
Book review

Richard O. Prum

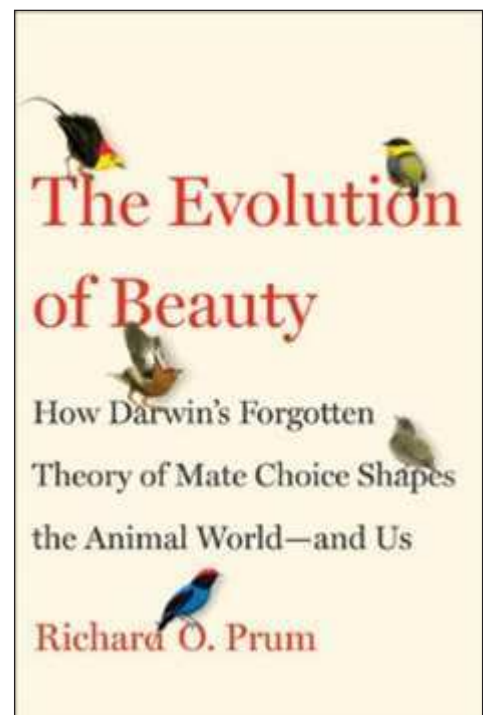
The Evolution of Beauty: How Darwin's Forgotten Theory of Mate Choice Shapes the Animal World – and Us

Reviewed by Geoff Gregory*

Professor Richard Prum is an obsessive ornithologist, who, in forty years of field observations, is over one-third of the way towards achieving his boyhood ambition of watching every one of the ten thousand or more bird species in the world and researching their behaviour. He knows his subject intimately.

This book parades the facts that have led him to revisit Darwin's second great theory – the independent evolutionary mechanism of sexual selection. He calls this 'Darwin's really dangerous idea' – dangerous because it shows that Darwin's first great theory – natural selection – which is nowadays widely assumed to have all-embracing power, cannot fully explain some aspects of the evolution of species.

Although the notion of our ape-like ancestry generated all of the controversy and gained all of the publicity for Darwin's second great work, *The Descent of Man, and Selection in Relation to Sex*, the book also contained the revolutionary proposal that animals themselves could play a separate role in their own evolution through sexual and social choices. Referring to the complex colouring pattern of the male argus pheasant, Darwin stated that 'the most refined beauty may serve as a sexual charm and for no other purpose'; the beauty of the male argus had been gradually acquired 'through the preference of the females, during many generations, for the more highly ornamented males'.



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Professor Prum has a neat turn of phrase to express how this and other revolutionary ideas apply in his experience. Spice it up with what might be called penetrating observations on the genital structures of ducks, and the insights that these and the mating displays and social arrangements of other bird species give to human sexuality, violence, and artistic appreciation, and you have a stimulating read.

The theory of sexual selection has been subsumed into a utilitarian version of natural selection – that greater beauty is an ‘honest indicator’ of better genes – which is apparently the prevailing paradigm among evolutionary biologists, evolutionary anthropologists, and even evolutionary psychologists. Professor Prum has apparently had to self-censor his research papers in order to get them past the peer-review process into publication.

He argues that there is no reason to believe that a female great argus or any other species is able to discern the overall genetic quality of a male from his physical appearance or the physiological strengths shown by his display performance; rather it is the aesthetics of the show or the beauty of a colourful plumage that is the primary factor, and any associated attributes that could benefit the health or survival of her offspring are secondary.*

He backs this up with fascinating descriptions and diagrams and beautiful photographs of the gorgeous display feathers of various bird species, including notably some of the manakins, the small tropical bird species on which he is a world authority.

His studies of the evolution of feathers and the finding of colour-producing melanosomes on the fossils of some Cretaceous theropod dinosaurs show that the planar feather vane evolved as a ‘canvas’ on which to display beautiful colour patterns before flight became possible. It was beauty first, while the utility of the aerodynamic properties of the wings developed later.

Professor Prum describes how a balance between male sexual aggressiveness and female freedom of choice has been maintained by evolution of male morphology and sexual behaviour and co-evolution of female attributes. His examples come from the opposite extremes of sexual coercion and violence by male ducks contrasted with the home building by male bower birds and the supplicant displays by male manakins. Male ducks have evolved a weapon-like corkscrew penis to enforce penetration, while the females have co-evolved both taking off with a mate before sexual maturity enabling him to get in first at maturity and having a contorted vaginal structure to obstruct what is tantamount to subsequent gang rape by other males; she thereby has retained a large degree of control over her reproductive choice. This situation is described by Professor Prum as ‘a sexual arms race’. In contrast, male manakins, like the vast majority of birds, do not have a penis, and inseminate the females by a consensual ‘cloacal kiss’, so they have to work to attract a female and have evolved their displays to this end, while the females have co-evolved an appreciation of beauty to aid their choice of a mate.

Sometimes aesthetic choice has resulted in evolution of maladaptive features. For example, the male club-winged manakin ‘sings’ to the female by the unique innovative production of violin-like tones from rubbing its wing feathers together, but this accomplishment has entailed the evolution of distorted wing tips and thickened wing bones, both impairing flight.

Turning to primates – as Darwin did – Professor Prum posits that the evolution of human social intelligence and cooperation came about through female choice. It required a transformation from male sexual aggression and the male behaviour of infanticide that is common among primates to paternal investment in collaborative child care and family support. Females choosing more socially and personally engaged mates would reward them with a more frequently repeated, long-lasting, and pleasurable sexual experience and benefit themselves and their offspring with improved survival and well-being. In this way, the co-evolution of parental care and sexual pleasure made possible the development of the human attributes of intelligence, social cooperation, language, and culture.

His ‘aesthetic modelling theory’ also encompasses an explanation of how same-sex behaviour might have evolved – in different ways for males and females – again, in order to provide females with greater sexual autonomy.

Professor Prum argues that the current social and sexual advantages men enjoy over women are culturally derived. The unfortunate development of patriarchal cultural systems is the new (in evolutionary terms) male component of the human sexual conflict arms race.

He affirms that, unlike men, women do not naturally seek dominance, but strive to retain their evolutionary freedom of choice, and social empowerment for women can be attained through sexual attraction and desire – the Lysistrata solution.

Read this thought-provoking, scientifically reasoned, view of how the stunningly diverse beauty and exuberance of nature came to be, and celebrate what Professor Prum calls ‘a world of freedom and choice that is deeply thrilling’.

* It could be noted that the colour vision of birds is thought to be at least as discriminatory as that of humans. See, for example, Vorobyev, M.; Osorio, D.; Bennett, A.T.D.; Marshall, N.J.; Cuthill, I.C. 1998. Tetrachromacy, oil droplets and bird plumage colours. *Journal of Comparative Physiology A* 183: 621-633.