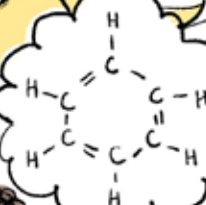
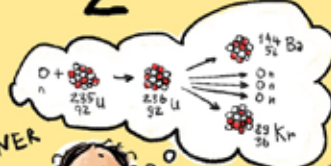


PIONEERS OF PROGRESS 2

ELIZABETH
GARRETT
ANDERSON

LISE
MEITNER

ROSA
BEDDINGTON



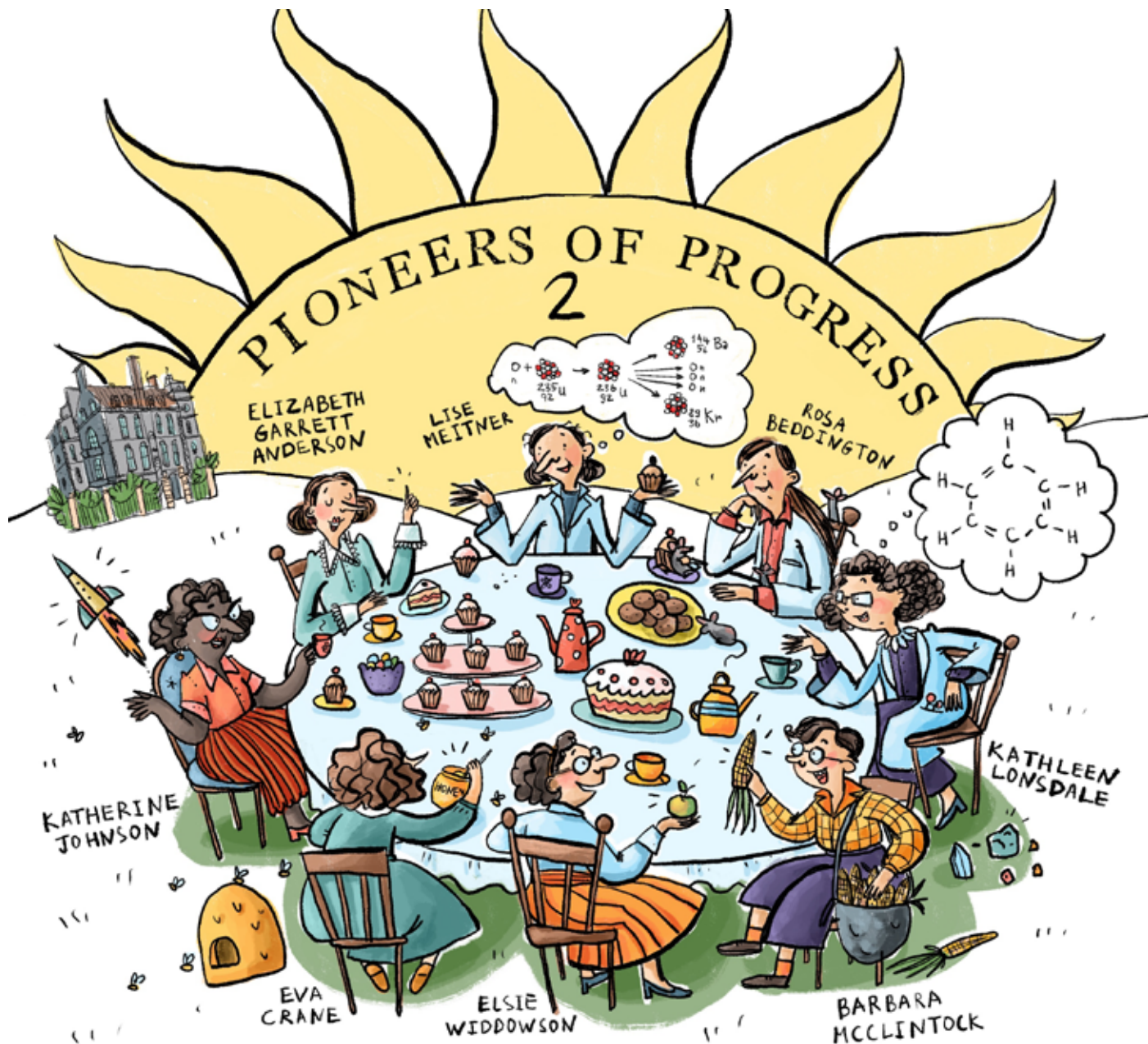
KATHERINE
JOHNSON

EVA
CRANE

ELSIE
WIDDOWSON

BARBARA
MCLINTOCK

KATHLEEN
LONSDALE





1908

WHAT DO
THEY WANT NEXT?
HALF OF THE
WORLD?



Pioneers of Progress II

Pioneers of Progress II continues to tell the tales of women whose contributions to scientific discovery made a huge impact on the world. Their work and scientific legacies have often gone unrecognised.

These eight women were pioneers in the truest sense of the word, and not only because of their scientific breakthroughs. Many were advocates for the education of women. All championed the proper recognition of the role of women in society, by acting as role models for those who have followed them.

These stories appear in chronological order. We begin with **Elizabeth Garrett Anderson**, who became the first woman to qualify as a physician in Britain, co-founded the first hospital staffed by women, and opened the medical profession to women. Physicist **Lise Meitner** contributed to the discovery of the element protactinium and of nuclear fission. She declined an offer to work on the Manhattan Project, and was described by her nephew as “a physicist who never lost her humanity”. American geneticist **Barbara McClintock** was awarded the 1983 Nobel Prize in Physiology and Medicine. Her research focused on developing ways to visualise and characterise maize chromosomes. She discovered transposons and understood their role in evolution and genome change well before others. The crystallographer and prison reformer **Kathleen Lonsdale** was one of the first two women elected to the Royal Society (along with Marjory Stephenson). Lonsdaleite, an allotrope of carbon and a rare form of diamond formed when meteorites strike the Earth, was named after her. The nutritionist **Elsie Widdowson**, older sister to Eva Crane, studied chemistry at Imperial College. She oversaw the addition of vitamins to food during rationing in Britain in World War II. **Eva Crane**, born Ethel Eva Widdowson and younger sister of Elsie, became one of the greatest writers on bees and beekeeping of the 20th century, though her original subjects were mathematics and quantum mechanics. **Katherine Johnson** was an American mathematician whose calculations of the mechanics of orbits as a NASA scientist were key to the success of crewed spaceflights. She earned a reputation for complex manual calculations and helped to pioneer the use of computers. She was one of the first African-American woman to work as a NASA scientist, and her life is the subject of the 2016 film *Hidden Figures*. The career of British biologist **Rosa Beddington** had a major impact on developmental biology and the understanding of the fate of cells in the early embryo.

Pioneers of Progress Book II is the second in a series that follows **Heroes of Health**, a comic book that describes how the Medical Research Council began, more than 100 years ago. It tells the stories of some of the ground-breaking discoveries that have transformed the way we all live. We hope you enjoy this book.

For more information contact:

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ELIZABETH GARRETT ANDERSON AND HER HOSPITAL



1849

DO I REALLY HAVE
TO GO TO THIS SCHOOL?
THEY DON'T EVEN TEACH
MATHS OR SCIENCE!

YOU HAVE TO
BECOME A LADY
TO FIND A
HUSBAND!

YOU KNOW THAT
WE COME FROM A
HUMBLE BACKGROUND.

BUT DON'T FORGET
TO TAKE A HOT BATH
ONCE A WEEK!



I DON'T WANT TO
PLAY CARDS AND
DRINK TEA ALL DAY.

I THINK WE WILL BECOME
GREAT FRIENDS. YOU
MUST MEET MY FRIEND
ELIZABETH BLACKWELL.
SHE IS A DOCTOR.



IT IS QUITE CLEAR WHAT HAS
TO BE DONE. I MUST DEVOTE
MYSELF TO SECURING HIGHER
EDUCATION WHILE YOU OPEN THE
MEDICAL PROFESSION TO
WOMEN, ELIZABETH.

YOU HAVE TO DO SOMETHING
TO ADVANCE WOMEN'S RIGHTS
HERE IN ENGLAND.

MILLIE, YOU MUST
GET US THE VOTE.

EMILY DAVIES

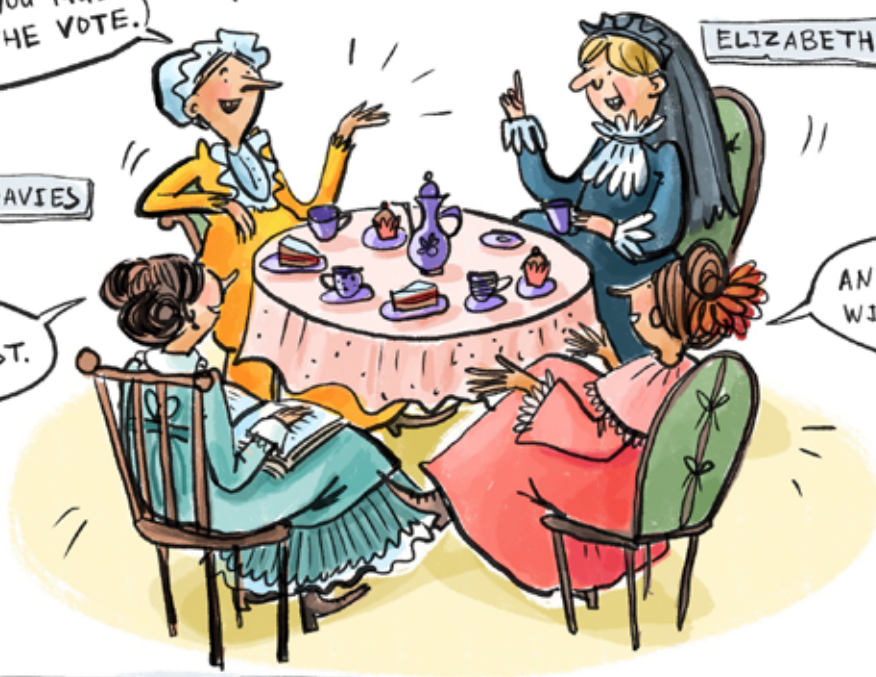
ELIZABETH BLACKWELL

I WILL
TRY MY BEST.

AND WHAT
WILL I DO?

ELIZABETH GARRETT ANDERSON

MILLICENT GARRETT



MEDICAL SCHOOL

I WOULD LIKE TO APPLY.

WE DON'T TAKE FEMALE APPLICANTS.



MEDICAL SCHOOL

I DON'T WANT TO STUDY WITH A FEMALE.

ME NEITHER



MEDICAL SCHOOL ADMISSIONS

I AM SORRY, I CAN'T DO ANYTHING FOR YOU.



WORSHIPFUL SOCIETY OF APOTHECARIES

YOU WON'T BE ALLOWED TO GO TO MEDICAL SCHOOL BUT THE SOCIETY OF APOTHECARIES HAS TO ADMIT YOU. IT IS IN THEIR CHARTER AND YOU CAN GET A LICENCE TO PRACTICE MEDICINE.

THANK YOU!



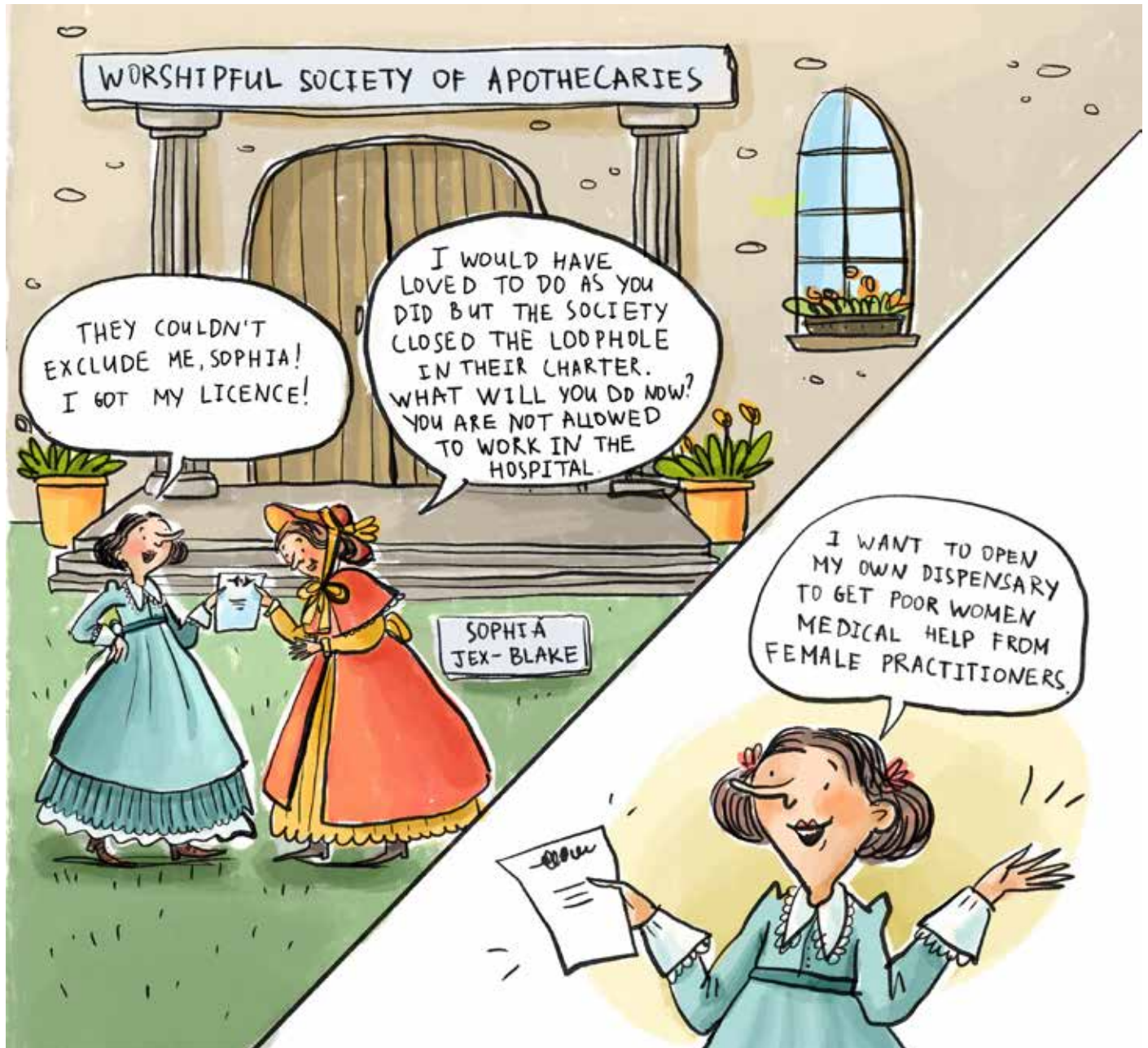
WORSHIPFUL SOCIETY OF APOTHECARIES

THEY COULDN'T
EXCLUDE ME, SOPHIA!
I GOT MY LICENCE!

I WOULD HAVE
LOVED TO DO AS YOU
DID BUT THE SOCIETY
CLOSED THE LOOPHOLE
IN THEIR CHARTER.
WHAT WILL YOU DO NOW?
YOU ARE NOT ALLOWED
TO WORK IN THE
HOSPITAL

SOPHIA
JEX-BLAKE

I WANT TO OPEN
MY OWN DISPENSARY
TO GET POOR WOMEN
MEDICAL HELP FROM
FEMALE PRACTITIONERS.





1870, PARIS, SORBONNE





WE NEED
A NEW
BUILDING!

A speech bubble with a tail pointing towards the woman in the foreground.



1916

WHAT HAVE WE ACHIEVED
SO FAR? ELIZABETH BECAME
THE FIRST WOMAN PHYSICIAN
IN BRITAIN AND OPENED THE
MEDICAL PROFESSION TO
WOMEN. I FOUNDED GIRTON
COLLEGE AND MILLICENT
IS FIGHTING FOR THE VOTE!
NOT BAD, BUT...

... THERE'S
STILL A LOT
TO DO!

COURAGE CALLS
TO COURAGE
EVERYWHERE AND
ITS VOICE CANNOT
BE DENIED.



EMILY DAVIES



ELIZABETH GARRETT
ANDERSON



MILlicENT GARRETT
FAWCETT

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2020

WHAT ARE
THEY ON ABOUT?
THEY ALREADY
HAVE THE VOTE!



