

Happy Eggs

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Abstract. The world of scientific discovery often remains far-fetched to ordinary people. Although the significance of engaging the public and making the science accessible has been increasingly recognised, few efforts have been made to investigate the popular stereotype of 'crazy' scientists, ambitious and sometimes nerdy. Whilst the media tend to focus on very few glamorous scientist celebrities, the majority of them often remain anonymous, battling with the tedium and the gruelling pressure. This story presents glimpses of the daily life of an ordinary young scientist and her search for the meaning of science and life, set in a futuristic scenario about genetic research on the formation of happy neurons when physical illnesses have been conquered. Questions are raised about the possibility of a formula for 'happiness', and the role of science and technology for the psychological health of human beings.

Keywords. Happiness, life science, scientific discovery, engaging the public, chicken embryos, neurons, art and science.

Introduction

'It is the stress of failure that lends scientists their character, their humanity. Failure makes them interesting.'

— Natalie Angier, *Natural Obsession*

'The last frontier of the biological sciences – their ultimate challenge – is to understand the biological basis of consciousness and the mental processes by which we perceive, act, learn, and remember.'

— Eric Kandel, *Principles of Neural Science*

We live in an era when science and technology are changing our lives at an unprecedented speed. The prospect of finding solutions to technical hurdles has never been closer. One of the fields that benefits from new equipments and technologies and undergoes revolutionary advancements is life science². The time for revealing the deepest secrets of life and finding cures for incurable physical illnesses will come.

As with any discipline of natural science, an insatiable curiosity about the natural world drives life scientists to find out how it works, at a deeper and deeper level, explore the unknown and solve puzzles. However, as the enterprise of life science functions more like an industry, funding is shrinking with limited number of tenure posts. With the push of new technologies for speedier analysis, the fierce and ferocious

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² The term 'life science' is used here to refer to its general comprising of all fields of sciences that related to the study of living organism. The same is for 'life scientist'.

competition within the field has led to a culture of secrecy. Whilst elements of 'luck' and 'surprise' having long served as a motive and inspiration for scientists, they are now casting a sinister shadow on this profession. Scientists face the danger of being deprived of the freedom and joy of following their whims and instincts, and playing on seemingly crazy ideas. Such frenzy as a result of competition is worrying. Often scientists feel the need of guarding their results and fighting for an earlier publication than their peers at all costs. The craving for professional recognition and acclaim is becoming an end in itself [1].

This situation does not help with the popular stereotype of nerdy scientists lacking sophisticated social skills, which after all, contradict the principles of scientific investigation. Scientific training is to prepare scientists to strip camouflage and question the essence, instead of teaching them how to compliment others' footwear. Different social etiquette may scientists possess from the rest of us, scientists are, '...as human as the rest of us', says Angier, 'only smarter and with less attractive footwear' [2]. Such basic humanity is fundamental to reach any understanding of the others, as Buddhist doctrines say, being one human being to another [3]. We are human beings before our jobs, our skin colours, our languages, nationalities, and so on and so forth.

This story is an inspiration from my experience in a research project which develops scientific software for storing and processing imaging data [4]. My role as a design ethnographer involved, through participant observation, capturing information of scientists' microscopy work, and informing software developers and computer interface experts to improve the functions and usability of the software [5]. Meanwhile, I was drawn to scientists as individual and emotional beings just as the rest of us, and the somewhat unique culture of this field, and surprised at the dearth of such accounts.

For most people, the field of life science belongs to one of those cultures about which we know neither 'why people do what they do', nor 'what they are doing'. Furthermore, scientists themselves may not be 'conscious of the fundamental presuppositions that shape their vision, many of which are distinctive to their culture' [6]. One of the popular approaches to conduct social research of such cultures has been ethnography, which often involves an 'outsider' getting into the field of the people being studied, conducting participant observation and keeping a field diary³ [7].

Although this story is not an ethnographic report, a brief description, in particular its feminist/postmodern approach, would help to explain the underlying rationale of the story. Traditional ethnography often aims to achieve 'a certain objectivity not normally available to culture members' [6]. Such proposition, however, has been questioned by intellectual movements including feminism and postmodernism, sharing a critique of the objectivity by arguing that 'each observer sees the world from his/her own position; each brings a social and biological biography to the act of viewing' [8]. In feminist/postmodernist ethnographic accounts, a dominant, authoritative and unifying perspective is replaced by differences, dialogues and polyvocality, celebrating the paradoxes and complexity of field research and social life [8].

As part of the research output, anonymised stories about scientists and situations were produced to help my team members to achieve a better understanding of the people for whom the software was designed for [9]. 'Happy Eggs' is inspired by my unpublished field notes, in light of the feminist/postmodern statement that 'the personal

³ As a discipline, social anthropology was founded by Malinowski's ethnographic studies of the indigenous Pacific islanders.

is the public'. Ultimately, the format of science fiction provides an opportunity to endow significance and liberation of the 'private', the 'personal', the 'subjective', and the 'emotional', to be both a challenge and supplement to the 'public', the 'political', the 'objective', and the 'factual' account that traditional social study approaches claim to achieve. Moreover, an adoption of the characters' point of the view also signifies the feminist approach that '... the people who are being studied should be allowed to speak for themselves whenever possible' [10]. It is hoped that through this, some of the 'fundamental presuppositions' within this unique culture may become self-explanatory.

Fiction as a format is invaluable to make difficult scientific subjects palatable and bring to life the otherwise stereotypical and homogenous scientists as unique individuals with flesh and blood, engaging the public and providing an alternative to sociologic endeavour to better understand scientific world. In terms of science fiction prototype, this story uptakes a futuristic scenario of a research project in the field of neurobiology when incurable physical illnesses are conquered. However, rather than playing with exciting technical visions, this story adopts a realistic narrative focusing on the characters' inner feelings when coping with work, peer competition, friendship and romantic relationships – situations that are likely to persist in the future too.

This story also attempts to raise questions about whether the world we live in can be summarised by numbers and formulae, whether scientific-technological solutions to the physical world will be the ultimate answers. Will happiness be guaranteed by some magic formula – a genetic sequence for example?

1. Irma

Looking down through the microscope, Irma was gripped by a sudden dizziness. She closed her eyes, seeing thousands of tiny sparkling stars. Meanwhile, her stomach turned. A stale sweetness from her breakfast coco pops, combined with coffee's bitterness, and the sharpness of orange juice, pushed itself up to her esophagus. Feeling her gorge rise, she tightened her throat and swallowed hard.

This had been happening often, lately. Irma switched off the microscope, leaving the opened egg under the lens. She raised her head. A graph of the development stages of chicken embryo hanged on the wall facing her, besides a conference poster of the size of A0. 'In search of the happy genes in chicken embryos', the title read. Her gaze stayed on the list of the authors – hers, as first author, and Renee's, the second author after her – for a moment. Despite the slight fading of the bright colour, the cartoon egg on the poster that made the two of them smug of their artistic touch, which Liz, their principal investigator, tolerated in her good humour, was still waving its paws at her.

Irma stood up, kicking her swivel chair further away with the back of her thighs. She walked to the sink, pulled the tap's pressure lever, squeezed the hand-washer dispenser, and rubbed her small hands. In the mirror, she caught a face, pale in the unforgiving light. Strands of blond hair ran out of her headscarf, violet with white paisley patterns. Her eyes, 'piercing blue' as Sam said, were covered by red cobwebs. She pulled the scarf down around her neck, and shook her long and thick mane loose.

Irma sat back on the blue chair, elbows on the station to support her head in her hands. 'This doesn't make sense,' she said to herself silently. 'What's wrong with me?'

Irma had long lost count of the number of times she had done this experiment, with changes or adjustments sometimes. Incubating the eggs for 38 hours, cutting them open, checking their suitability under a microscope, injecting DNA and antibodies into the

spinal cords, further incubation for over 10 hours, checking their viability again, then either fixation for microscopic imaging, or slicing them to record DV movies, followed sometimes by further fixation and microscopic imaging, and so on and so forth⁴. Every procedure was learned by heart and sometimes she didn't even have to think, like dealing with a manual task. So many days and nights did she spend in this dissection room that she felt almost part of it, like the benches, chairs, incubators, fridges, workstations, and bottles of liquid. The changes of weathers, or seasons did not really matter. Winter or summer, sunny or rain, light in this room without its own window was provided by the gas discharge lamps inserted on the ceiling. Temperature was always maintained at a comfortable 21°C. Sometimes she turned the radio on, tuning to a local radio station. The DJs' jokes, twisted by the accent unique in the region, made the concentration easier. Otherwise, there was the soothing humming from the equipment and the ventilator. Compared to home, this feels more like home.

Irma didn't want to think how many more eggs she would have to incubate and then kill the embryos. It was hard at the beginning, to explore and perfect the techniques, tedious and occasionally discouraging, but mostly exciting and promising. When the technical hurdles were overcome, a roller coast journey seemed to unfold in front of her. Tons of data had been gathered, some being unexpected, which led to more questions, and naturally more experiments to answer them. Puzzles surrounded her – the more she solved, the more were emerging. Sometimes she felt like being cast under a spell, feverish and thinking about her neurons awake or asleep. Some nights she dreamed of solutions and woke up in ecstasy. She was obsessed. She knew. Two years down the line, she kept telling herself, 'It'll be soon. I just need to do this and that and then I'll be able to draw a circle and the paper will be out...' She was nearly there, she told herself, so did Liz, large green eyes gentle but firm.

Among the minority of female principal investigators in the building, Liz was not the most glamorous one, wearing her hair, which started to turn grey, short, and shoulders slightly slouched. Liz didn't travel as much as some other principal investigators. Instead, she walked around the lab in her flat shoes, and spent a lot of time 'doing nothing' in her small and crowded office, staring at the overcast sky through the window. Ian, the technician who had been with Liz for years, compared Liz to a Chinese physician after seeking alternative treatment for his neck pain.

'The guy put his fingers on my pulse for half a minute and then he started to write down the prescription... I asked why he didn't check my neck, and he said no need to, as he'd found all he need to... You know what I mean? He knew what was wrong with my neck, and my whole body, as a matter of fact, by simply putting his fingers on my wrist, just like Liz. She knows exactly what each of us is up to, although she looks like daydreaming all the time. She's thinking about science, I can assure you...'

Irma tried to convince herself that Liz's positivity meant something. Renee's PhD project under her supervision was a good example. Renee certainly impressed those in London and got a good post-doc position. Renee's bubbling personality might have helped. But Irma was confident that her hypotheses were well-grounded and her data were solid, in her own quiet way. That she would be the first to solve the riddle and harvest the Holy Grail of life – the genetic code of happiness.

⁴ This is a workflow within the developmental neurobiology that adopts chicken embryos as a model system to study cells in the early spinal cord, as a part of the central nervous system, in order to understand the process of division and differentiation of neurons (the earliest brain cells).

As a child, Irma wanted to be a doctor, seeing her grandma Mary battle with Parkinson's disease. The cure, unfortunately, came too late for Mary, but too early for Irma to fulfill her dream. But now she was living in another dream – one shared by every member of the human race. She was lucky.

But recently, she had started to smell the chemicals, hear the humming noise, and find the light harsh. Her hands quivered sometimes when piercing the embryo's spinal cord. And the nausea and dizziness got worse. Sometimes she was short of breath. A few times she developed hives on her torso. All symptoms suggested allergy, but to what? The thought of meeting Dr Robson, her consultant, in the afternoon, who would tell her the result of the tests, made Irma's chest even tighter. 'I must finish these two batches of eggs this morning,' she said to herself.

2. The date

When did these strange reactions start? Was it since that evening when Irma rushed from lab to the train station to meet Sam? Recovering from her breathlessness, she waved at Sam, who walked towards her, with a grin from ear to ear. After a tight hug, she stood on her tiptoes, expecting Sam to kiss her. Suddenly Sam leaned back with a sniff, 'What's the smell?' he said.

'Smell? Of me?' she said.

Sam frowned. 'I don't know... some hospitals smell or the smell of ...'

He stopped, eyes enlarged. Irma raised an arm and sniffed the sleeve.

'Gosh, it is formaldehyde,' she said without thinking and regretted it immediately.

'What's that?' Sam asked her, looking confused.

'Oh nothing...' Irma muttered. She didn't want to explain her lab work, not now. But she was always careful with the chemicals. Was she hallucinating? She sniffed her other sleeve. Seeing her sniffing, Sam's knotted brows smoothed. He looked amused.

In a causal check shirt and Armani jeans, Sam looked fresh and relaxed, without any trace of tiredness from the long journey. Everything about Sam oozed of London's cosmopolitanism. Irma looked down at herself – a fleece top and a pair of old baggy jeans, one shoelace of her trainers undone. She blushed.

Sam pulled her closer, kissed her on the cheek, and grinned deeper, 'You look out of the breath, were you running?' he said. Irma nodded, embarrassedly. Carefully, Sam picked up a long blond hair from her left shoulder and then patted on her back, before applying a gentle push. He never completed that sentence about the smell.

That night, in 'The Carlos' restaurant, Irma couldn't brush away the feeling of being stupid and inadequate, even in her best evening outfit. Why couldn't she get organised and finish an hour earlier? An hour was enough to get home, have a shower, wash her hair, get changed and get to the station calm and composed. Sam made the effort of taking a day off and sitting on the train for six hours, in order to spend the weekend with her, and then another six hours train journey back. And she didn't even allow herself an hour. Was that hour that important? Did she find the last piece of jigsaw within that hour?

Sam smiled, saying she looked beautiful and he missed her. He changed into a floral shirt, indigo with tiny pink flowers. When he raised his wine glass and shook the maroon liquid, Irma could see his chest muscle slightly bulge under the well-fit shirt. She smiled back, trying to believe that she was beautiful, ignoring the blisters from the heels, which made her almost fall when stepping out the cab. She raised her glass and

touched Sam's, with a crispy clink sound. He leaned forward, and took her hands into his. His hands and forearms, under his rolled-up sleeves, were in the colour of olive and covered in dark hair, making her pale skin and blond hair on her naked arms paler. Snips of his 1881 aftershave flew to her, subtly. She shifted on her chair, worried whether her hair smelled of any chemical, which she didn't wash before getting changed at her flat, thinking it would take too long to dry. She saw the edge of her glass was stained by lipstick, which she put on to enhance her plump lips and contrast her pale skin, which Sam seemed to adore. Picturing her big lips covered by the smudged lipstick, she remembered what Renee told her about drinks for a date. Renee said that white wine, or clear stuff such as Gin and Tonic, was the standard drink on a date for London girls. 'You know why?' Renee said, slightly high-pitched, as the Australians do when they speak, 'Red wine stains the teeth and guys don't want to kiss a girl whose teeth are stained with red wine'. Was that true? Renee, what a bright girl and promising scientist! They used to be so close, working on the same model. Being a post-doc she sometimes helped Liz to supervise Renee. Things started to change after Renee went for her post-doc at Imperial. Irma wished what happened between them had never happened. But whose fault was it? She shook her head, trying to forget about Renee, for the moment, at least.

As the evening drew to its end, Irma managed to spill some wine, drop some white sauce on her black dress, and drink more than she normally did. By the time that they were waiting for a taxi in the cold rain in front of the last bar they had visited that evening, Irma was giggling hysterically and believing she was pretty and happy.

3. Sam

Sam woke up not knowing where he was. Too much travel. It was a long journey to China. Negotiation with the Chinese bankers was tough. He turned to look at Irma, serene in sleep. Her lips parted slightly. Her mascara was all over her face, except on her eye lashes, which were almost as pale as her skin. He thought that she looked like the girl in the painting 'Girl with a Pearl Earring', and smiled silently.

Feeling the sleepiness completely gone, Sam got up and walked to the kitchen. He pulled the door of the fridge, shaking his head at the bareness of inside. He fetched a glass from the draining basket by the sink, and filled it with tap water, delicious compared to London's. He gazed at the hills beyond the edge of the window, hazy in the morning mist. The kitchen window of his flat in London, the size of a match box, was facing a narrow lane where a pub was located, which was mostly tightly shut and covered by a curtain to shun the smell of urine and the sight of drunkards. He listened to the purring of the freezer and the tickling of the quartz wall clock. Seconds passed, maybe minutes, which seemed forever.

He showered, went back to the bedroom for the cigarettes in the pocket of his floral shirt on the carpet, and went out quietly.

He came back with Happy Shoppers' bags in hands. Irma was in the kitchen, a glass of water in one hand.

'Morning, Irma,' he said.

'Morning, Sam,' she said.

They kissed.

'Did you sleep well, darling?' Sam asked, looking at the opened Ibuprofen pack on the table.

'Yes, very well.' Irma grabbed the painkillers and put them in the pocket of her dressing gown. 'And you, Sam?'

'Like a baby,' Sam grinned and pointed to the shopping bags. 'I've got something for our breakfast.'

'How about I make us some breakfast and you can... ' Sam said.

'Oh, I'll have a shower, wash my hair...' Irma said eagerly, and blushed.

4. Scrambled eggs

'Good coffee, lovely,' Irma said, holding a mug, hair wet.

'Your instant Nescafe,' Sam looked at Irma, face fresh, run-away mascara gone.

'You don't have a coffee maker, Irma?' he asked. 'I could have made you really nice coffee.'

'Coffee maker? I don't have time for that.' Irma picked up one of the four triangles that Sam cut from a piece of bread loaf toast, on her plate.

'This is lovely too... I don't usually have brown toast... with... honey...' Irma beamed at Sam. He wore a casual soft cotton shirt in pale blue, which made the dark blue walls of the room look tired.

'I'm not eating healthily... chocolate bars and crisps... being busy is a lousy excuse...' Irma said and bit again into the crunchiness of the toast, glossy with butter and honey. Its edge was flattened under the force of her teeth, and then bounced back.

'I love honey,' Sam said. 'I was hoping to get some Heather Hills Farm, organic, the real Scottish honey. But couldn't find it in the shop...'

'I'm sorry...' Irma murmured.

'Don't be... only I can't spoil you,' Sam said. 'Try the eggs. Organic... at least that's what it says on the box...'

Irma looked at the fluffy yellow thing on her plate and hesitated.

'It's my champion dish, with a special touch...' Sam said.

Irma picked up the fork.

Sam said, 'I told you, didn't I? I learned to make many egg dishes in college... boiled, fried, poached, scrambled, omelettes, Spanish omelettes... you name it! A Chinese roommate taught me egg fried rice, water egg custard and egg tarts...'

Irma rested her hand with the fork on the table, not touching the eggs.

'You don't like scrambled eggs,' Sam said, with an almost hurt look.

'Oh... it's not that,' Irma said. 'It's my experiment... I've killed too many chicken embryos... of course for good reasons... but I don't eat eggs anymore, I can't...'

'Of course, sorry honey, I forgot...' Sam said. 'What exactly do you do with them? Would you like to tell me?'

'Hmmm, maybe not now... another time...' she muttered, and looked away.

5. The first meet

The memory of their first meet was as fresh as if it had only happened the day before. It was on Renee's birthday, in a bar near her lab in London, the day before the conference that they both attended. What happened at the conference changed everything between them. There had always been some competition between Renee's new boss and Liz, despite the collaboration of the two to some extent. However, when Irma showed Liz

Renee's presentation, Liz was angry, saying it was wrong for Renee to attribute work done in her lab to her new lab, and claim Irma's work as her own. 'That's it,' she said, decidedly. Irma swallowed what was at her lips – some work was done between the two of them. Liz had her reasons. Collaboration between the two labs had paused since. Irma and Renee were no longer on speaking terms, never mind being friends.

That evening, the two of them were talking and laughing, a few steps away from the others. A guy appeared behind Renee and stopped. Without saying anything, he covered Renee's eyes with his palms, and made a face at the flabbergasted Irma.

'Sam,' Renee screamed. 'It's you!'

Sam loosened his hands. They kissed on cheeks. Sam, according to Renee, was 'my mate and neighbour from New Zealand who took me to places in London where guys in the lab didn't know, never mind taking me'. Sam blinked at Irma.

'What are those places?' Irma asked.

Renee and Sam exchanged a look.

'Do you really want to know?' Sam asked.

Irma blushed.

'I'll tell you later,' Renee said.

'You know what?' Renee continued. 'Sam is a tax lawyer working for a bank... bloody evil capitalism! He has no conscience!'

Sam shrugged, and made faces again, seeming not to mind Renee's sharp tongue.

When it was time to introduce Irma, Renee called her 'an English rose but tougher than the Scottish heather'. Irma wanted to protest the rose and heather thing, born in England but grew up in Scotland. She didn't say anything though, but blushed, again.

'Of course Irma is a scientist, like all of my other friends, except you,' Renee continued. 'You might not realise whom you're talking to, Sam, Irma holds the secret of happiness... well, co-holder likely as I'm close to the answer too, he he...'

'Really?' Sam looked at Irma. 'So tell me Irma, what's the secret of happiness?'

'Well,' Irma glanced between Renee and Sam, and said. 'People normally believe that happiness is a brain state caused by stimuli. It's also the foundation for neuroscientists to measure the stimuli and the brain component reactions. Darwin said emotions and affective expressions are adaptive responses to environmental situations. We used to believe only mammals have this distinctive neural mechanism for generating pleasure liking and displeasure reactions. So in the past we used rodents and monkeys for such studies. But the recent development in the field has gone beyond the brain reactions and established that actually happiness is a genetic thing. We know all living beings share the same pool of genes, mammals or not... I look at how neurons are formed and which neurons travel to the parts of brain in charge of emotions, in particular happiness. All live beings have emotive reactions...'

'Like plants?' Sam said.

'Yes, plants, birds, fish... we use chicken embryos as a model system.' She looked at Renee, who nodded. Irma continued, 'Happiness is essentially about certain genes that make certain neurons that can be called happy neurons.'

'Is that so? Can you inject me with your happy genes? Do I need them, you reckon?' Sam looked into Irma's eyes, half teasing, half serious.

'I... I don't know ...' Irma stuttered, feeling her face burning.

'Hey Sam, don't mess her up,' Renee came to the rescue. 'If Irma has the happy genes, she might have the sad genes. She'll give you the sad ones if you mess her up...'

'Will you, Irma?' Sam looked at her, fondly.

'I...' Irma seemed not to be able to find any other words.

Why her? Why did Sam ask her out? She never thought herself pretty. 'Nonsense,' said Sam. 'Look at the mirror. You've got *piercing blue eyes*, *translucent skin*, and *Jolie-like pout*. If you aren't pretty, who is?' Above all, Sam said she was so unpretentiousness, unlike those office girls in the bank. He liked the way she blushed. Did that mean that she was simple? Irma wished she could ask Renee.

6. Sam's story of 'happy eggs'

'It's not just the eggs,' Irma muttered, eyes cast down. 'I don't feel like eating much... this morning... I may have too much to drink last night...' Irma's voice trailed off into almost inaudibility. She felt her neck was burning too.

'It's ok.' Sam reached out a hand to touch the wrist of Irma's hand that was still holding the fork. Like treating a young child, he gently opened her grip and released the fork on the table. Irma raised her head. He was holding her hand, hers cold and his warm. They smiled at each other.

'Let's not worry about the scrambled eggs. I've a story for you, about eggs, from my trip to China. Do you want to hear it?' Sam asked.

'What's it about?' Irma asked.

'Others might find it distasteful,' Sam paused and continued. 'But as a scientist you might have different opinions.'

'During the weekend, my Chinese friend took me to his hometown, quite poor. There were food stalls in the town centre. Some were no more than an old lady with a small stove fuelled by burning coals, with a saucepot, boiling or frying something... There was a strange smell from one of them, which I couldn't describe... people stopped and the lady spooned eggs out. But the smell wasn't of any normal eggs... I asked my friend and we stopped at the lady. She opened the lid of the pot, and eggs were being boiled. They talked, pointing at the eggs, about which ones were good I guess. She put one into a small plastic cup. My friend told me to be prepared as this might be shocking, before starting to crack the eggshell. It took me a while to get it. A tiny chicken embryo! I felt sick. The lady grinned at me, some of her front teeth missing. She had a collapsed mouth. She gestured me to eat, saying something. My friend said she said this was delicious and nutritional. But I shook my head...'

'We were looking for a bin. The lady shouted at us and snatched the cup away. She took the egg out of the cup, peeled off the rest the shell, and started to bite into it. She seemed to manage it alright although she didn't seem to have many teeth left. She was cross at us, my friend said, because we were throwing good food away. For older people, to waste food was a sin.'

'To be honest I didn't have a proper look at the embryo. After my friend said they were usually two weeks old. But sometimes one comes across with older ones which are more recognisable.'

'Then we had a conversation about different cultural norms. How some delicatessen in one culture is thought of differently in another. Why is eating chicken embryos considered barbarous whilst France's beef tartar is *haut cuisine*? And all of that nonsense about the sight of fish heads or eyes. There's plenty of meat on fish heads, my friend said. Some people are starving, never mind being squeamish.'

'I thought about it. Indeed, now in the western world we don't have to worry about shortage of food or things such as cancers, or Parkinson's, or many other diseases. But are people happier? Scientists like you and Renee are working on the genetic thing of

happiness. And you really think it will work out? Some genes are switched on and we'll all be happy ever after? My dear Irma, I know there's something between Renee and you... she isn't talking to me... She said you fell out, the two labs were against each other, and you were no longer friends... she said you were unfair to her... ok, I know you might say the same about her... never mind, Irma. The thing is, neither of you seems happy. But it's so wrong. I admire you guys so much, doing something noble! If you can't be happy, who can be? Look at me here, ok, I've got a good salary, working for one of the biggest banks. But what am I doing? Helping assholes to dodge their tax? Those guys, lots of money, lots of everything... But are they happy? Absolutely not! Will your genes help them? I don't know...'

'Are you alright, Irma? I don't know why I'm suddenly so worked out... I'm sorry honey... you look sad... I didn't mean to upset you... Are you happy for me to be here? Yes... that's good. You know last night I felt that you almost didn't want me here... I want you to be happy, you know...'

'Oh, I forgot... guess why I told you this story? You know the chicken embryo dish, it has a name. Can you guess what it's called? Happy eggs. That's the name.'

7. Dr Robson

The pause, lasting a few seconds, after Irma sat down in Dr Robson's consulting room, felt longer. Irma twisted her hands on her laps, knuckles white.

'I'm afraid I've bad news and good news,' Dr Robson finally said, spreading his hands on the arm rests of his chair. His fingers were long and well kept, with neat nails. His receding grey hairline and a body big for his medium frame suggested that he was probably in his late fifties.

'I'll start with the bad news', he said, leaning towards her. 'We have a diagnosis. Egg allergy. You've antibodies that react to some proteins in hen's eggs...' He paused, and then continued,

'Since you don't eat eggs, your allergic reactions need a different explanation... Other possible environmental triggers are climates, chemical irritants, physical irritants, emotional stresses, and occupational exposures... There might be something you use in the opened raw eggs that trigger the reaction, or ... This is rare, I must say...' Robson lowered his voice. He frowned, seeming to be in some deep thoughts.

'Here's the good news,' Robson resumed his authoritative voice. 'We can treat you. Long gone was the time when allergy could be deadly.' He smiled professionally, but not unaffectionately.

'So my dear,' Robson concluded. 'Do you want to think it over and let me know how you want to proceed?'

The next morning, Liz received Irma's request for a day's sick leave. Then, she got sick leave signed off by Irma's GP. The leave lasted for three weeks.

Irma went back to see Dr Robson and told him that she didn't wish to proceed with the treatment. 'It'll go away itself,' she said. Robson shook his head. She told him she considered about changing her job. Robson suggested a break, maybe a holiday, to change the scenery. Irma went to China for a month.

On her way back, she stopped in London and met up with Renee. She said sorry. She hadn't been herself. Renee said she was sorry too. Her project also drove her mad.

After her return, Irma handed her resignation letter to Liz, who was furious. A betrayal, she called it. It was so close, she almost screamed, different from the usually calm and composed Liz.

'We should have got the bloody paper out, if you didn't have this stupid allergy and then disappeared for months,' Liz said.

Irma didn't defend herself. She was, though, adamant. Liz eventually calmed down and apologised for losing her temper. She said she would respect Irma's decision.

'You're welcome to come back, one day, when you're ready,' she said to Irma.

'Yes, I might,' Irma said. 'One day ...'

They hugged. Both became emotional.

Irma applied to become a voluntary science teacher in poor countries and was offered a position. She chose a rural village in China as her first station. Before heading to Cambridge for the training course, she went to her lab to say goodbye. She stood in front of the dissection room for some time. She asked Ian the technician about her unfinished eggs left in the incubator. Ian shrugged and said they were 'dealt with'.

For three weeks since the afternoon Irma went to see Dr Robson for the result of her tests, her eggs were forgotten in the incubator, until Ian came to 'deal with them' – meaning to throw them away. Either he didn't notice or he didn't want to notice, some shells were empty. Finding their way to the door of the dissection room, and then the exit of the division, the chicks went out into the labyrinthine building.

8. Reflection

In many areas that concern development of science and technology, an interdisciplinary approach that includes science, engineering, philosophy, arts, and literature has been adopted. In the field of life science, collaborations between scientists and visual artists have become popular in turning microscopic images into works of art [11]. Efforts are also made to bridge the gulf between science and literature in producing fictional scientific journals that academically navigate between the fact and fiction⁵ [12]. Following such efforts, this science fiction prototype questions the limitation of science, to take the case of life science here, in providing explanation to human emotions, and explores the possibility of adopting an alternative or interdisciplinary approach which requires other perspectives beyond molecular, cellular, systematic, and cognitive levels to understand the complexity of the field of mind-body.

It is true that despite the development in science, many medical phenomena are still beyond the scope of scientific explanation. To treat cancer, for example, the western outlook tends to isolate the organs infected by cancer cells and adopt invasive methods such as operation and chemotherapy. These methods, however successful in many cases, sometimes failed patients whose cancers are in more advanced stages or who suffer from other complications. Alternative treatments, or religions, however, can sometimes produce a miracle in offering relief from pain and even cure. The power of mind, especially the ability to obtain inner calm, peace and happiness, often plays a vital role in this process.

Dr Walt, Founder and Executive Director of The Human Thriving Foundation said, 'The time was well past-due to discover how to scientifically increase the level of the happiness of humankind' [13]. Despite many efforts, the argument between subjective

⁵ Such as the organisation of the IIAL (The Institute for the Iterative Approach to Linguistics).

vs. objective suggests that the search for scientific predictors of happiness will remain a long journey. Happiness remains an elusive prospect.

Fortunately, with more scientific research projects starting to tap into the field of mind, evidence has been gathered to support the statement that a systematic training of mind – the cultivation of happiness – is possible. Experiments have demonstrated that the brains are not only genetically designed to respond to the environment, but also capable of designing new patterns, new combinations of nerve cells and neurotransmitters in response to new input [14].

As I mentioned at the beginning, the project I took part had a focus on the usability of technology for implementing design implications and improvements of the software. A socio-cultural account of the field, with intimate and personal details of scientists, however fascinating it might be, undoubtedly would add complexity to the otherwise ‘imagined’ portfolio of the users and their user experience. Painful this revelation might be initially, it could potentially serve an important leaning curve that any technology has to embrace and evolve to improve their purpose. It is hoped a fiction inspired by research and researchers in science would have a role to play in this process.

Just as its literary meaning suggests, the format of science fiction, through combining science and fiction, provides an opportunity of testing statements such as that ‘there is no distinction made between the factual and the fiction’ [12], and the feminist/postmodernist arguments between the objective and the subjective, the quantitative and the qualitative, and the measurable and the imaginable. ‘Happy Eggs’ in a way is an experiment of playing with some of these ideas. Although it doesn’t aim to provide any direct prescription on future research on science and technology, it is hoped that readers would leave with room to reflect upon some of these issues.

Last but not least, although the tedium of the lab life and the intense competition can have potential negative impact on the personal and professional aspects in this field, scientists very much cherish their privilege to explore the most inner secrets of the nature. They need the understanding and support from the whole society.

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