Chapter 16:
Tip of the Iceberg

Acknowledgements

This final chapter opens Darwin's book once again to show how the theory of evolution has progress since he died many years ago.

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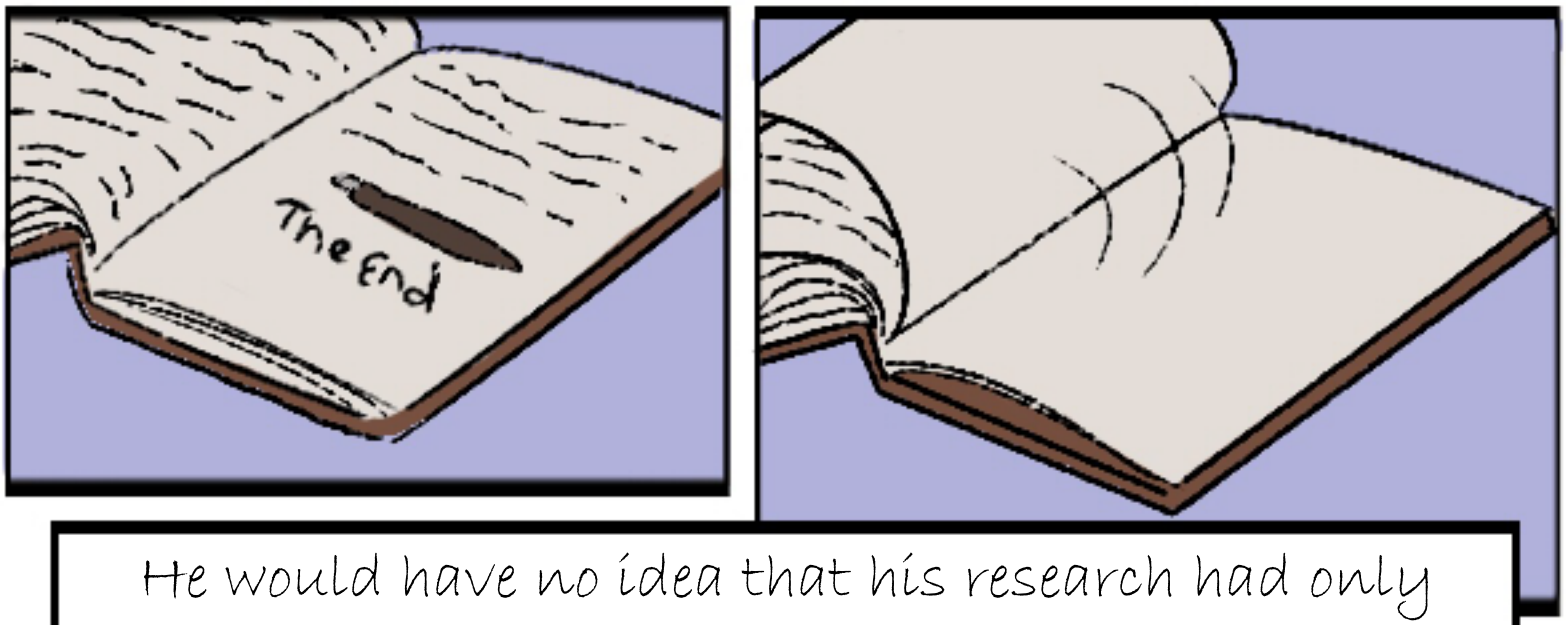
Last but not least we would like to thank Serissa for formatting our story and for also expressing her ideas for the writing.

When Darwin signed the last page of his book with a scribbled "the end",



He would have no idea that his research had only brushed the tip of the iceberg.

Less than a hundred years after Darwin's death, scientists studying in the same field would be working restlessly to unravel the fascinating mystery that is DNA, and how it contributed to the theory of evolution.

From the structure of the miniscule strand...

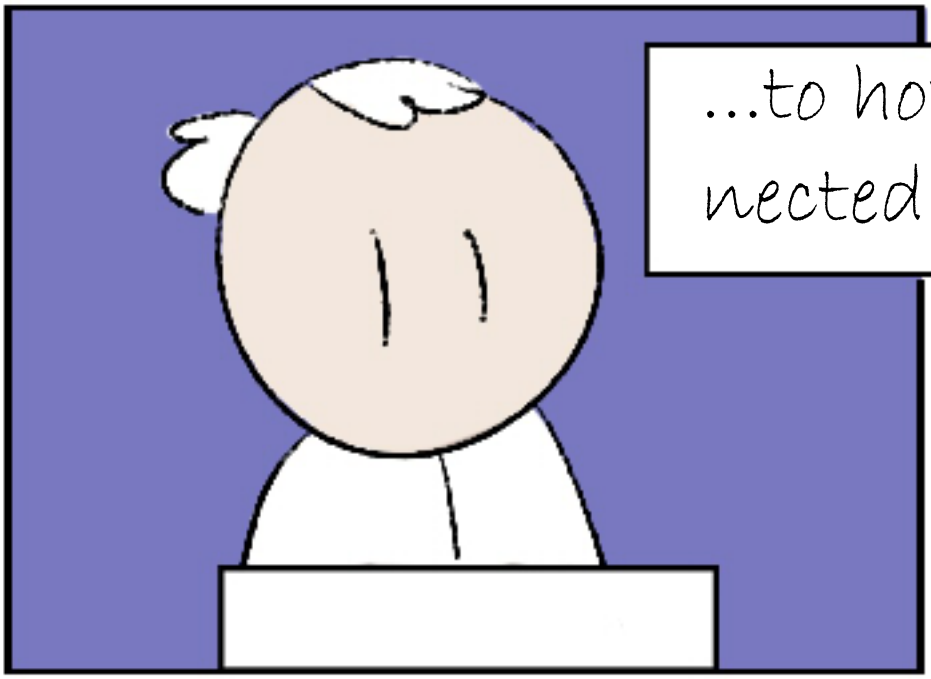
These four scientists uncovered the true helix shape of a strand of DNA in the mid 1900s.

James Watson

Francis Crick

Maurice Wilkins

Rosalind Franklin

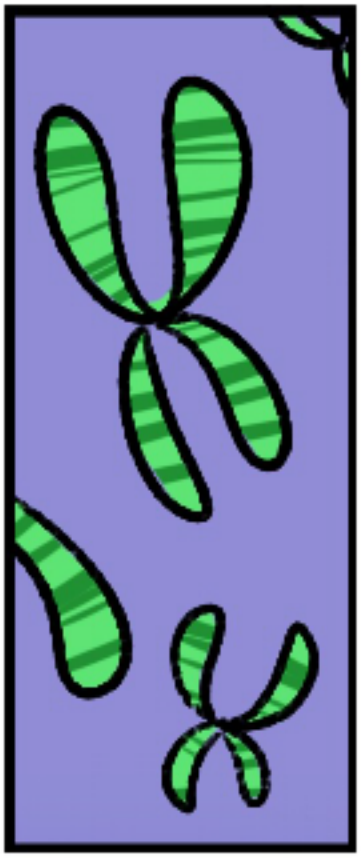


...to how the bases connected to each other...

Erwin Chargaff concluded that because there was an equal amount of guanine compared to cytosine, and the same amount of thymine compared to adenine, these bases only connect with their matches; c and g, and a and t.

New discoveries related the properties and functions of how a cell functions and used DNA began pouring in with every year that passes.

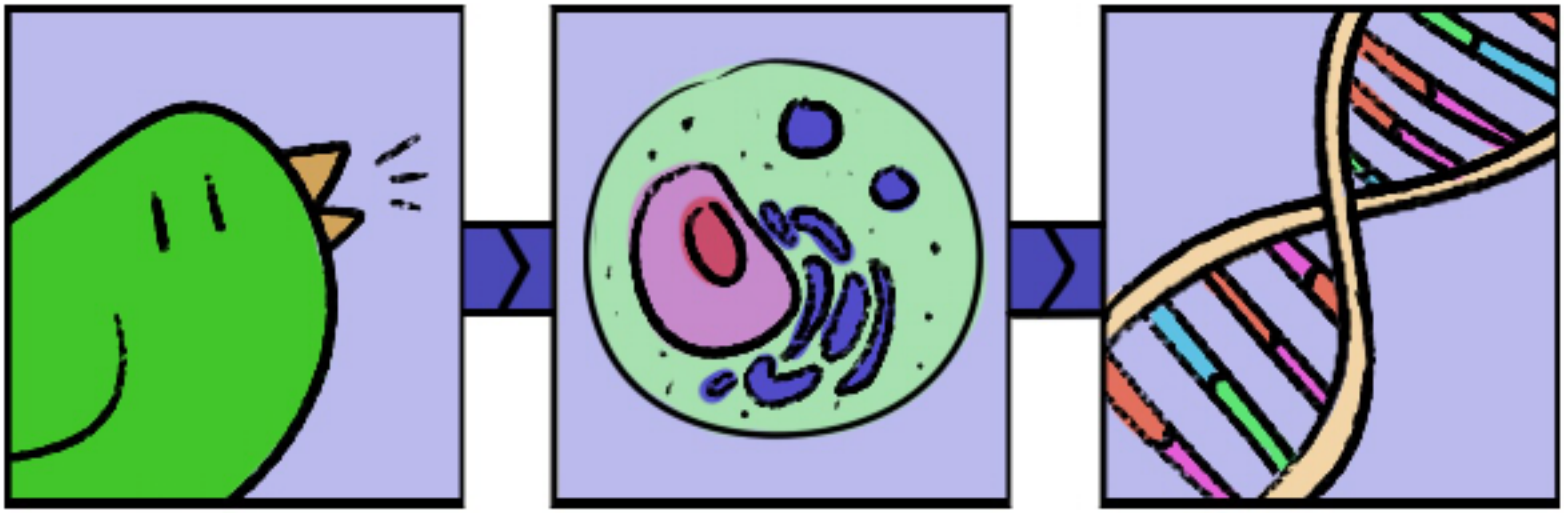
And discovery after discovery led to the conclusion that...



The genes that reside within each and every...

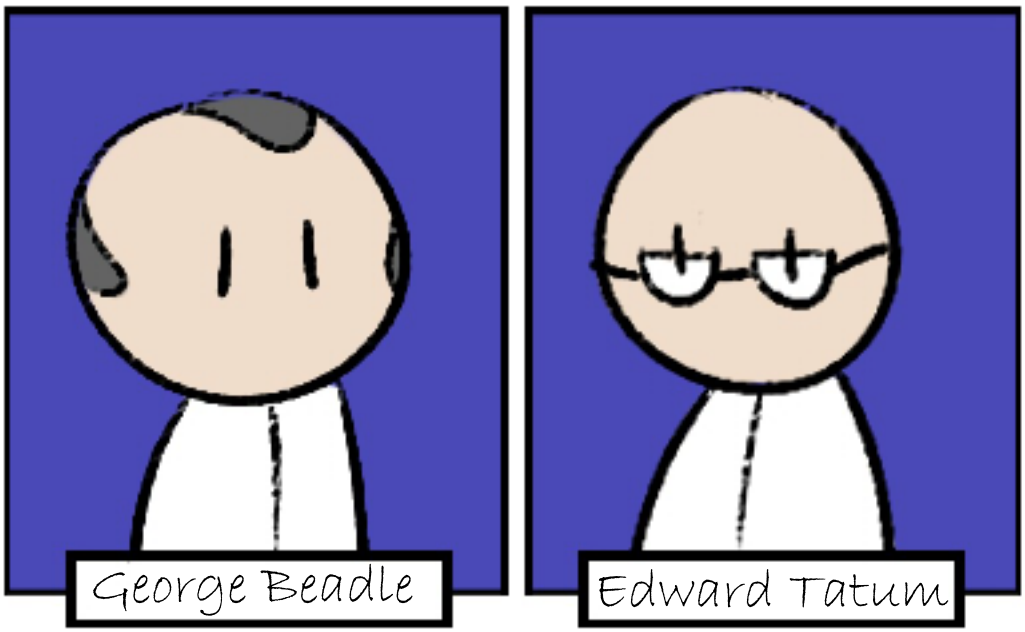
living organism..

Was the secret to how the body functioned.



Each gene within a creature contained DNA, or instructions on how a cell should go about living, reproducing, and dying.

A discovery in 1941 led to the conclusion that each gene codes for one specific protein, which is created through the process of protein synthesis.



Protein synthesis describes the process in which DNA is transcribed into RNA and drawn through a ribosome; the instructions within the RNA are used to connect certain amino acids together to create a protein that will do a specific job within the cell.

George Beadle and Edward Tatum showed that genes affect heredity by determining enzyme structure. They did an experiement with a red bread mold and exposed it to x-rays and studied how the bread mold was changed. By doing that, they were able to find the specific structure of the enzyme.

But for years, many still raised the question; how does DNA relate to evolution?

It all falls back to the idea of actual genetic map of a creature; Today, we have the power to decode the genome of an organism with ease, which meant that a comparison between two living things could show how closely related they are.

With this, we're able to draw the evidence back to Darwin's initial idea that all organisms originate from a common ancestor and gained their own unique traits through natural selection. The more of a match the genomes of two animals are, the closer they are in relation to each other.

With this, scientists can conclude that every organism on the planet is, in a genetic sense, slowly drifting away from each other through the process of evolution.

Lys – Glu – His – Lys – His
His – Glu – Lys – Glu – Lys
Lys – His – Lys – Glu – His
Glu – His – Glu – Lys – His
Glu – Lys – His – Lys – Glu
His – Glu – Lys – Glu – Lys

His – Glu – His – Glu – Lys
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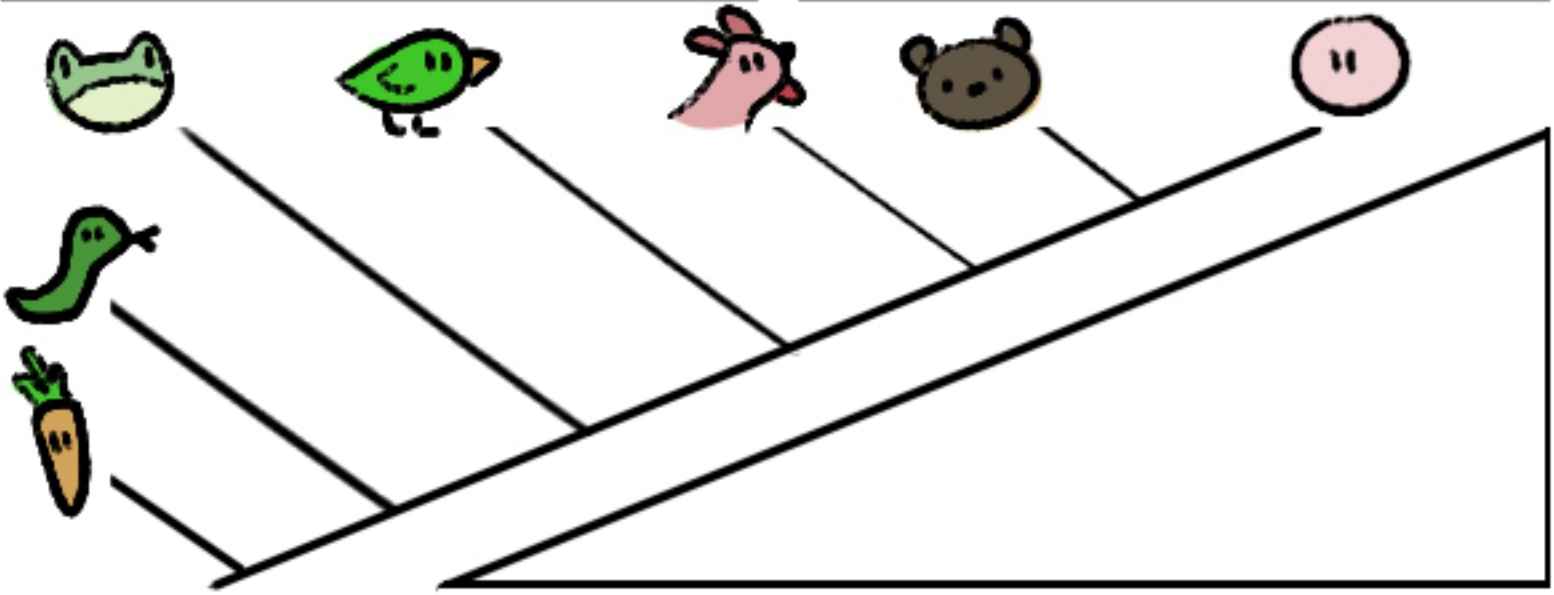
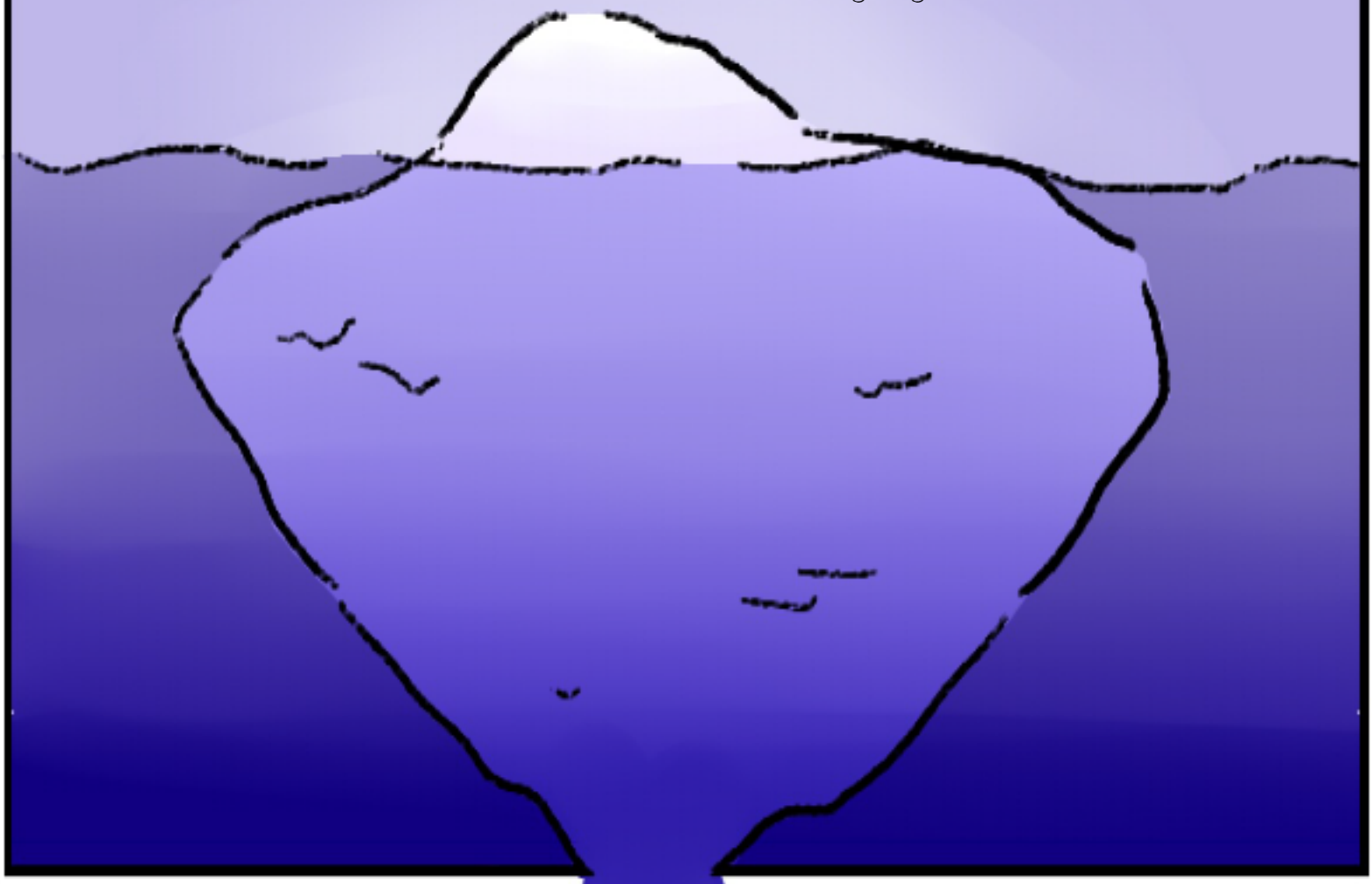


Yet we are still only brushing the tip of the iceberg; with topics as complex and mysterious as DNA and evolution, new discoveries are inevitable in a world where new techniques and ideas are being created everyday.



But the fact that we have so much more to discover is What must encourage us to work together to solve puzzle that is DNA.