

#NOMOREMATILDAS PRESENTS THE HYPOTHETICAL LIFE OF

# MATILDA FLEMING





An idea of GETTINGBETTER  
for AMIT (Association of Women Researchers and Technologists)  
with the collaboration of DOS PASSOS

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**Publisher:** Gettingbetter Creative Studio S.L.  
**Legal Deposit:** A 494- 2020  
**ISBN:** 978-84-09-25666-2  
[www.nomorematildas.com](http://www.nomorematildas.com)

**TO ALL THOSE GIRLS WHOM  
WE HAVE MADE BELIEVE THAT  
“SCIENCE IS A MAN’S THING.”**

## Prologue by Carme Chaparro

Journalist and writer

The teacher calls the boys “buddy”. “Hey, buddy, don’t get distracted”. And the girls, “darling.” “Come on, honey, finish the multiplication”. He does not even realize he is doing that. The boys are from the club. The girls are something to care for and protect. By default.

We are in a classroom of seven-year-old boys and girls on the Isle of Wight, in the UK. A doctor and a BBC camera sneak into the classroom for a couple of weeks to study gender bias. The teacher puts his hands to his head when he watches the images at the end of filming; he was not aware of what he was doing. It is clear that he treats the boys and the girls differently. For example, he gives the boys more chance to speak than the girls. As a consequence –and we know this from dozens of studies, some in the most prestigious universities in the world– female students will end up raising their hands less in the classroom. What would be the point? And so, some of them will end up thinking that men have the right to speak more than women.

All this, imperceptibly and inherently, undermines the self-perceived intelligence of the girls. Year after year. Course by course. They are intelligent. But they are not perceived as such. Children are especially vulnerable and susceptible to how adults perceive them. Even if that adult is not aware of the bias in his or her words or gestures. When, for example, in another experiment they are asked to draw a person who pilots a military plane, or who extinguishes fires, or someone operating in an operating theatre, or fixing cars, everyone, boys and girls, draws a man. The surprise is enormous when a pilot, a firefighter, a surgeon and a mechanic, all of them women, are introduced to the class.

Without female references in these professions, it is difficult to imagine a woman in them.

So girls, even when they are only seven years old, have a completely biased view of what they are capable of or not with their abilities. So young –and without being aware of what is happening or what it implies– they have less self-esteem and confidence in themselves than their male classmates.

Boys, on the contrary, overestimate not only their intelligence but their physical and leadership abilities.

One day that week, the class goes to a fair. There they find the typical attraction of the strongman game, the one in which you have to hit a plate with as much power as possible; the plate pushes up a puck and measures how strong you are.

Before hitting the plate with the mallet, the students were asked what they thought they were going to score. The boys went over. They were all convinced that they were going to score higher than they actually did. The girls, however, believed that they would score fewer points than they really did at the end.

Girls did not believe in their abilities. Boys believed too much. And at the end, after taking the average between the group of girls and boys, they scored pretty much the same. There was no difference between what girls and boys got.

We have to teach those little girls to believe in themselves again. All the girls in the world, in fact. Humanity has already lost the intelligence of fifty-one percent of the population for too many centuries.

Imagine where we could be right now.

It’s annoying just to think about it.

# #NO MORE MATILDAS

It is likely that if Fleming had been born a woman, today, that last name would hardly sound familiar to us. And the merits of her discoveries would have been taken by a fellow male researcher or even by her husband. This phenomenon, which is known as the **Matilda Effect**, points out the injustice that has consciously and systematically relegated to oblivion the findings of brilliant scientists such as **Hildegarda de Bingen, Nettie Stevens, Lise Meitner, Marietta Blau** or **Rosalind Franklin** among many others. It was the science historian **Margaret W. Rossiter** who named this injustice in honour of **Matilda Joslyn Gage**, a womens' rights activist, and it is the name that we have decided to give the protagonist of this illustrated uchronia.

A story that joins the actions raised from the **No More Matildas** campaign to report this fact and to recover all these scientists. Women who could have become role models for all the girls whom we have made believe that science is only for men by depriving them of female examples.

THE LARGEST STUDY ON THE PRESENCE OF WOMEN IN EDUCATIONAL MATERIAL, CARRIED OUT BY ANA LÓPEZ-NAVAJAS, REVEALS

AN AVERAGE FEMALE REPRESENTATION OF 7.5%

IN ALL SUBJECTS IN THE SPANISH COMPULSORY SECONDARY EDUCATION CURRICULUM.

ACCORDING TO UNIVERSITY STATISTICS PUBLISHED BY THE MINISTRY OF EDUCATION DURING THE 2019 SCHOOL YEAR,

THE NUMBER OF FEMALE ENROLMENTS IN SCIENCE DEGREES STANDS AT 28.5%

AT AMIT WE BELIEVE **THAT TALENT HAS NO GENDER**, AND TO IGNORE THE ONE THAT COULD EMERGE IN GIRLS AND TEENAGERS WHO DO NOT CHOOSE A SCIENCE DEGREE BECAUSE THEY DO NOT HAVE MIRRORS IN WHICH TO SEE THEMSELVES REFLECTED, IS A CULTURAL LEGACY THAT WE SHOULD STOP PERPETUATING.



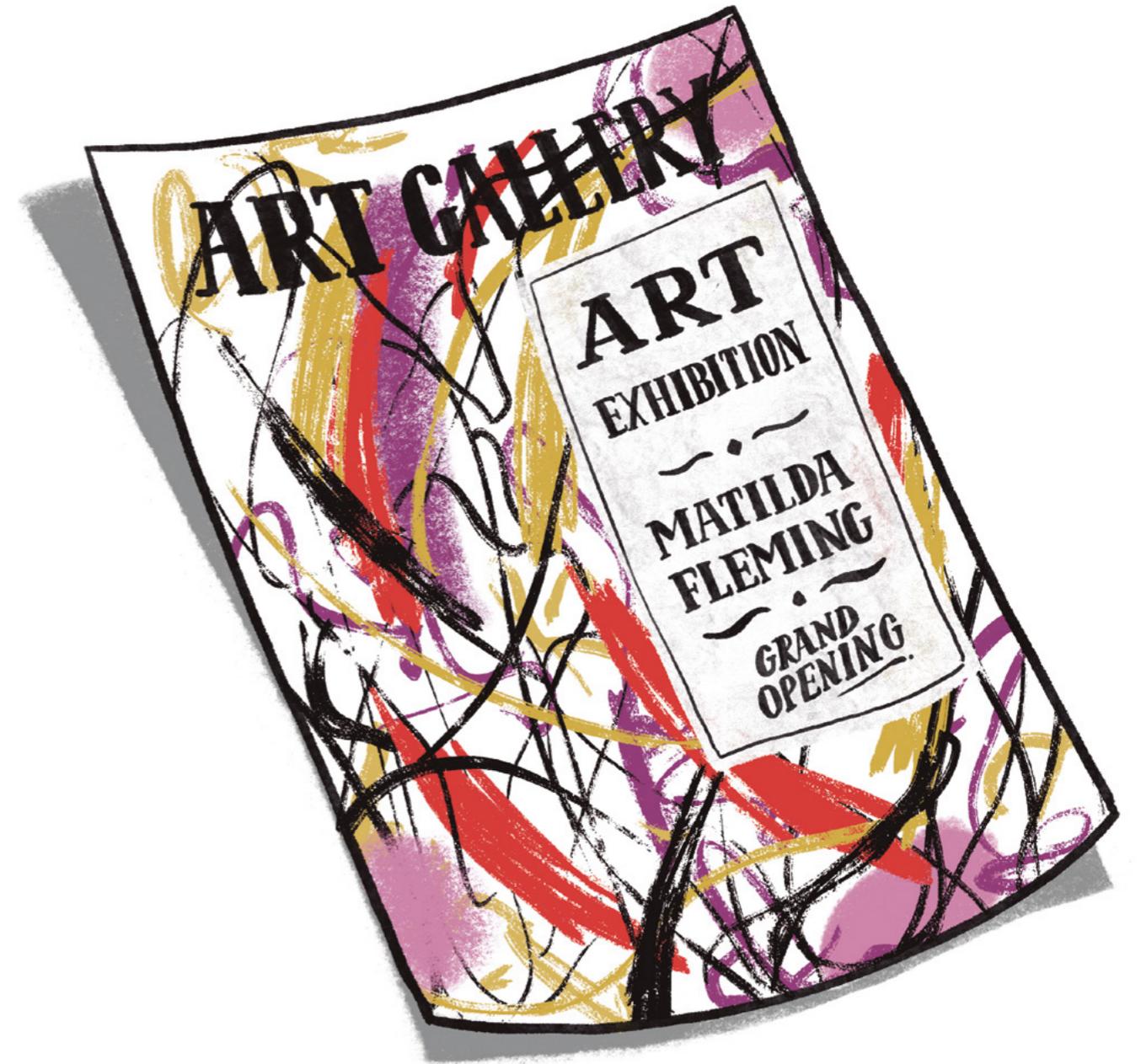
#NOMOREMATILDAS PRESENTS THE HYPOTHETICAL LIFE OF  
**MATILDA  
FLEMING**



Matilda Fleming is nervous. She is as nervous as any artist would be before the first exhibition. Her colleagues from the *Chelsea Arts Club* have encouraged her to take the step of exhibiting her work. She senses that they will be the only ones coming.

Probably her relatives and maybe a good friend. And maybe that is why she is nervous: which artist does not feel uncomfortable opening up to their own?

Even though it is true that Matilda Fleming's work had always caused some rejection, and even apprehension, in the London art circles no one questioned the originality of her technique. That trend would never succeed, but nobody denied Matilda the credit of having founded what some people called "*Bacterial Art.*"





*“Bacterial Art”* consisted of using absorbent paper as canvas, to colour it with the natural pigments of different fungi and bacteria. The surprising thing about the technique was that these colours remained invisible until the appearance of bacterial colonies. That is why Matilda thought it was fair, and also more poetic, to refer to the organic of this process as *Living Art*.

*Living Art* had arisen from her experience in her old job in the laboratory of *Saint Mary's Hospital* in London. Until she left this job, Matilda had been practicing there as a bacteriologist and teaching for more than 15 years.





What she learned during those years allowed our scientist reconverted into an artist to shape her original creative proposal. Matilda alone, with her unusual colour palette, was able to create those chromatic compositions. Only she knew how to use the bacteria *Micrococcus Roseus* to paint her canvases pink, or *Micrococcus Luteus* and *Chronobacterium Violaceum* to do the same with yellow and violet tones.

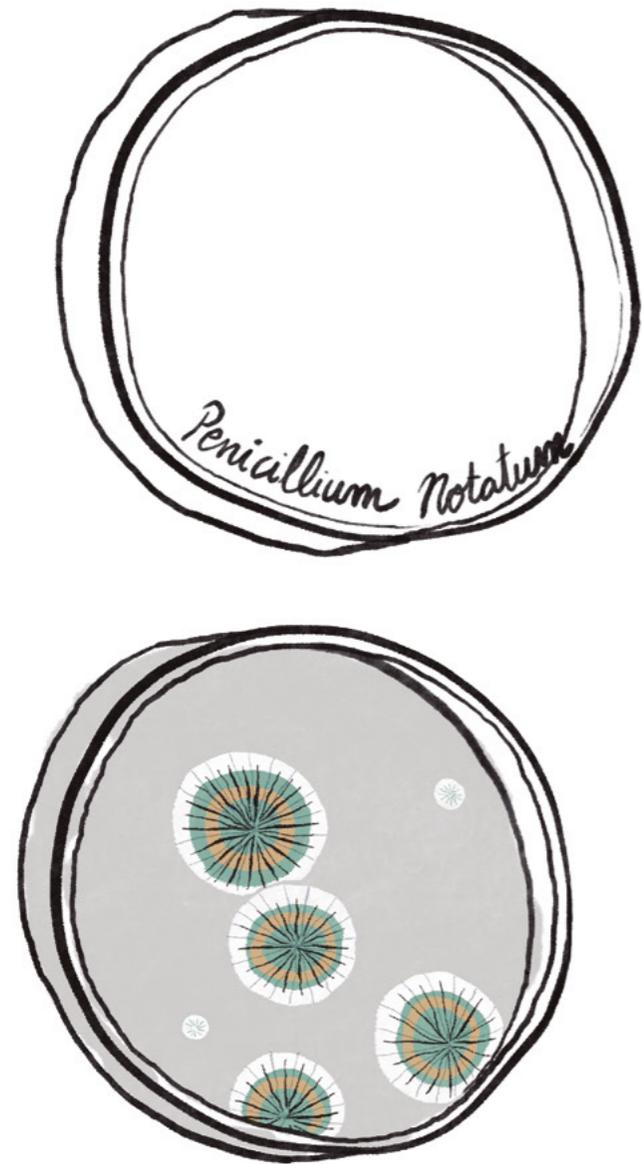
No attendee was surprised by the theme of the exhibition, and none of them found it too difficult to guess the motivation behind each canvas. All were pretty sure, judging by what was heard in each huddle formed in the gallery, that the whole work sought to express the feelings resulting from Matilda's most painful professional episode: when the Nobel Prize that she deserved was snatched from her.





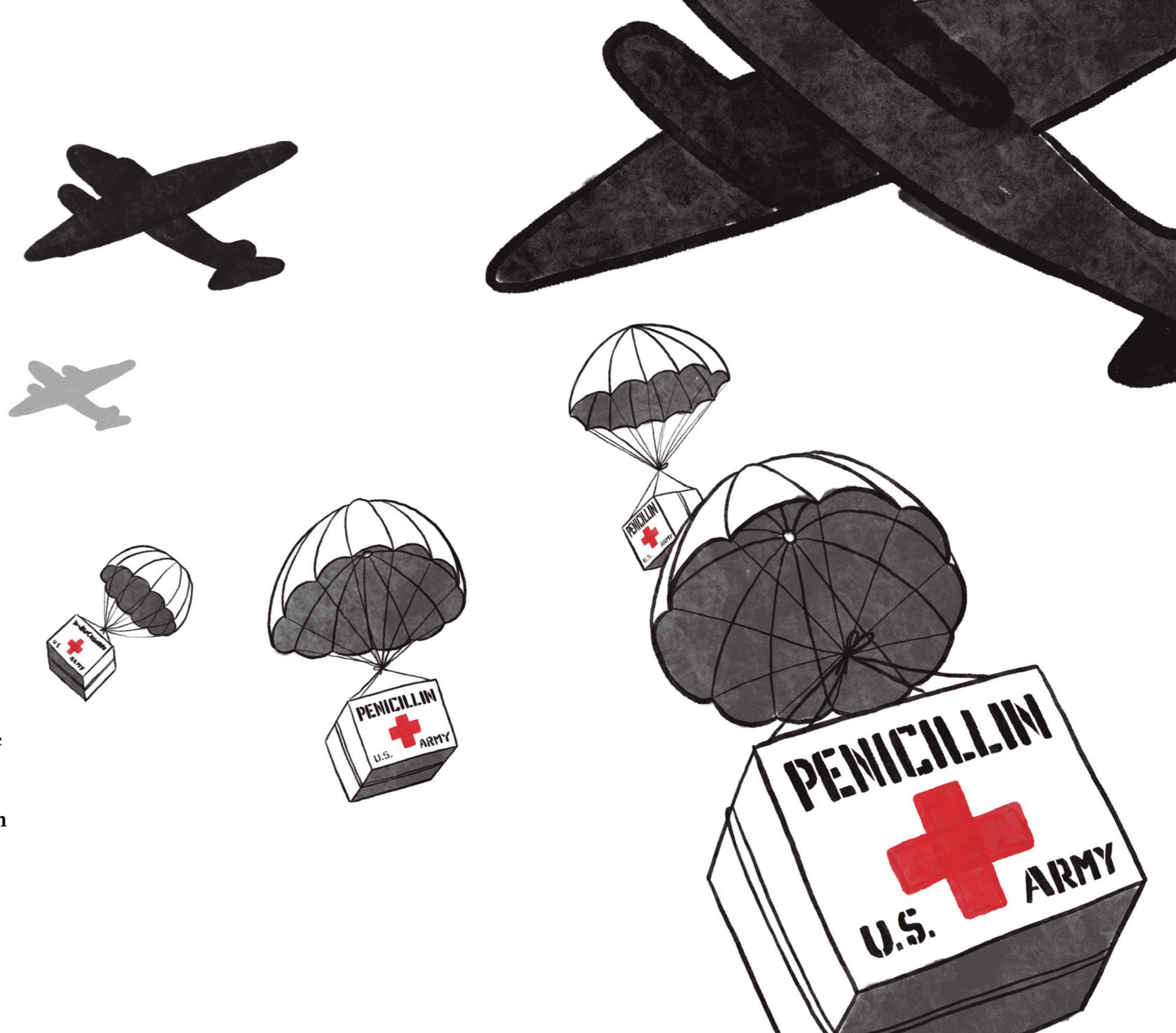
The fact is that Matilda did not mind knowing that she was a second-class painter because deep down she knew what she truly was: a top scientist! Even though neither her companions nor the *Nobel Prize Academy* wanted to see it! Even if they said, as they did, that discovering the effect of penicillin was an accidental find!

For them, the fact that Matilda found in her lab a Petri dish spread *Staphylococcus aureus* bacteria, contaminated by a fungus, merely confirmed the habitual and chaotic disorder that was also in her paintings.

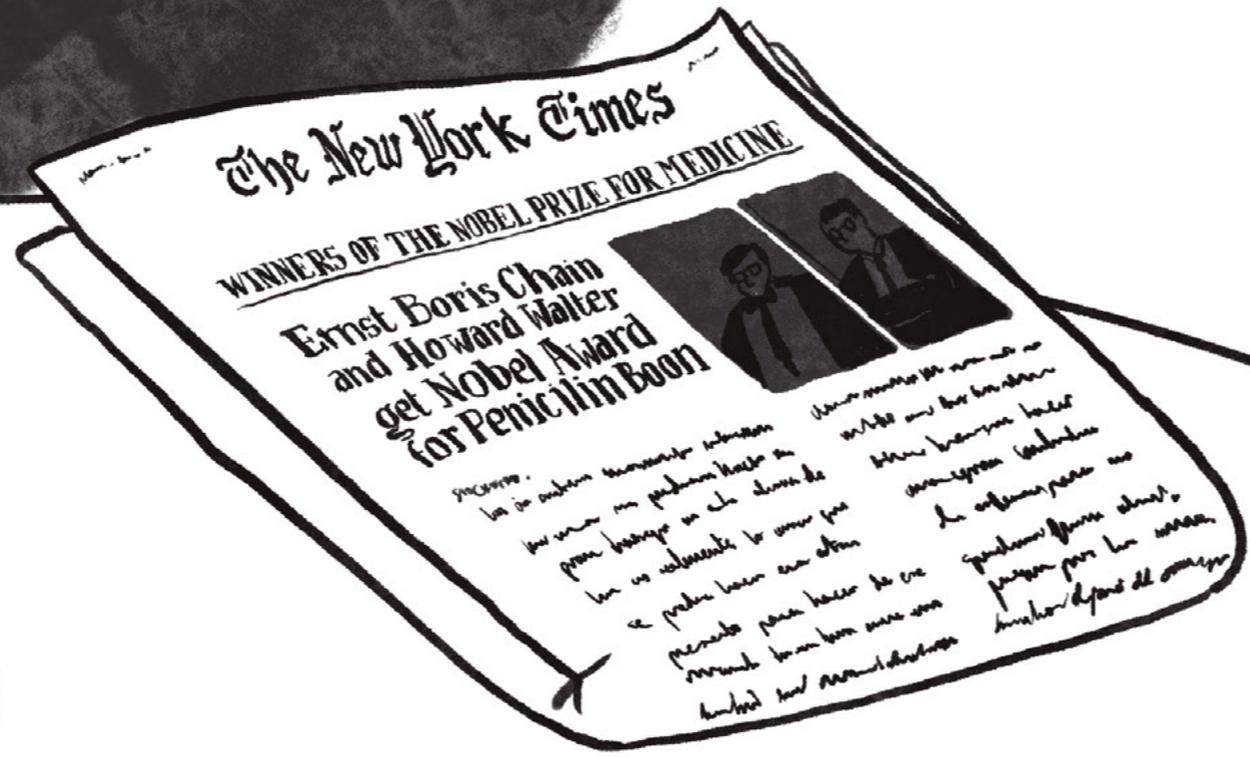
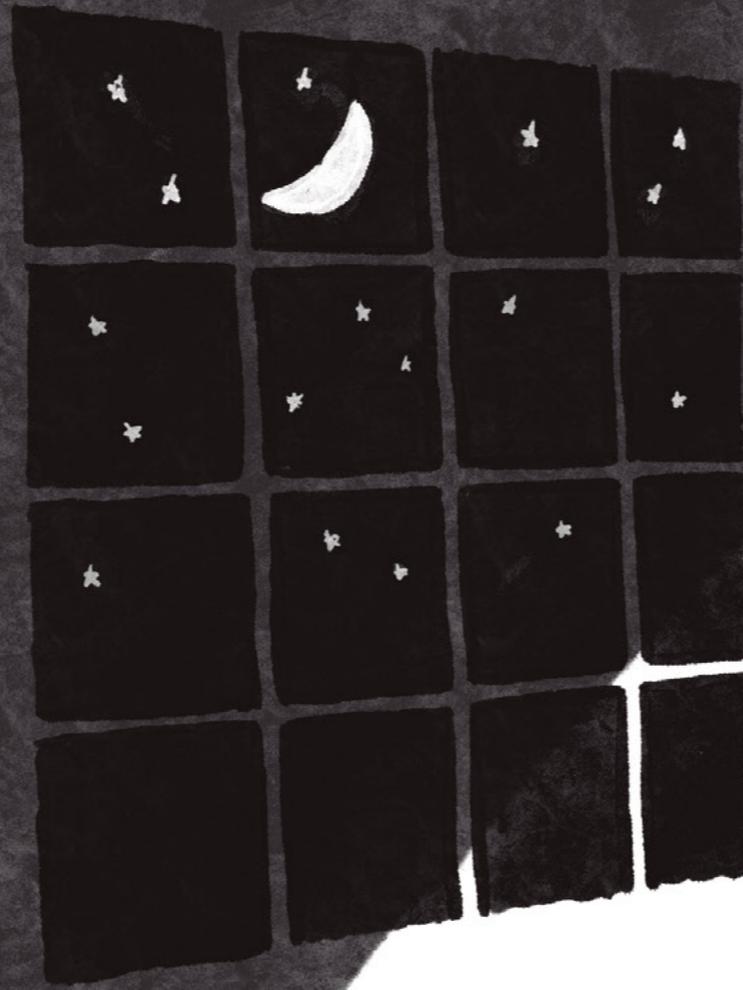


But Matilda had discovered that this fungus, the *Penicillium notatum*, was a mould with natural antibacterial effects: penicillin. And she was convinced that this murderer of bacteria could become a perfect ally in the fight against all kinds of diseases that had been devastating humanity since the beginning of time.

However, the scientific community underestimated the antibiotic power of penicillin, and it wasn't until a few years later when American researchers became interested in it to compete with the powerful German military medicine. It was then that chemists Ernst Boris Chain and Howard Walter Florey developed a purification method to synthesize and distribute it to the entire population.



In 1945 the Americans won the war, and Ernst Boris Chain and Howard Walter the Nobel Prize in Medicine. It is said that no one remembers the losers, and back then Matilda was already living a life of artistic retirement totally away from the laboratories.





That is why in that humble debut of Matilda Fleming everybody was moved by the artist's work. How could they not understand the anger in those strokes or the pain and frustration that was reflected in each canvas!

But if there was a recognition that Matilda was especially excited about was the presence of the art curator who went to the gallery that afternoon. When she approached Matilda and offered her the chance to organize a series of exhibitions to denounce through art the injustice that the scientific community had committed to her, Matilda suddenly felt optimistic.





And dreamed of leaving behind that time  
when female scientists did not seem to exist...



# #NO MORE MATILDAS



*The hypothetical life of Matilda Fleming* is an illustrated story that joins the actions launched to denounce the consequences of the Matilda Effect through the **No More Matildas** campaign. This is an initiative that seeks the recovery of feminine references within science, in order to inspire and promote the scientific vocation in all those girls whom we have made believe that science is only for men.

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