Charles Darwin

A peacock's tail: how Darwin arrived at his theory of sexual selection

How Darwin developed the radical idea of females' power to choose their mates despite it being at odds with his own notions of women as inferior

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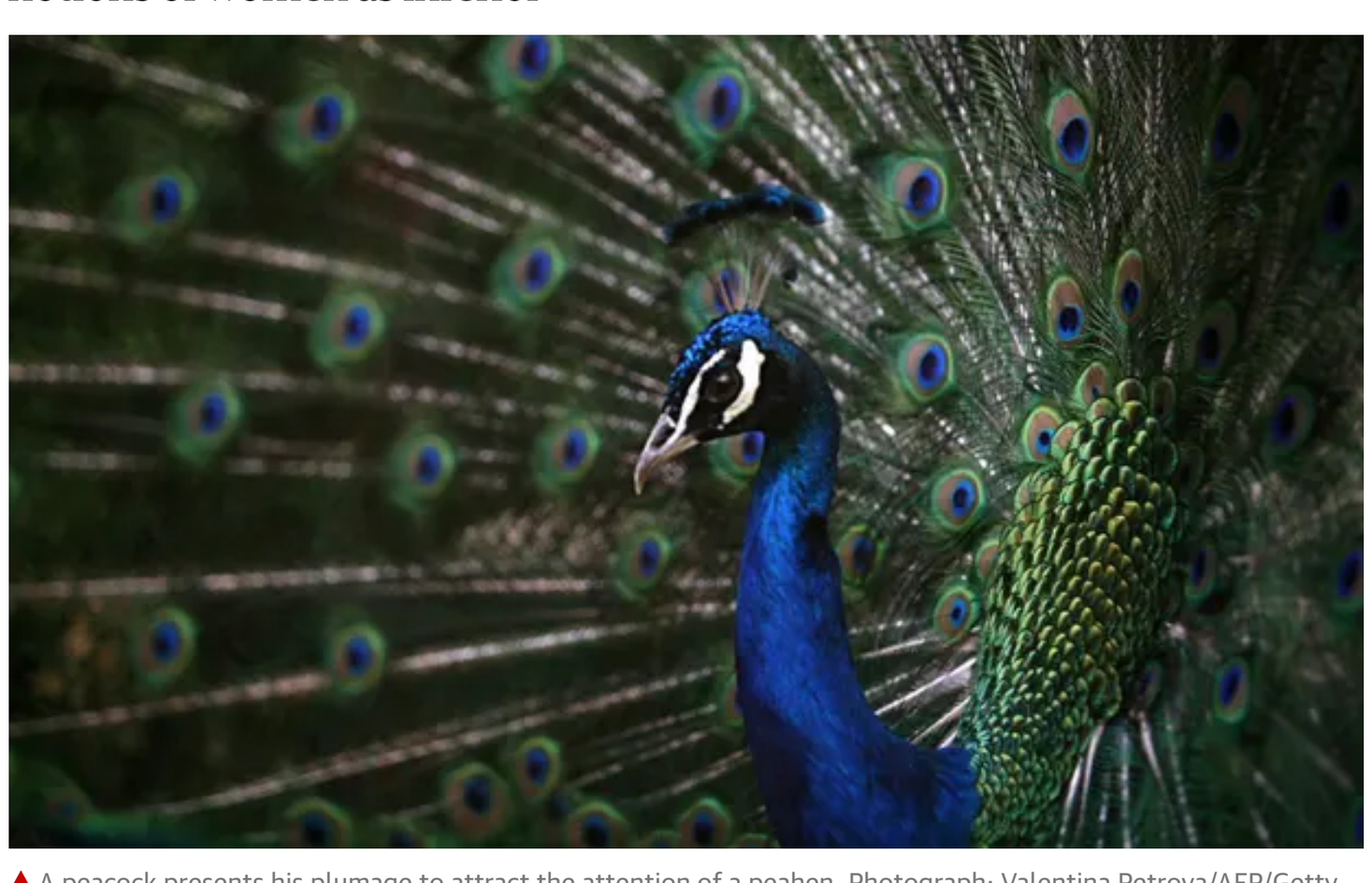


A peacock presents his plumage to attract the attention of a peahen. Photograph: Valentina Petrova/AFP/Getty Images

About 150 years ago, and "almost a lifetime" either side, Charles Darwin was beleaguered by the problem of the peacock's tail. Just the sight of a feather, he wrote in April 1860, "makes me sick!"

The plumage of the male bird represented a hole in his theory of evolution. According to Victorian thinking, beauty was divine creation: God had designed the peacock for his own and humankind's delight.

In, On The Origin of Species, published the previous year, Darwin had challenged the dominant theory of creationism, arguing that man had been made not in God's image but as a result of evolution, with new species formed over generations in response to their environment.

But beauty, and a supposed aesthetic sense in animals ("We must suppose [that peahens] admire [the] peacock's tail, as much as we do," he wrote), took Darwin the best part of his life to justify - not least because the theory he eventually landed upon went against the grain of his entire worldview.

Sexual selection was of strategic importance to Darwin, says Evelleen Richards, an honorary professor in history and philosophy of science at the University of Sydney: it was a naturalistic account for aesthetic differences between male and female animals of the same species, shoring up his defence of natural selection.

"No one had come up with this theory in quite the same way as Darwin, and yet it was built into his thinking on natural selection: sexual selection explains what natural selection cannot," she says.

Natural selection was the "struggle for existence", sexual selection was the "struggle for mates". It attributed the development of plumage, courtship dances, song and other so-called "secondary sexual characteristics" to females' choices of mates, creating a positive feedback mechanism over generations.

Fun, the main satirical rival of Punch, carried this visual image of Darwin as an anthropoid ape with erect tail and hairy black hand on the dainty wrist of a 'female descendent of Marine Ascidian'. Photograph: Public Domain

"A girl sees a handsome man and without observing whether his nose or his whiskers are the tenth of an inch longer or shorter than in some other man, admires his appearance and says she will marry him," he wrote in 1868. "So I suppose with the peahen; and the tail has been increased in length merely by on the whole presenting a more gorgeous appearance."

Richards argues that, more than natural selection, Darwin's theory of sexual selection was uniquely his own and, perhaps as a result, often misunderstood. His theorising drew upon a wide range of influences, many of them deeply personal, including his grandfather Erasmus's radical writings on evolution and his own relationship with his wife.

In, On Darwin and the Making of Sexual Selection, published last month by the University of Chicago Press, Richards explores this confluence of connections Darwin had to make and, just as crucially, the challenges he had to overcome in order to reach his conclusion.

Given the conventional understandings of beauty, gender and sexuality of the Victorian era, it is difficult to overstate how radical Darwin's theory was at the time. It was the culmination of a lifetime of intellectual legwork - and yet he was constantly called upon to validate it until his death in April 1882.

"The accepted point of view was that all the beauty that we experience on Earth was created by God for his own and human delight," says Richards. "It was very radical, therefore, to say 'no, this all happens through a process of chance, female choice, and so on'.

"Even some people who accepted natural selection and the evolution of the human world still drew the line at the idea of beauty as something that was not God-given."

Darwin struggled significantly to cement his theory, as evident not only from the wealth of unpublished personal correspondence and marginalia that Richards draws upon in her book, but the length of time it took him to publish it.

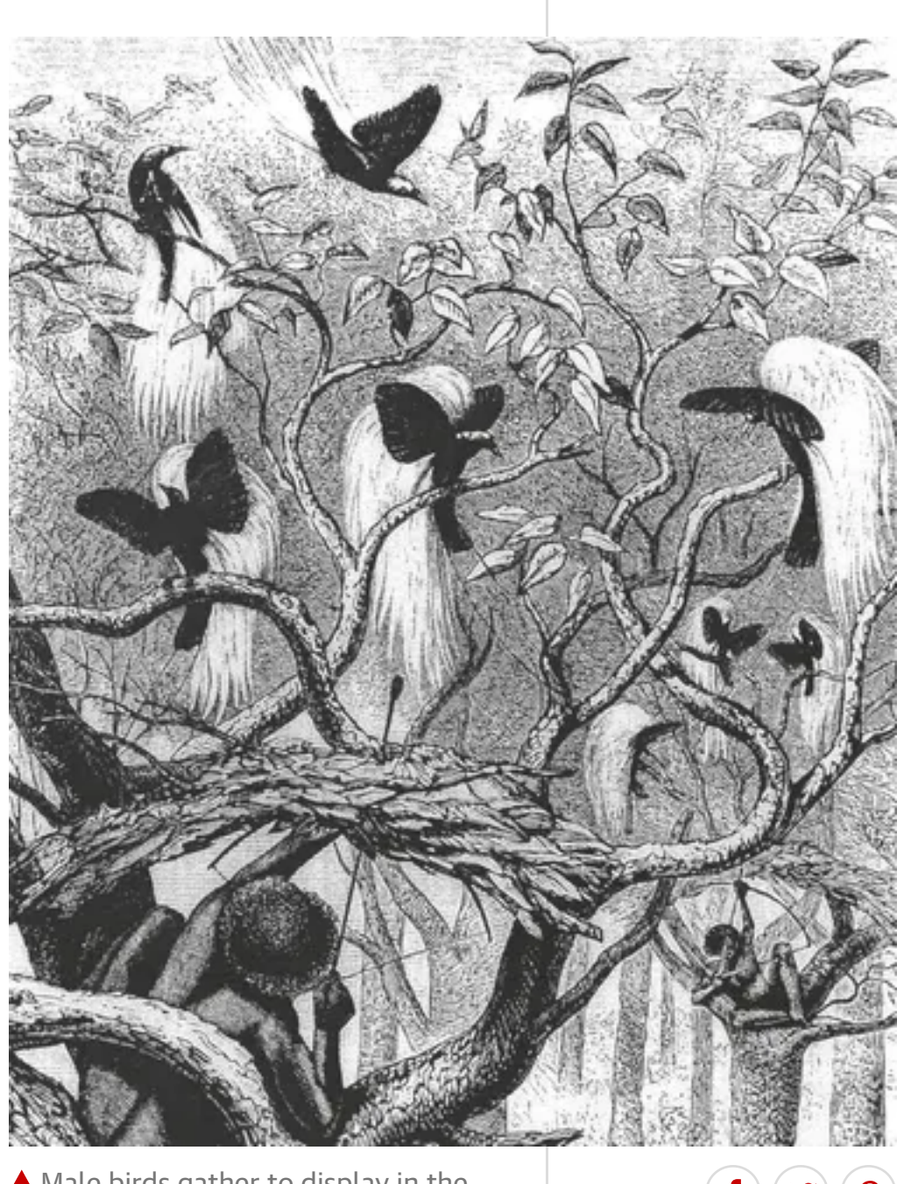
"It is an awful stretcher to believe that a peacock's tail was thus formed, but believing it, I believe in the same principle somewhat modified applied to man," Darwin wrote in 1864.

His theory was eventually published as The Descent of Man, and Selection in Relation to Sex in 1871, following about two years' writing and "almost a lifetime" of theorising. It was a "tremendous job", Darwin wrote, and one that left him "dull as a duck, both male and female".

Much of Richards' book is given over to painting a picture of the kind of man Darwin was, to show not only how he came to sexual selection but the barriers he had to overcome in his own thinking to do so.

Key to the "*many* horrid puzzles" (as he wrote) thrown up by his study of sexual selection was the difficulty he had in accepting its central tenet: female choice.

"Till I compare all my notes, I feel very doubtful about the share males and females play in sexual selection; I suspect that the male will pair with any female, and that the females select the most victorious or most beautiful cock, or him with beauty and courage combined," he wrote in late 1859, following the publication of Origin.



Male birds gather to display in the canopy above the artfully concealed bowmen. Photograph: Public Domain

Many of the obstructions in his theorising stemmed from his fundamental belief in the subservience and inferiority of women to men, argues Richards - though "in this, as in much else, Darwin was a man of his time and class".

While writing On the Origin of Species, marriage was as much on Darwin's mind as species change. Just four months before he proposed to his cousin Emma, then 29-year-old Darwin wrote in his journal in July 1838 that he was on "sharp lookout" for a "nice soft wife on a sofa", with children and companionship ("better than a dog anyhow") among the incentives.

For Emma, he wrote, there was the opportunity to "humanise" him. When - thinking she should "get up a little knowledge" for her academic husband - she started to read Elements of Geology, he dissuaded her.

He did not oppose the suffrage movement, says Richards, because "he simply thought it wasn't really possible." Equally, his passionate lifelong hatred of slavery did not mean he did not have "difficulty in accepting non-Europeans as brothers", as she puts it.

In fact, Darwin first stumbled upon sexual selection through his study of racial difference, Richards says.

Darwin's view of women as lesser may have been reinforced by the world around him, but it was at odds with his theory of sexual selection, which hinged on the transformative power of female choice. Richards argues the pieces began to be put into place around 1858 following Darwin's observation of a rock manakin (a passerine bird native to South America) choosing her mate from colourful males competing for her attention.

'The head,' Darwin wrote, 'is the chief seat of decoration' in both birds and 'savage and civilised' humans. Photograph: Wellcome Images

From there, it was not too large a theoretical leap to connect birds' extravagant plumage with the "crinoline-mania" of contemporary Victorian women's fashion. Richards points to the 200-odd pages of The Descent- given over to birds, introduced by Darwin with the claim that birds are the "most aesthetic of all animals ... and they have nearly the same taste for the beautiful as we have":

> *This is shewn ... by our women, both civilised and savage, decking their heads with borrowed plumes, and using gems which are hardly more brilliantly coloured than the naked skin and wattles of certain birds.*

Birds may have been a pivotal link, but it is difficult to overstate the number of strands that shaped Darwin's theory, shaped by cultural and social beliefs and the larger issues of the day.

Aspects of Darwin, Richards says, she found "really hard to take."

"This idea that he had that was utterly entrenched, that women were the inferiors of men, and so were most non-European races - that, I had to constantly remind myself, was how most people in the 19th century thought."

Yet it took that particular combination - "all his prejudices and biases and everything" - for him to land upon sexual selection and the concept of female choice, Richards says.

But it was difficult for her to remain too critical of Darwin. Richards quotes a letter he wrote to Emma during a short absence in which he said of their young child: "I long to kiss Annie's botty-wotty".

She laughs at the recollection. "I had to warm to him in the end."

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