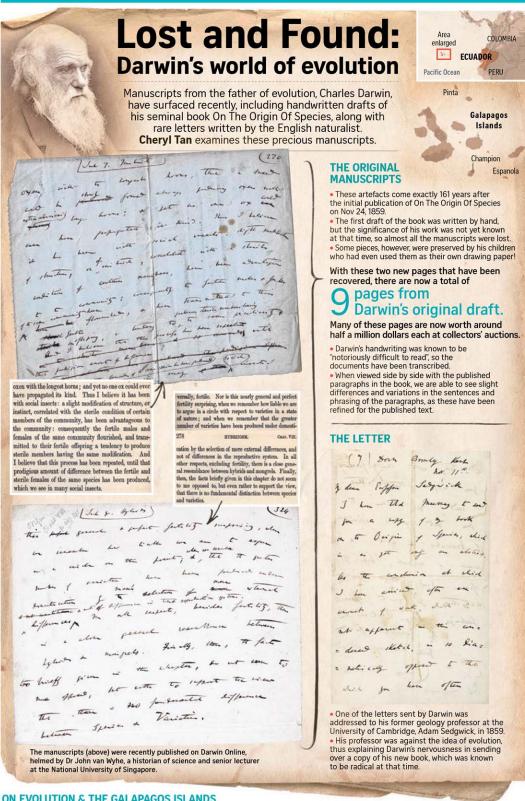


Source: The Straits Times, pB10

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ON EVOLUTION & THE GALAPAGOS ISLANDS

 Evolution refers to the way living things change over time. During one of his voyages on the HMS Beagle ship, Darwin visited the Galapagos Islands, an archipelago comprising 13 main islands and many smaller ones.

He theorised that these species likely migrated from South America to these remote islands in the Galapagos archipelago and, over time, they adapted to the unique environment of each island, and evolved into new species.



SOURCES AND PHOTOS: DARWIN ONLINE, WILLIAM HUXLEY DARWIN, PRIVATE COLLECTORS, RUBEN HELENO, JAMES P. GIBBS, SUNY-ESF, MARTIN WIKELSKI STRAITS TIMES GRA

Lessons from Darwin and evolution, 161 years on

His ideas help explain how pandemics like the current coronavirus crisis come and go

Everything about us is the result of evolution, says science historian John van Wyhe.

This includes "the organisation of our internal organs, our biochemistry, and our susceptibility to diseases".

Tomorrow marks Evolution Day, 161 years since the initial publication of Charles Darwin's On The

the initial publication of Charles Darwin's On The Origin Of Species in 1859.

Two pages from Darwin's handwritten draft were recently unearthed, offering us glimpses into the making of the book which "changed the world", said Dr van Wyhe, a senior lecturer at the National University of Singapore's Department of Biological Sciences who helms the Darwin Online website

Also uncovered was a page of Darwin's reading notes – examining slave-making ants. This eventu-ally became a segment of his book that was widely discussed.

Slave-making ants are a type of parasite which manipulates other similar species to increase the size of its own colony. Scans of these artefacts, from a private collection

in the United States, were given to Dr van Wyhe and uploaded on Darwin Online.

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Darwin's theory of evolution posited that all living things changed over time and developed characteristics to adapt to their environments.

However, the diversity of living things meant

that some species possess characteristics that ren-

that some species possess characteristics that ren-der them "stronger" than others. These species willsurvive, and those that are weaker will die. "Such a theory was considered radical at that time, as people knew that species had appeared and disappeared throughout history, but they did not know why," Dr van Wyhe said. "Darwin ex-plained that these species had, in fact, evolved over time."

EVOLUTION OF THE PANDEMIC

Today, this theory is widely understood as the "bedrock of all living things", and it remains important, especially amid the Covid-19 pandemic.

During the pandemic, two living organisms – the Sars-CoV-2 virus and human beings – compete

with each other for survival.

The virus, which causes the disease Covid-19, propagates by infecting host cells in human beings to reproduce.

To survive, it mutates and evolves along the way

o infect larger segments of the population.
On the other side of the battlefield, human beings protect themselves from viruses by developing antibodies. These antibodies lock onto the virus' bet cells. However, the diversity of human beings means some are more susceptible to viruses than others.

Some are more susceptible to viruses than others. Those with a stronger immune system "defeat" the virus, while the weaker ones may succumb to it. Taking a look at the past few pandemics that have plagued human history, it can be seen that viruses must have certain characteristics to re-

main infectious and continue reproducing.

This is why deadly viruses, which kill the host quickly before he can infect others, will eventually

disappear, as they cannot reproduce. For instance, the Spanish flu in 1918, known to be the deadliest flu in history, killed between 50 million and 100 million people. Back then, scientists knew little about the virus.

end as those who were more susceptible to it had died, while those who survived had developed immunity to the virus

In the present day, we are armed with various forms of technology to counteract the virus – therapeutics, contact tracing tools to control its spread and even the promise of a vaccine – but we remain in the same game, said Dr van Wyhe. He added: "As long as living things continue to evolve and change, we will always have to be on

our guard for new mutations that come along the way."

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RADICAL THEORY

Such a theory was considered radical at that time, as people knew that species had appeared and disappeared throughout history, but they did not know why. Darwin explained that these species had, in fact, evolved over time.

DR JOHN VAN WYHE, a historian of science and senior lecturer at the National University of Singapore, on Darwin's theory of evolution.