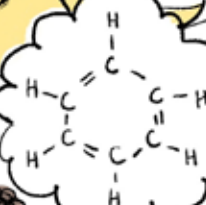
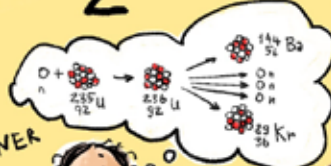


PIONEERS OF PROGRESS 2

ELIZABETH
GARRETT
ANDERSON

LISE
MEITNER

ROSA
BEDDINGTON



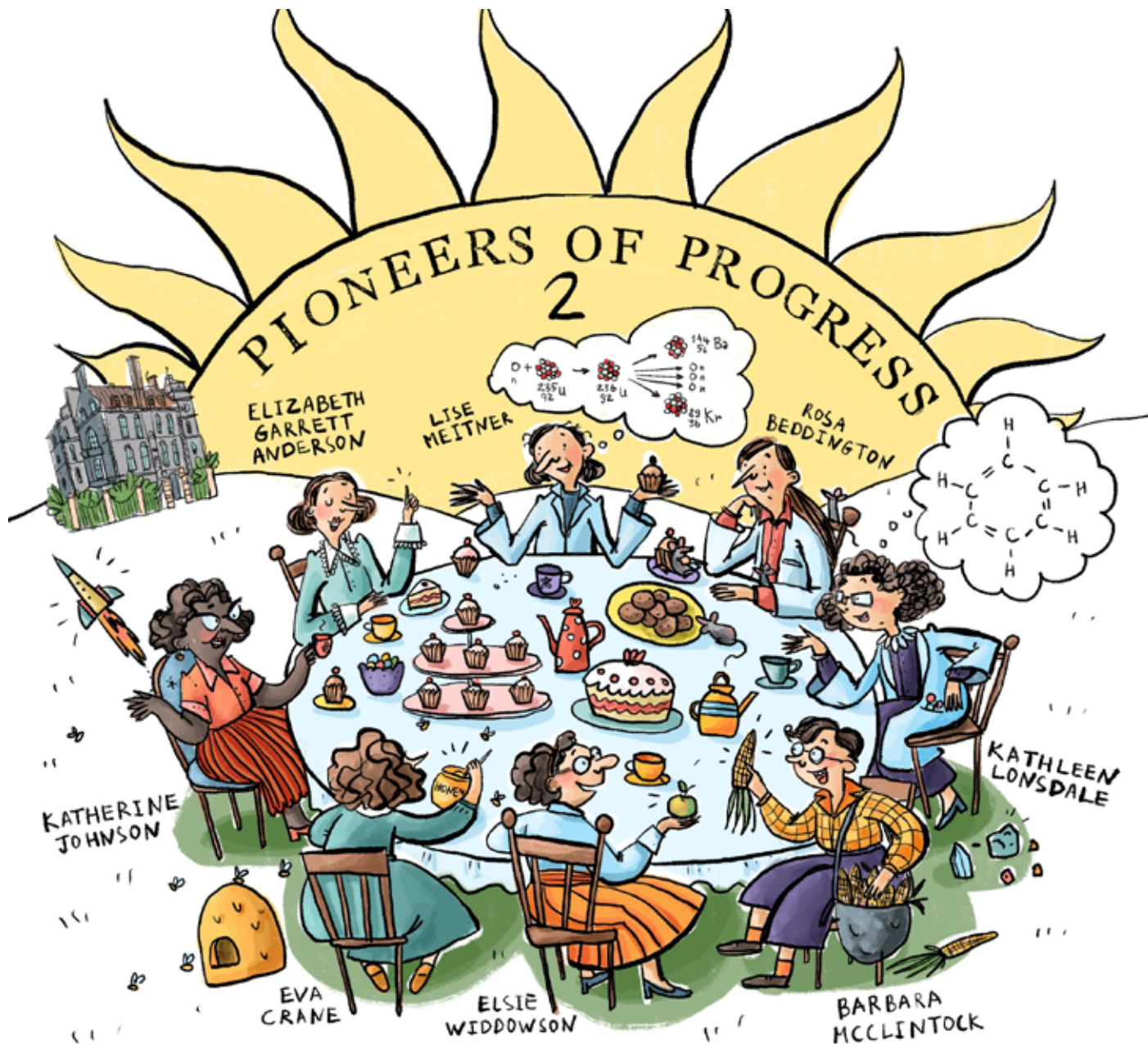
KATHERINE
JOHNSON

KATHLEEN
LONSDALE

EVA
CRANE

ELSIE
WIDDOWSON

BARBARA
MCLINTOCK





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.

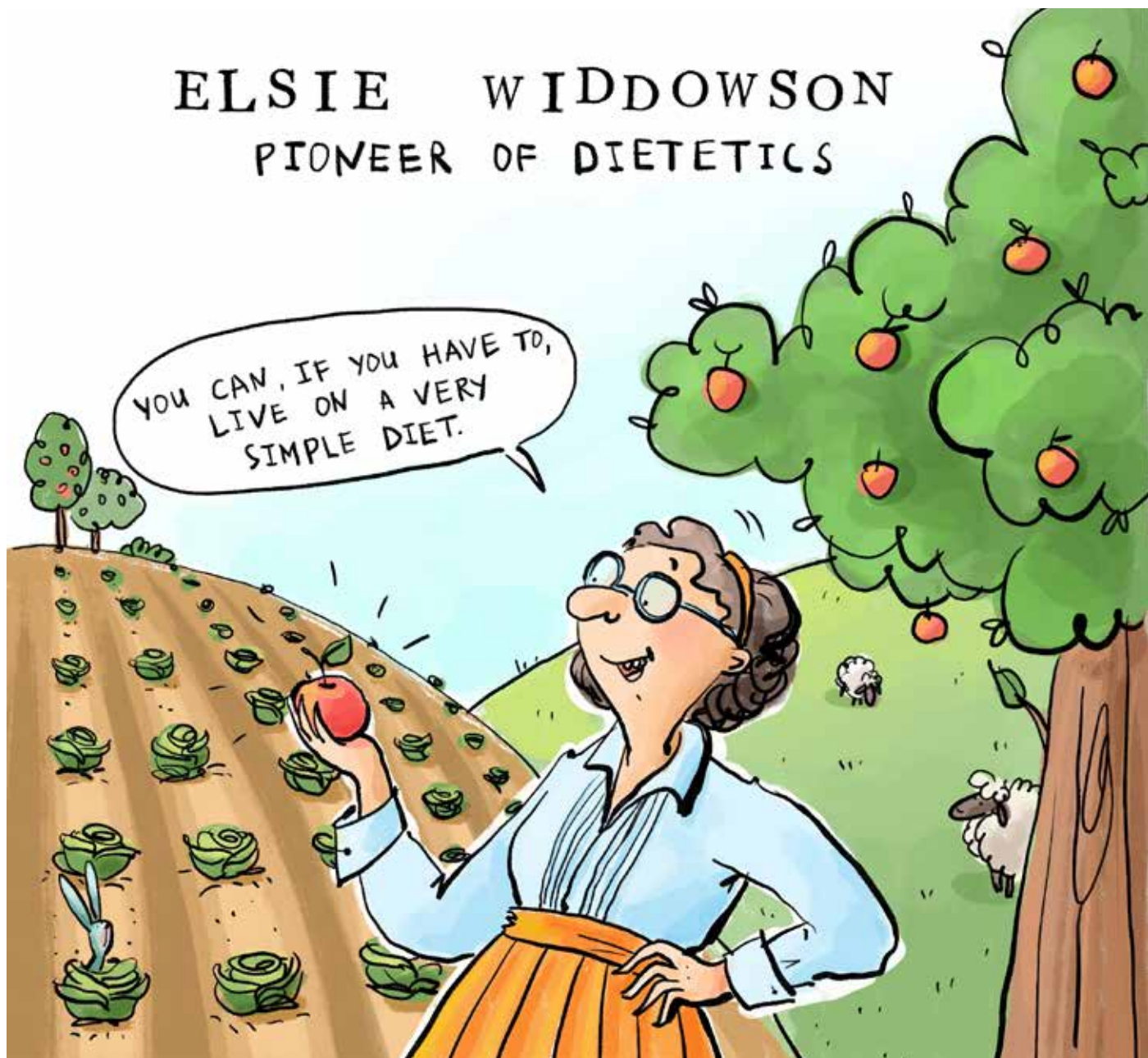
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geco@lms.mrc.ac.uk

ELSIE WIDDOWSON

PIONEER OF DIETETICS

YOU CAN, IF YOU HAVE TO,
LIVE ON A VERY
SIMPLE DIET.





YOU WOULD HAVE
TO STUDY ABROAD
FOR THIS.



OH NO.
I CAN'T DO THIS.
MY LITTLE SISTER
EVA WOULD MISS ME.



YOU COULD
STUDY CHEMISTRY
AT IMPERIAL
COLLEGE.



IMPERIAL COLLEGE, DEPARTMENT OF
PLANT PHYSIOLOGY

WOULD YOU LIKE
TO WORK ON THE
PHYSIOLOGY OF
APPLES?

HELEN ARCHBOLD



AN ORCHARD IN KENT

IF I FIND A METHOD
FOR MEASURING THE
STARCH, HEMICELLULOSE,
SUCROSE, FRUCTOSE AND
GLUCOSE IN THE APPLE
SEPARATELY...



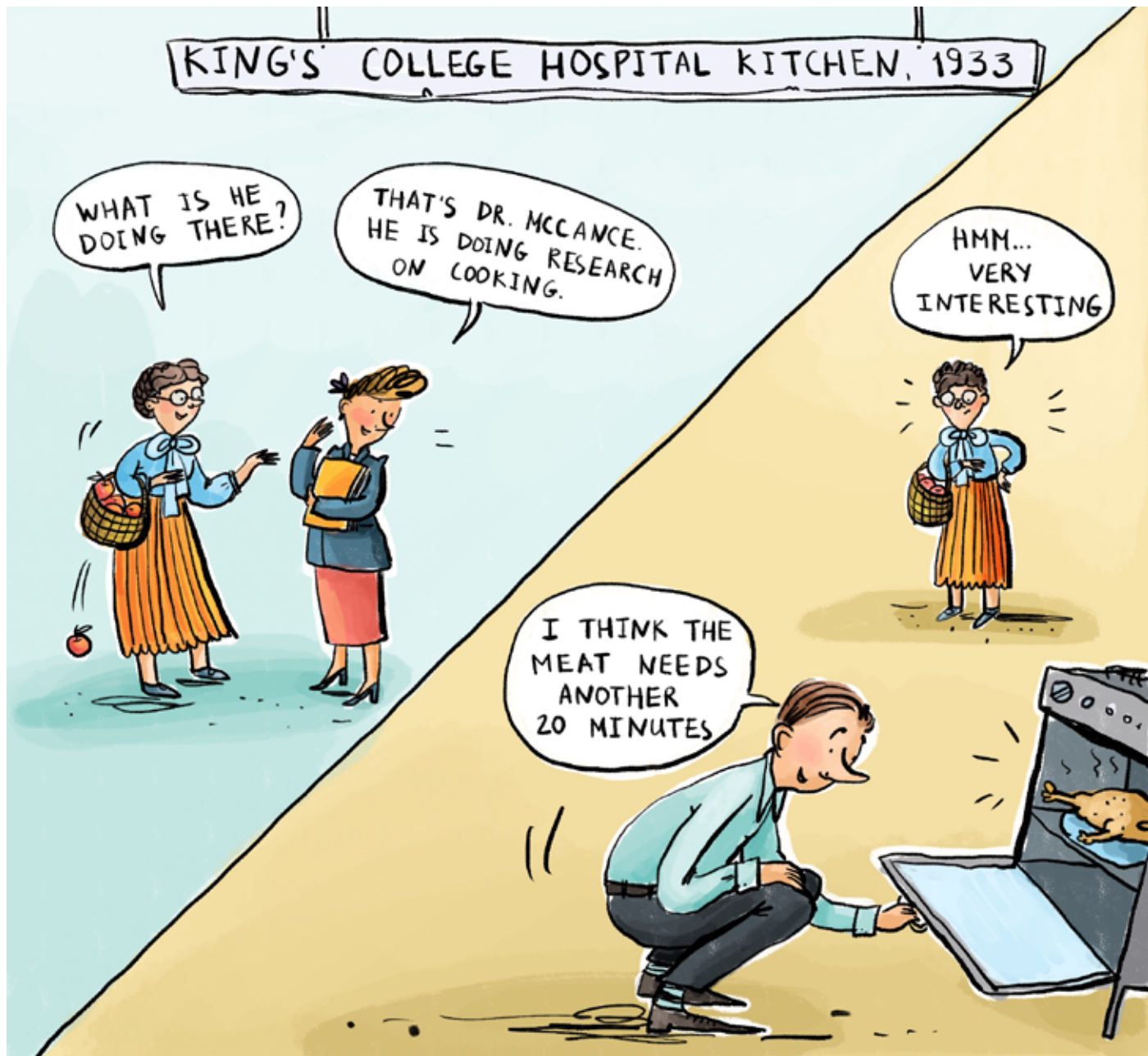
KING'S COLLEGE HOSPITAL KITCHEN, 1933

WHAT IS HE
DOING THERE?

THAT'S DR. MCCANCE.
HE IS DOING RESEARCH
ON COOKING.

HMM...
VERY
INTERESTING

I THINK THE
MEAT NEEDS
ANOTHER
20 MINUTES

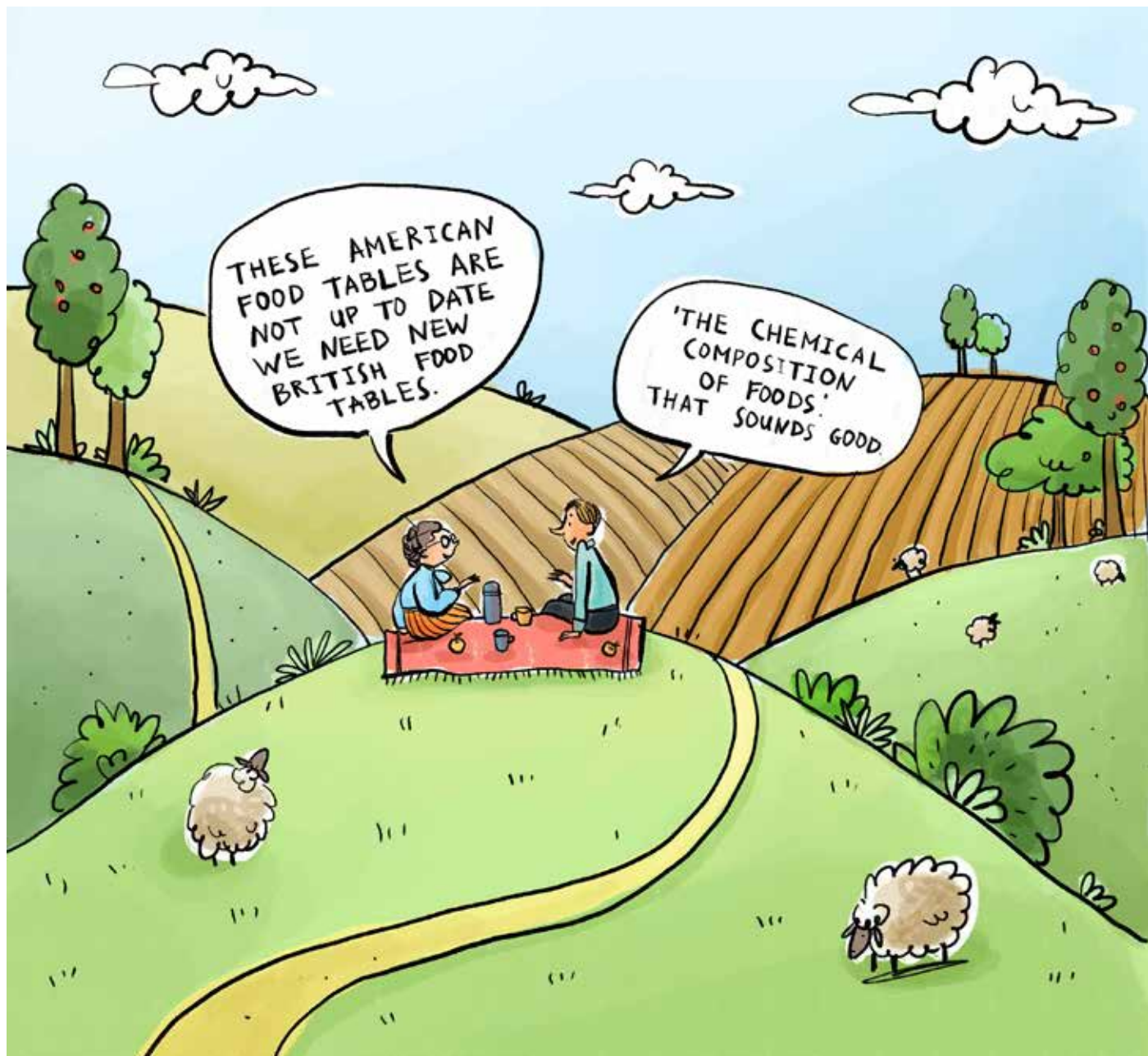


ROBERT MCCANCE'S LABORATORY

SOME OF YOUR
RESULTS ARE WRONG
BECAUSE YOU BOILED
THE FRUIT WITH ACID
AND DESTROYED SOME
OF THE FRUCTOSE.

I'M GOING TO TRY
AND GET A GRANT
FOR YOU FROM THE
MEDICAL RESEARCH
COUNCIL. COME AND
PUT THIS RIGHT.





1939

WE SHOULD LOOK INTO THE DIETARY IMPACT OF WAR RATIONING. CAN FOOD PRODUCED SOLELY IN BRITAIN MEET THE NEEDS OF THE POPULATION?

WE PUT OURSELVES ON A MINIMAL DIET OF BREAD, CABBAGE AND POTATOES WITH CALCIUM SUPPLEMENTS AND THEN WE TEST OUR ENDURANCE AND FITNESS.



6 MONTHS LATER AFTER A 36 MILE WALK

HOW DO YOU FEEL?

I'M FINE. I THINK OUR RATIONS PROVIDE ENOUGH ENERGY.





1993, BUCKINGHAM PALACE

YOU ARE NOW A
MEMBER OF THE ORDER
OF THE COMPANIONS
OF HONOUR.

THANKS!

HOW
WONDERFUL
ELSIE!



EVA CRANE

MAY I ASK:
HOW DO YOU KEEP
SO FIT? WHAT IS
YOUR SECRET?



IT RUNS IN THE
FAMILY I SUPPOSE...
AND I FOLLOW A
SIMPLE DIET: 'A LITTLE
BIT OF WHAT THEY
LIKE' AND MILK
WITH EVERYTHING.



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These illustrated tales were researched and written by Kirstin von Glasow with assistance from Susan Watts.

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2020

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



