



## The scientists of *Assassin's Creed* Part 1: James Cook and Charles Darwin

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It feels like a long time since Altair first adventured through the Holy Land. Now *Assassin's Creed*, by Ubisoft, became one of the highest selling video game franchises of all time. It is even bigger if you consider the novels, comic books, animations, and well... that movie-thing. It is also one my top 3 favorite game series, so no wonder it would pop up on one of my articles eventually.

Besides the nice action and beautiful historical settings of *Assassin's Creed* games, my favorite moments are when I suddenly stumble upon one of my real-life heroes. I enjoy talking to their in-game reconstructions and to see how they match both my expectations and the historical accounts of their real-world counterparts. Most of these people are, of course, scientists, even though some lived in a time where the word "scientist" was yet to be coined.

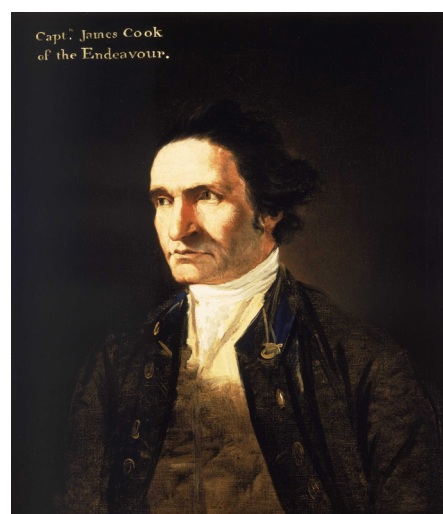
So, my goal here will be to show how these people are portrayed in *Assassin's Creed* and how this matches reality. I will also explain their major achievements and their importance to science. But with so many games in the franchise, it would be a monumental task to write a single article with every scientist; thus, I decided to present this in parts. The first one, as you might have surmised from the title, will be about James Cook and Charles Darwin.

At first sight, this might seem a strange pairing, but it has its reasons. I've chosen to start with them because this year marks some anniversaries – and us humans just can't help but be attracted to round num-

bers and meaningful dates. The year of 2019 marks 250 years from Cook's historical first visit to New Zealand and 240 years from his death. It is also Darwin's 210th would-be-birthday and the 160th birthday of the most groundbreaking book ever written: *On the Origin of Species*.

### CAPTAIN JAMES COOK

James Cook was born on 7 November 1728 in Marton, in North-East England. He attended local school, apprenticed as a shop boy, and in his late teens became a merchant navy apprentice. During that time, he learned navigation skills and a healthy dose of algebra, geometry, trigonometry, and astronomy. In 1755, he joined the Royal Navy, just when Britain was preparing for the Seven Years' War.



Portrait of James Cook, oil on canvas, 1775-1776, by William Hodges (extracted from Wikimedia Commons).



Captain James Cook, oil on canvas, 1775-1776, by Nathaniel Dance-Holland (extracted from Wikimedia Commons).

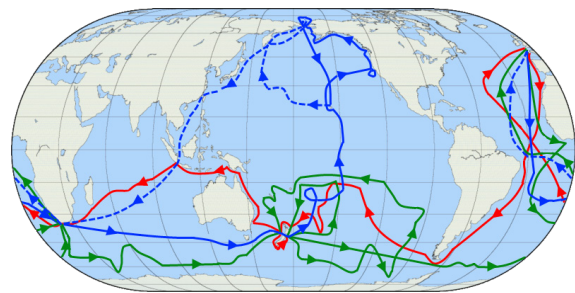
Cook served aboard several ships; most remarkably, he was part of the HMS *Pembroke* crew when the British captured the Fortress of Louisbourg from the French in 1758, during the Seven Years' War. Due to his talent as a cartographer, he was put to good use during that time, mapping several parts of Canada in the late 1750's and early 1760's (then aboard the HMS *Grenville*). This is the part of his life seen in *Assassin's Creed*, but he is most famous for what came afterwards; so let us take a look at that before turning to the game.

In 1768, the Admiralty made Cook lieutenant and put him in command of the HMS *Endeavour* on a scientific voyage to the Pacific Ocean. His main goal was to observe the transit of Venus<sup>1</sup> in Tahiti in 1769, which would help to determine the distance of the Earth to the Sun (the solar parallax). After that was out of the way, Cook opened an envelope with further orders: to navigate the South Pacific in search of the hypothetical continent Terra Australis and to find New Zealand's eastern shores. He set off to the south and then westwards, reaching New Zealand and precisely mapping its

entire coast. He also took the opportunity to record the transit of Mercury. Cook also needed to document the flora and fauna and establish a relationship with native people; in the long term, the goal was to acquire their consent to take the land for His Majesty. That was the beginning of the British history of New Zealand.

Once back in England, Cook was promoted to commander and sent on a second voyage in search of Terra Australis, which everyone now knew was not New Zealand. Cook took the HMS *Resolution*, with the HMS *Adventure* serving as its companion ship, and navigated the southern oceans. He almost reached Antarctica, but his "failure" to find land put an end to the Terra Australis myth.

Back in England once again, he was made captain and soon became involved in a third voyage, commanding the HMS *Resolution* once again (the companion ship this time was the HMS *Discovery*). His goal was to find a northern passage, through the Arctic, from the Pacific to the Atlantic. He couldn't do it, of course, and became frustrated with the voyage. During a prolonged stay in Hawaii to fix the ship, tensions began to rise with the locals. Cook tried to kidnap the Hawaiian king to put an end to it; the Hawaiians naturally didn't like that and Cook was killed.



Map showing Cook's three voyages: first voyage (1768-1771) in red, second (1772-1775) in green, third (1776-1780) in blue (becomes a dashed line after his death in 1779). Map by J. Platek (2008; extracted from Wikimedia Commons).

<sup>1</sup> Herdendorf (1986) argued that the Transit of Venus, first in 1761 and then in 1769, was the first international collaborative effort in science, including dozens of observers in tens of stations spread worldwide. He considered it as the establishment of the modern scientific international community.

**Box 1. THE DISCOVERY AND NAMING OF NEW ZEALAND**

Despite what might be assumed, Cook did not discover New Zealand. Polynesian settlers arrived there between 1200 and 1300 CE and became known as the Māori. They called their new home Aotearoa.

The first non-Polynesian person to arrive in New Zealand was Dutch explorer Abel J. Tasman, who first sighted the shores of South Island in December 1642. Tasman's crew would have landed there, but were driven off by the Māori. They assumed that land could be the western shore of the imaginary continent Terra Australis. In any event, Tasman named the "new" land Staten Landt, which is a straightforward horrible choice. Dutch cartographers recognized this and renamed the place Nova Zeelandia in 1645, after the province Zeeland in the Netherlands. This name stuck, even under later British control.

Even though he did not stay long, Tasman literally put New Zealand on the map and right under the radar of European colonial efforts. His name lives on today in the Tasman Sea (separating Australia and New Zealand), in Tasmania (Australia's southern island), and in the Abel Tasman National Park (in northwestern South Island, New Zealand).



Portrait of Abel J. Tasman, 1903, by J. M. Donald (extracted from Wikimedia Commons).

Captain Cook was responsible for mapping large parts of the world, as well as for several astronomical observations and for collecting dozens of ethnographic artifacts. He might not convey the impression of the typical scientist, but can and should be counted as one.

He was not the only scientifically-inclined person on his expeditions, though. During his voyages, Cook counted with botanists Joseph Banks and Daniel C. Solander, astronomers Charles Green, William Wales and William Bayly, and naturalists Herman Spöring, Johann R. Forster, Georg A. Forster and David Nelson. There were also artists to illustrate the new lands, their people, flora and fauna.

Cook features in *Assassin's Creed: Rogue* (henceforth ACR), released in 2014 for the Xbox 360 and PlayStation 3 (2015 for Microsoft Windows) and remastered for the Xbox One and PlayStation 4 in 2018. This game is different from the others in the series in that you play as a Templar instead of an Assassin. The game follows Shay Cormac in his convoluted journey from Assassin apprentice to senior Templar.

Cormac first encounters Cook towards the middle of the game's story. By that time (June 1758) Cook was master of the HMS *Pembroke*. Even though he appears several times, his presence is not as well-marked as one would hope. Cormac and his crew go after him due to his "mathematical mind" and expertise in deciphering secret codes. They comment that Cook's "seamanship is second-to-none" and that he had a self-policy of strict honesty. Cormac and his colleague Gist discuss how Cook would be a good addition to the Templars, but in the end decide that his total lack of guile would be bad for the Order: the man would not be able to keep the secret.

The presentation of Cook's character and personality is in line with contemporary sources and his many later biographies, which paint him as intelligent, honest and driven. However, he faced many trials during his voyages and sometimes dealt with them using more brutality (towards his crew or the native people of the Pacific) than we can now accept. Furthermore, he seemed to have had a drastic change of personality on his third voyage. In any event, the depiction of young James Cook in ACR is very compelling.





Concept art from ACR, by D. Atanasov (©Ubisoft Entertainment; extracted from *Assassin's Creed* Wiki).



Captain Cook (left) meeting ACR's protagonist; screenshot from the game (©Ubisoft Entertainment; extracted from *Assassin's Creed* Wiki).

The first mission in ACR involving Cook is very straightforward: to beat the French. Cormac takes the helm of the HMS *Pembroke* to aid Cook in turning the tide of the battle and finally, capturing the Fortress of Louisbourg. This aligns rather nicely with the historical record.

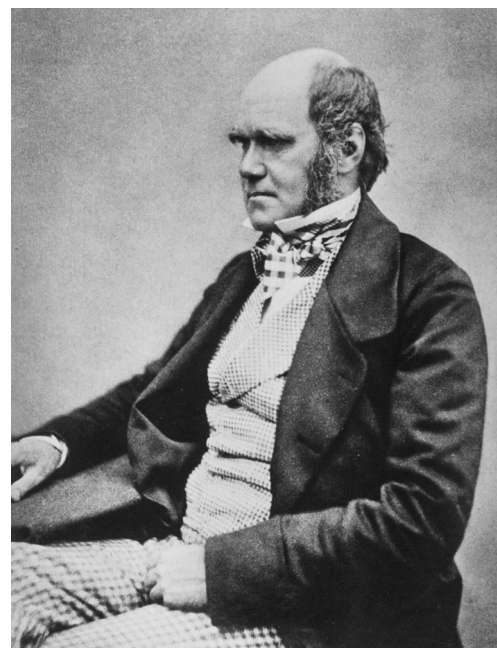
Cormac meets Cook again in Percé, in 1759, and asks him to decipher some encrypted maps. Cook also helps in tracking down a French-Canadian Assassin, after which he asks Cormac whether he belonged to a larger organization. After getting a reply in the lines of “we couldn’t say even if we were”, Cook then assumes Cormac and his crew were under direct orders of the King. The Templars seem satisfied with this and do not correct Cook. Instead, they say their group will contact him about sponsor-

ing future voyages.

The last bit is a clear reference to Cook’s three exploration voyages to the Pacific. What interest the Templars might have there remains unknown for the moment, but it could definitely involve Terra Australis. In any event, real-life Cook indeed got the attention of the Admiralty and the Royal Society during his years in Canada, especially because of his incredible work mapping Newfoundland; indeed, this latter led to his appointment as commander of the first Pacific voyage.

## CHARLES R. DARWIN

Darwin (1809–1882) needs no introduction – but here’s one anyway. He is THE most important figure in Biology and of the most important scientists of all time. He is most famous for his book *On the Origin of Species* (henceforth *Origin*), first published in 1859, but his contributions to the natural sciences extend beyond that. As late American paleontologist Stephen J. Gould argued, Darwin’s ideas rank with Copernicus in the way they revolutionized not only science but also the very way our silly species sees itself.



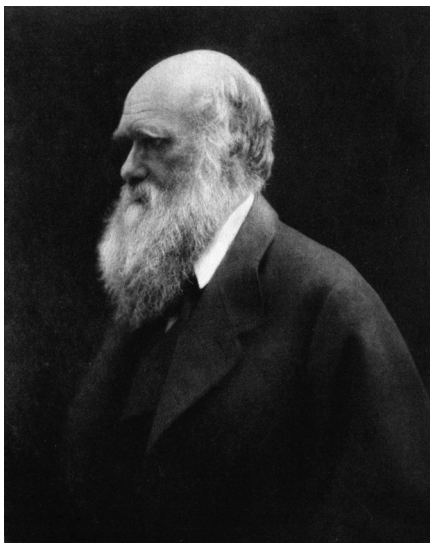
Photograph of Charles Darwin, possibly from 1854 (extracted from Wikimedia Commons).

There is simply way too much to write about Darwin: his early life, his voyage, his books, his garden experiments, his immense legacy, etc. There are dozens of books written about him and, if I start writing all the things I find interesting here, I might just end up with a whole book. Since I do not want that, I will focus here on very small parts of his life that are related to what happened in the game.

Darwin features in *Assassin's Creed: Syndicate* (henceforth ACS), released in 2015 for the Xbox One, PlayStation 4 and Microsoft Windows. The game takes place in London, starting in 1868, and revolves around the brother and sister pair of Assassins, Jacob and Evie Frye.



Charles Darwin, from ACS (©Ubisoft Entertainment; extracted from *Assassin's Creed* Wiki).



Photograph of Charles Darwin from 1868, when ACS takes place (by J.M. Cameron; extracted from Wikimedia Commons).

In the game, you first meet Darwin investigating a factory that produced an opium-based drug called "Soothing Syrup". It was made by the Templars, of course, and Jacob decided to help Darwin in his investigation. They find out that Richard Owen (see Box 2), who was responsible for an article defaming Darwin, knew something about the syrup. Jacob interrogates Owen and discovers the name of the doctor who was behind the new drug, confronting and killing him in an asylum.

Back to the real world, first I should point out that Darwin was somewhat of a hermit. He lived in the countryside near London since 1842 and his home was known as Down House. Darwin reportedly did not enjoy going into town that much, so you would be hard pressed to find him in London as the Frye twins did. But that is totally excusable, as a game set in Victorian London must include Darwin somehow. Also, by that time Darwin already had his share of adventures during the voyage of H.M.S. Beagle around the world, so you would be even more unlikely to find him poking around criminal activities in London. Thus, the whole "Soothing Syrup" quests would be very unlikely, especially because they involve more medicine and chemistry than actual biology.

Later on in ACS, the Frye twins meet Darwin again, who says that his critics were threatening him and his colleagues with violence. He was waiting for a certain German colleague of his, identified in the game simply as Dr. Schwartz, who was bringing an important fossil to London. Darwin asks the Fries to protect Schwartz, but they discover that the German scientist was intercepted and killed by Templars. Even so, they manage to recover the fossil and deliver it to Darwin.

This mission is simply perfect for the setting, even though it is slightly historically inaccurate. The mission is called "The Berlin Specimen", which is a name that can only refer to one thing: the fossil specimen of *Archaeopteryx lithographica* from the Natural History Museum (Museum für Naturkunde) of Berlin. This species is one



### **BOX 2. SIR RICHARD OWEN**

Owen is clearly linked with the bad guys in ACS. He was a controversial figure indeed, hated by his adversaries, but maybe not quite the “video game villain” kind. Sir Richard Owen (1804–1892) was a brilliant naturalist and authored outstanding works in animal anatomy and paleontology. In fact, he is the one who coined one of the most important words in our vocabulary, “dinosaur”. He is also responsible for the magnificent Natural History Museum in London, built as a cathedral of Nature.

However, Owen opposed Darwin’s idea of evolution by natural (and sexual) selection. Owen was well aware of the anatomical features that established lines of descent and relatedness among animals. Still, his belief in human uniqueness, immersed in what he saw as “natural order” arranged by a creative power, escalated his quarrel with Darwin and his followers, mainly Thomas H. Huxley and Joseph D. Hooker. He could not agree with humans being “just” a weirdly naked species of ape.

In ACS, Darwin even says to Owen: “Mr. Owen, you are truly the most insufferable fellow I have ever had the misfortune to count among my acquaintances!” In real life, after Owen’s involvement in an event that undermined one of his colleagues, Darwin wrote in a letter: “I used to be ashamed of hating him so much, but now I will carefully cherish my hatred & contempt to the last days of my life.”



Photograph of Richard Owen with a crocodile’s skull, 1856 (extracted from Wikimedia Commons).



Richard Owen, from ACS (©Ubisoft Entertainment; extracted from Assassin’s Creed Wiki).

of the most important in the world from a historical perspective: its first fossil was discovered in southeastern Germany just two years after *Origin* was published and was a major evidence in favor of Darwin’s work, showing that the origin of modern birds lays within the group of theropod dinosaurs.

The Berlin specimen is the most famous (and most complete) of all the fossils of *Archaeopteryx lithographica*; we typically see a replica of it in exhibition in museums worldwide. However, it was only discovered somewhere in 1874–1876, some years after the setting of ACS, but still reasonably close. Curiously, a man named Schwartz, from Nuremberg, tried to buy the actual fossil before it was bought by the Berlin museum (funded by Werner von Siemens, founder of Siemens AG).



The Berlin specimen of *Archaeopteryx lithographica* (photo by E. Willoughby, 2014; extracted from Wikimedia Commons).

There is in fact a “London specimen” of *Archaeopteryx*, discovered in 1861 and bought by none other than Richard Owen for the Natural History Museum in January 1863. Perhaps this fossil would have been more appropriate for ACS; especially given that Owen is already in the game.



Replica of the London specimen of *Archaeopteryx lithographica* (photo by H. Zell, 2010; extracted from Wikimedia Commons).

Back to ACS, Darwin first asks the Fries to investigate a plant that can make people delirious and then to secure him a copy of that day’s newspaper, which had a rebuttal to Owen’s defamation mentioned above. The Fries then discover a Templar plot to spread newspaper articles with anti-Darwin propaganda, epitomized as a caricature.



This caricature, entitled “A Venerable Orang-outang” is seen in ACS and it was a real thing, published by The Hornet magazine in 1871, after Darwin published his book *The Descent of Man* (extracted from Wikimedia Commons).

In fact, Darwin was constantly under the radar of the Templars in ACS, who tried to buy him (and his research) out. Darwin answered that “[s]cientific knowledge cannot be bought, it belongs to everyone.” The Fries, of course, would come to his aid. They discover who was behind the caricature (spread through London as posters) and sabotage the printer shop.

Darwin’s ideas of evolution by natural and sexual selection and their implications for our own species were the cause of many heated debates during his lifetime. In fact, to this day many people are still in denial regarding his ideas (especially in religious countries like the US and Brazil), despite the massive amount of evidence in his favor. Darwin knew this would happen and that is basically why he took so long to publish his main book: he needed to amass as much supporting evidence as he possibly could. In ACS, Darwin says to Evie that “I am used to people challenging my ideas”.

The last mission involving Darwin in ACS is called “A Struggle for Existence” and alludes to the full title of his main book: “*On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*”. But the mission is not as poetic as it sounds; rather it is very literal.

It begins with Florence Nightingale telling the Fries that Darwin had been arrested and that she feared that “Mr. Darwin is no longer the fit, young man who once traveled the world.” The Fries then rescue him from a Templar base and Florence suggests that Darwin retired with his family to the Isle of Wight to recuperate in peace. Darwin, though, argues that “[t]he acquisition of knowledge is in itself sufficiently recuperative.” Real-world Darwin actually spent a holiday with his family on the Isle of Wight during 1868; the latter of the photos shown above was taken there.



## ASSASSIN/TEMPLAR SCIENTISTS

As I said in the beginning, Cook and Darwin (and Owen, I suppose) are hopefully just the first on a series I intend to write exploring all the real-world scientists that feature in the many *Assassin's Creed* games. (I'll definitely include Florence Nightingale at some point, in case you were wondering.) Also, since several games take place before the establishment of modern science, you'll also see some philosophers and historians around here. Until next time!

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#### ABOUT THE AUTHOR

Dr. **Rodrigo Salvador** is a biologist who studies mollusks or, to put it shortly, a malacologist. He loves reading about the scientists of old and can't help but share this sometimes. He is hyped by *Assassin's Creed* games ever since the very first images of Altair came out. His favorite entry in the series is *Origins*, because... Egypt, but his favorite Assassins are still Ezio and Evie.