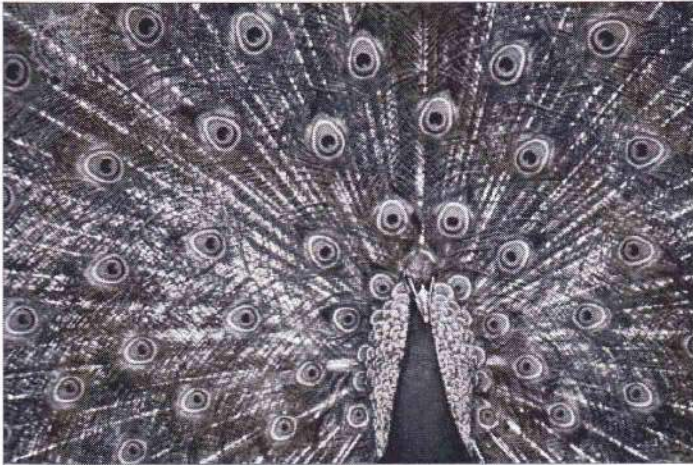


sexual selection



Blue peacock, specifically a male blue peafowl (*Pavo cristatus*).

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sexual selection, theory in postulating that the evolution of certain conspicuous physical traits—such as pronounced coloration, increased size, or striking adornments—in animals may grant the possessors of these traits greater success in obtaining mates. From the perspective of natural selection, such increases in mating opportunities outweigh the risks associated with the animal's increased visibility in its environment. This concept was initially put forth by English naturalist Charles Darwin in *The Descent of Man* (1871).

Mutual attraction between the sexes is an important factor in reproduction. The males and females of many animal species are similar in size and shape except for the sexual organs and secondary sexual characteristics such as the breasts of female mammals. There are, however, species in which the sexes exhibit striking dimorphism (or physical difference). Particularly in birds and mammals, the males are often larger and stronger, more brightly coloured, or endowed with conspicuous ornamentation. These traits, however, make animals more visible to predators—the long plumage of male

peacocks (*Pavo cristatus*) and birds of paradise (*Paradisaea*) and the enormous antlers of aged male deer (*Odocoileus*) are cumbersome loads in the best of cases. Darwin knew that natural selection could not be expected to favour the evolution of disadvantageous traits, and he was able to offer a solution to this problem. He proposed that such traits arise by "sexual selection," which "depends not on a struggle for existence in relation to other organic beings or to external conditions but on a struggle between the individuals of one sex, generally the males, for the possession of the other sex."

The concept of sexual selection as a special form of natural selection is easily explained. Other things being equal, organisms more proficient in securing mates have higher fitness. There are two general circumstances leading to sexual selection. One is the preference shown by one sex (often the females) for individuals of the other sex that exhibit certain traits. The other is increased strength (usually among the males) that yields greater success in securing mates.

The presence of a particular trait among the members of one sex can make them somehow more attractive to the opposite sex. This type of "sex appeal" has been experimentally demonstrated in all sorts of animals, from vinegar flies (*Drosophila*) to pigeons, mice, dogs (*Canis lupus familiaris*), and rhesus monkeys (*Macacca mulatta*). When, for example, *Drosophila* flies, some with yellow bodies as a result of spontaneous mutation and others with the normal yellowish gray pigmentation, are placed together, normal males are preferred over yellow males by females with either body colour.

Sexual selection can also come about because a trait—the antlers of a stag, for example—increases prowess in competition with members of the same sex. Stags, rams, and bulls use antlers or horns in contests of strength; a winning male usually secures more female mates. Therefore, sexual selection may lead to increased size and aggressiveness in males. Male baboons (*Papio*) are more than twice as large as females, and the behaviour of the docile females contrasts with that of the aggressive males. A similar dimorphism occurs in the northern sea lion, *Eumetopias jubata*, where males weigh about 1,000 kg (2,200 pounds), about three times as much as females. The males fight fiercely in their competition for females; large, battle-scarred males occupy their own rocky islets, each holding a harem of as many as 20 females. Among many mammals that live in packs, troops, or herds—



A pair of red deer stags (*Cervus elaphus*) competing for possession of ...

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such as wolves, horses, and buffaloes—there usually is a hierarchy of dominance based on age and strength, with males that rank high in the hierarchy doing most of the mating.