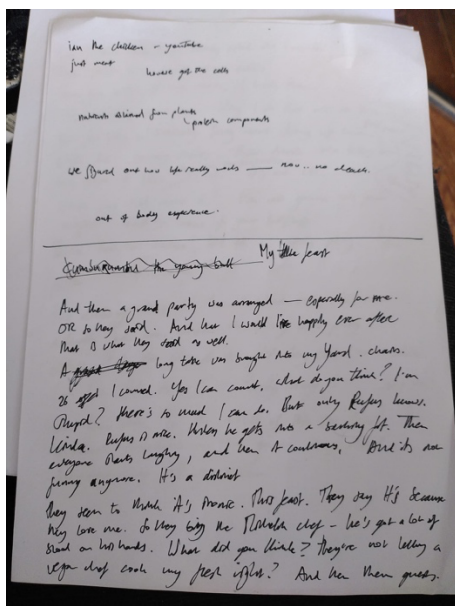
Not dead, not alive
Not on Earth
Despite my birth



I'm a chicken alright. But I AM NOT IAN

By Clemens Driessen

And then a grand party was arranged – especially for me.
Or so they said. And that I would live happily ever after.
That's what they said as well.
A long table was brought into my yard.
Chairs.
26, I counted.
Yes, I can count. What did you think? I am stupid? There's so much I can do. But only Rufus knows.
Kinda. Rufus is nice. Unless he gets into a barking fit. Then everyone starts laughing. And then it continues. And it's not funny anymore. It's [...unreadable...]
They seem to think it's ironic. This feast. They say it's because they love me. So, they bring the Michelin chef – he's got a lot of blood on his hands. What did you think? They're not gonna let a vegan chef cook my flesh, right? And then them guests.
"My guests" supposedly.
But I didn't invite them. Nobody asked who I wanted to have.
These people are expert chicken eaters.
From the bottom of my pants. I hate them.
Not for eating animals. Hey, I do that all the time. I love crispy bugs. Juicy caterpillars. Good protein you know. And good for my terroir.
But for being so unbearably smug about showing up here.
With their knowing smiles. Their ironic voice telling me my name is Ian. "Hey Ian, poodeepoodeepoodee." Look, it's not, OK.
What my real name is? I'm not gonna tell you alright. That's none of your business.
They're here on business. It's all a marketing ploy. Ian. Pfffft. Hipster name.
The audacity to make this all about me, and never once ask me whether this is my kinda party.
Whether I like the idea of my flesh being eaten, while – "look, I'm still alive!!"
You know what. In the middle of this feast. My feast. On the *moment supreme*.
I will drop dead.



Metamorphosis of Ian

By Mariana Hase Ueta

As Ian The Chicken awoke one morning from uneasy dreams, he found himself transformed in a nugget. No, wait, maybe this was just an odd nightmare. The kind of nightmare that brings up fears from old ancestors' chicken stories, who escaped to pass along their memories about chicken who saw no night, chicken who would be abducted never to be seen again and suffer things that no chicken should ever feel.



But Ian was safe. He opened his eyes and checked his wings, all feathers nice and white, his little feet also exactly how he remembered the night before. So what was that nightmare about? Ian could not help feeling a cold down his spine. That dream could not leave him alone.

Trying to move away from these troubling thoughts, he went to have a walk in the farm like he usually did. But this time he saw a big camera crew in the field. Without understanding much, he tried to mind his own business. However, the crew did not stop following him closely. He gave them what they wanted, a couple of nice shots looking as a happy chicken as he could.

Later, when walking around the tables in the garden, he noticed a group of people insistently looking at him and taking pictures. "What an odd day", he thought to himself. Not long after that, in a place nearby he saw another man seasoning fine spices with his precise hands and bragging about something incredible he was preparing. Ian was curious and wanted to know what that was about. He quietly peaked on the window to see a man talking to the camera man. He starred in panic and confusion while the man posed to the camera holding a basket of nuggets and said Ian's name over and over again. It was happening. The nightmare was real. He was a crispy perfectly seasoned chicken nugget.

Before he could react, the man brought the basket to the people around the table and with no hesitation they grabbed the pieces and put them in their mouths. Ian's pieces. Ian's heart sunk in confusion. He checked again his whole body and no pieces were missing. So how was that possible?

He approached the table carefully pretending not to be interested in the confusing scene. As people ate the pieces they looked more and more in his direction. But it was not the type of look that his ancestors told him about, they looked at him in admiration, one of them even had tears in his eyes. It felt weird to be seen. Ian heard another saying that he was a hero, he was saving the environment. After the crew was done, they applauded him and said he was an example to all the other chicken of the world. "What an odd day", he thought to himself.

He had woken up in the morning to have become a nugget to have stayed exactly the same. He could not make anybody understand. He could not explain to himself what happened. Ian suddenly thought he could be anything he wanted. If he could be a hero, if he could be a nugget, what was stopping him of being anything else? It felt like there were no limits to the possibilities of the future. His life would never be the same, from an odd dream to be awoken to a life colored with ever new possibilities.



Ian

By Willem Boterman

Give it up for the grill master! Yeah, Robin, well done man! That looks really delicious! Let's hope so, says Robin, I tried my best. Robin comes waddling over the gravel, balancing two white bowls of grilled chicken from the Green Egg barbecue that he received as a gift from Louise.

I looked around the table from the roof of the shed, about eight feet from the grill. Five people, a dog and me, Ian, a chicken, gathered to celebrate Midsummer's Eve. It was a quarter to nine in the evening, but the sun was still bright in the sky. On the table were laurels of flowers, candles not yet lit, glasses filled with water, aquavit and wine playing with the light of the egg-yolk sun. White clouds slowly drifted by. Robin and Louise had invited their friends Jack, Raven and Merel to celebrate Midsummer's Eve like every year.

However, this time it was different.

For the first time in years, meat would be served again. Other years there had been salads, mezzes, and dips with flatbread from Azour, that I also really like. After dinner the tablecloth would always be spread out on the lawn next to the shed. It's wonderful to be able to pick up all those leftovers in peace. I am the only chicken in the garden and really Louise's favorite. All the love she puts into the food, I can even taste it in the crumbs. But this year it was different.

This year Robin had decided that it is allowed to sizzle, roast and gorge again, and what better way to celebrate this than with a barbecue? I'm also curious myself. We chickens are fine with breadcrumbs, quinoa and some worms from the garden, but that leftover Spaghetti Bolognese I used to get, is nothing to sneeze at. That rich taste! And so deliciously filling.... In short, I wouldn't mind sampling a little meat, but what will it taste like? No idea.

So, there he is: Robin, as proud as a peacock with his bowls. He really did his best: satay with peanut sauce, piri piri drumsticks and Javanese chicken thighs. Plus, sajur beans with chili and cauliflower -pickle, all from our own garden. Yes, also the meat.

At least most of the time.

I usually walk through the garden.

I sometimes go into the house or fly away a bit, but I live in those pleasant square meters between ditch and street, next to the house.

A feather! That's all I had to give up. They pulled it out of my tail, and it wouldn't bother me, they said, and now the time has come.

I'm ready.

Dinner begins. Robin serves, Louise pours, Jack talks, Raven laughs, and Merel digs in. She immediately grabs one of the drumsticks and starts eating. Soy sauce and my fat emulsify in her mouth and run like a narrow stream down her chin onto her white summer dress. She doesn't notice. I watch mesmerized. How does it taste?! I want to ask. How do *I* taste?? But Robin beats me to it. "It's out of this world!" Merel shouts with her mouth full. Thanks, Ian!

She throws the gnawed bone in my direction. I hesitate. Would I? Do I dare? I flutter from the shed to indulge myself, but the dog gets there first.

The Story of Woody Allian, the Tasty Chicken

By Marcelo Beltrão Molento

Once, there was a happy chicken (me!) walking under a light rain on a tropical Brazilian farm. I was wondering where my friends were going when they suddenly disappeared from the neighborhood. There were never any clear answers to my requests. During that week, I was called to a meeting, and a human that I knew told me that a group of scientists needed to take a piece of my body for research purposes. It could be from my feather – no pain involved guaranteed.

Two years later, I got news from these people about a new product that was made from my donation that day. I remembered Henrietta Lacks right away, the one from the HeLa cells who involuntarily “donated” her cancer cells to be studied during her therapy period in the 40s’. The industry had created the first immortal cancer cell lines and has profited millions, with no reimbursement or personal recognition.

No one told me about the commercial part of it, too. I wondered. Later that year, I was invited to a chicken-tasting BBQ, where my friends – humans and non-humans alike – had a piece of my flesh. A BBQ of me! How weird!!! That sounds crazy, doesn’t it?

My first impulse was - let’s get out of here and have a traditional tender corn stick! The next moment, my friends were biting, chewing, and yummying quite loudly. So, soon I realized that they were having a great time. My immediate thought again was: What are the positive lessons from this? Should I be mad about it, or should I just relax and have a bite of myself? Should I still consider that thing a part of me? I really don’t like the idea of immortalization.

As I was getting grumpier and grumpier, I felt the great taste of the meat. Moreover, I had the opportunity to remember all the thousands of poor intensive-raised chicken, fish, and pig friends that die every single day for human food. And that was enough to consider for me. So, I said, if I can contribute in any way, to save lives and indirectly help to save the planet; I’ll be fine! After we went over 8 bottles of perfect Portuguese wine, I got home as happy as a chicken can be.

I almost forgot – the salad, bread, and dessert were all great as well. A few weeks later, I saw a beautiful picture of me on a city bus promoting cell-based meat products – and I smiled.

The Eaten Bird Gets the Worm

By Nora Castle

The big featherless chicken was doing something in the kitchen. Water bubbled on the stove, and a smaller pot of something that made the air burn, crackling with the heat of chiles. Yellowish-white rounds grew brown spots from the licking flames, before being dipped in the spicy sauce and placed in a glass dish. These spice-coated tortillas would be filled with me, and covered in cheese from Adelaide, before bubbling away in the oven. Enchiladas, they called them, with a buzz on the *chi* like the chi chi chi of the summer cicadas. I would be boiled and shredded, my white flesh painstakingly separated into stringy, white strips. But I would feel no pain. Strange, that these creatures so hunger for my meat, yet they do not merely grab hold of me and bite, like the fox that stalks our coop in the dark hours...

When the timer dings, they sit, surrounding the dish of my cooked and seasoned flesh like an ambush, utensils poised. I am, I understand, delicious. As they shovel my en-spiced flesh into their fleshy maws, a piece falls. I wander over – it is my nature to be curious, to peck and see, to sample, to taste. Before they can notice, I take a nibble. Chewy in just the right way, umami, and then... pain! Fire! I run to the trough, beak burning from spice. I'd heard enough of chickens and eggs to be at peace with the existential crisis, but the heat was a bridge too far.

I'll never understand these creatures, I thought to myself. I had always tried my best not to be speciesist, but this is what happens when you don't get your embryonic nutrition from a proper egg... no common sense. What a waste of a perfect chicken breast... *my* perfect chicken breast. All this messing about with laboratories and pipettes and *this* is what they come up with?

I spied a worm peeking through the tangled grass and nabbed it. Mmm... wriggly and delicious. Now that, I thought, is proper protein.

About the Contributors

Carla F M Molento, DVM, MSc and PhD, professor of Animal Welfare and more recently Cellular Animal Science at the Federal University of Parana, Brazil. After decades doing research, teaching, counselling and outreach activities in farm animal protection issues, I couldn't be happier with new food production systems related to alternative proteins. Hopeful for some room to consider those who have the most at stake: their suffering and their lives.

Eline van Oosten is a PhD candidate in the ANIMAPOLIS project at the University of Amsterdam, where she explores the metabolic relations between rats, humans, and waste in Amsterdam and how these metabolic relations co-produce urban inequalities. Her areas of interest are metabolism, waste and more-than-humans.

Frank I Müller is an Urban Geographer who works for his Global Fellowship within the Marie Curie Actions program of the European Union. His main research interests concern social housing, urban inequalities, and contested sovereignties in Latin American cities. But he also cares for vegan food and animals, a concern that motivates his research on dietary protein, see: proteinmatters.org.

Clemens Driessen is Assistant Professor in Cultural Geography at the Wageningen University & Research. He studies the 'moral geographies' of animals, agriculture, and food. He combines Science and Technology Studies and approaches from Environmental Humanities, pursuing to generate opportunities for experimental interventions within a 'more-than-human' geography.

Mariana Hase Ueta is a Postdoctoral Researcher at Wageningen University & Research, developing interdisciplinary work at the intersection of food sociology, sustainable diets, and emerging technologies and seeking to further a relational understanding of how these are co-constituted.

Willem Boterman is an Urban Geographer at the University of Amsterdam. He works on educational inequalities in urban environments, but also on the production and consumption of meat.

Marcelo Beltrão Molento is a veterinarian and a full professor at the Dept. of Veterinary Medicine at the Federal University of Parana, south of Brazil. He is active in promoting integrative medicine, including the development of phytotherapy, and animal resilience. He is an amateur sculptor in his free time, and he also listens to 60s and 70s pop music.

Nora Castle is an independent researcher who holds a PhD in English and Comparative Literary Studies from the University of Warwick. Among her research interests is the future of food amidst environmental crisis which she studies within contemporary Science Fiction.