Quiz 1

HS7.301 Science, Technology and Society

Max Marks: 30

3 February 2023

Read the following passage:

Primatologists tended to divide primates into three groups for study: dominant males, females and young, and peripheral males. These divisions reinforced the notion that primate society was driven by competition among dominant males who controlled territorial boundaries and maintained order among lesser males. Females (often studied with the young as a single reproductive unit) were described as dedicated mothers to small infants and sexually available to males in order of the males' dominance rank, but otherwise of little social significance.

Primatologists tended to view females as non-competitive, docile creatures who traded sex and reproduction for protection and food. The feminist remaking of primatology, like that of medicine, hinged on analyses of the ways choices of study subjects can influence the results of science. In this instance the choice of subjects went beyond looking for a representative mix of males and females. The primatologist Linda Fedigan has discussed the 1950s myth of the "killer ape," the pervasive image of primates engaged in a Hobbesian war of all against all, a vision seething with dark implications for human nature. This image of aggressive primates was drawn almost exclusively from studies of savanna baboons; Fedigan has called this process the "baboonization" of primate life. Male baboons are typically portrayed as given to bullying of females and violent infighting with other males. From the 1950s to the 1970s baboons were the most widely studied monkeys, despite widespread knowledge that other species could provide more sanguine visions of ancestral humans.

Why, despite the alternatives, should baboons and other aggressive populations have dominated postwar primate studies? For one thing, baboons live on the ground, making them accessible to humans (90 percent of primate species are arboreal). Second, they inhabit the African savanna, considered the birthplace of "early man," and they were thought to share certain selective pressures with protohominids. Equally important, the image of primate society as aggressive, competitive, and male dominated played well to a public embroiled in the Cold War. Baboons provided a ready explanation for human warfare, violence, and male aggression. In this instance the choice of subject matter introduced a potent antifeminist element into primatology, highlighting and reinforcing notions about male dominance.

In primatology, as in medicine, the majority of feminist changes to date have come from re-evaluations of females. Only in the 1960s did primatologists begin looking seriously at what females do. Feminists first overturned the conventional stereotype of the passive, dependent female. Jane Lancaster's article "In Praise of the Achieving Female Monkey" (1973) began with a notion, radical for its time, that females "can too"—that anything males can do, females can do. In many instances re-evaluation of gender stereotypes went beyond the liberpal paradigm of "sameness" to a new examination of sexual difference.

Seeing the primate world "from the female monkey's point of view" (as the Berkeley zoologist Thelma Rowell has put it) called into question many fundamental assumptions about the primate world. Primatologists questioned stereotypes of male aggression, dominance and alliance, and female compliance. They studied the significance of female bonding through matrilineal networks, analyzed female sexual assertiveness, female social strategies, female cognitive skills, and female competition for reproductive success. Rowell found, for example, that older female baboons determined the route of daily foraging; Shirley Strum found that male investment in "special relationships" with females had greater reproductive payoff than did a male's rank in a dominance hierarchy. Today, in a

turnabout from the 1960s, conventional wisdom concerning baboons recognizes that females provide social stability while males move from group to group. While this phase of critique did not produce alternative explanatory paradigms for the discipline, it cast suspicion on key conceptions about aggression, reproductive access, and dominance.

... Many feminist innovations have occurred within theories of sexual selection, which is seen, after natural selection, as a prime motor of biological evolution, and which Sarah Hrdy has dubbed the "crown jewel" of sociobiology. Darwin traced secondary sexual differences to the cosmic drama of sexual selection. Certain characteristics—Darwin mentioned brilliant plumage, heavy horns, courage, pugnacity, perseverance, strength and size of body, weapons of all kinds, musical organs, bright colors, ornamental appendages—are selected and perpetuated because they lend an individual of one sex, "generally the male," an advantage in his struggle for access to the female and allow him to leave a larger number of offspring "to inherit his superiority." Darwin and others long assumed that sexual selection does not act as strongly on females as on males; consequently they emphasized male-male competition for females and female mate choice as the mechanisms of selection. Males are the wooers; females, "though comparatively passive, generally exert some choice" in accepting one of the victorious males (Darwin exempted humans from the latter practice because, as was clear to his fellow Victorians, human males proposed marriage).The notion that males are competitive and females are coy has been so persuasive that for more than twenty years a group of ornithologists searched for the "alpha males" within a population of pinyon jays, even to the extent of setting up limited feeding stations to inflame competition. As it turned out, however, the birds that lock talons and bills in deadly combat in this group are females.

Ignoring ardent female-female competition over nutrients or nest sites (as in the example of the pinyon jays) and choosiness among males (selecting as mates females with abundant parenting skills, high dominance status, good health, or good foraging ability) can skew notions of how evolution works. Another way to distort notions of sexual selection is to ignore interactions between males and females that go beyond the strict interpretation of sex as for reproduction only. Take for example Sarah Hrdy's female monkeys (savanna baboons, chimpanzees, South American tamarins, and other troop-dwelling species) "who forgot to be coy." Contradicting stereotypes of passivity among their kind, these females promiscuously pursued males, seeking copulation beyond what was necessary for fertilization. There are many reasons why females actively pursue "extramarital affairs" (in sexual selection parlance "extrapair copulations"); Hrdy focuses on the need for females to win from males parental care for their offspring.

Based on the above passage, answer:

Can you use Thomas Kuhn's framework of paradigm shifts in science to explain major developments in the scientific discipline of primatology?