

*The Human Sciences and the “Theory of Women”**Catherine Wilson*

A number of influential commentators embrace the view that the human sciences can deliver knowledge relevant to morality, the design of institutions, the framing of laws, and political life. For Daniel Dennett (1996: 268), “ethics must somehow be based on an appreciation of human nature – on a sense of what human nature is or might be like and what a human being might want to have or be.” Steven Pinker, in *The Blank Slate: The Modern Denial of Human Nature*, maintains that

The new sciences of human nature can help lead the way to a realistic, biologically informed humanism. . . . They promise a naturalness in human relationships, encouraging us to treat people in terms of how they do feel rather than how some theory says they ought to feel. They offer a touchstone by which we can identify suffering and oppression wherever they occur . . . They renew our appreciation for the achievements of democracy and of the rule of law. And they enhance the insights of artists and philosophers who have reflected on the human condition for millennia. (2002: xi)

The principle that “ought” can’t be derived from “is” is technically correct. Nevertheless, according to these writers, what “is” can provide guidance for what “ought” to be, assuming agreement in underlying values, such as relief of suffering and oppression. The empirical perspective invites us to look beyond interchangeable Kantian noumenal egos with abstract rights and obligations and to consider people’s endowments and desires, and their fit or lack of fit with the social conditions they live in. The more we can learn about human nature, it seems, the more humane and the less wasteful our institutions and practices can be made to be. Frustration results when needs are not satisfied, when people are required to behave in ways that are unnatural for them, and when talents and interests have too little room for development. The recommendation to adopt a scientific, rather than a purely philosophical, approach to designs for living is accordingly sound to the extent that the sciences can shed light

on human needs, capabilities, and sources of satisfaction and dissatisfaction.

Nevertheless, any suggestion that we can discover, not only some, but all of people's needs and abilities merely by examining their choices and their successes and failures is naive. In a society that limits choices and that restricts opportunities for the development and display of talents, these will not be revealed.<sup>1</sup> Nor does empirical observation distinguish between morally acceptable needs and the so-called perversions or the hunger for power and domination. The human sciences – anthropology, biology, and comparative ethology – are supposed to take us under the surface to show us what is really going on: what human nature, undistorted by culture, really looks like. But anthropology began as a study of cultural, ethnic, and sexual difference, not simply as a study of what makes humans human. And the long history of “scientific racism” and “scientific sexism” can undermine confidence in the ability of anthropology and biology to promote democracy and respect for other people's feelings.

Where “scientific racism” was a comparatively modern development, women and their parts have been observed, anatomized, weighed, and measured – and thereby found wanting – since ancient times. More recently, the theory of evolution by natural selection has inspired countless writers, beginning with Charles Darwin, to consider its applications to social and political life. Yet the prescriptions and policies claimed to be rooted in Darwinian science, first by “sociobiologists” and later by “evolutionary psychologists,” range from the disappointing to the disturbing. They have appealed to concepts of inheritance, innateness, and evolutionary significance in order to parade values – or at least to sigh over inevitabilities – that have an authoritarian and archaic cast to them. In the latest version of biology-is-destiny, we were told that it is the biological goal of all living things to leave a lineage, and that insofar as males and females are differently specialized to maximize their personal chances of passing on their genes, we can expect the socio-economic-political world to be permanently constructed on the basis of difference, unless misguided ideological fanatics succeed in forcing social equality, and with it misery on us. Claims about male–female sameness, including that “the mind has no sex,” belong, it is implied, to a philosophical fantasy world.

This chapter is written to dispel the nagging suspicion – or the frank accusation – that the real world, not the world of noumenal selves and their posited equality, contains forces and constraints, rooted in biology

<sup>1</sup> See Wilson 2004: 99–117 for further discussion.

and human ecology, that make the equality of men and women neither fully achievable nor really desirable. While I agree that there is sexual specialization as a result of natural selection and that it functions importantly in the historical explanation of the division of labor, I believe three long-standing myths have been overturned by research in the human sciences: the myth of female cognitive inferiority; the myth of female domesticity; and the myth of female natural monogamy.<sup>2</sup> To that end, I focus on research in psychology, anthropology, and primatology that has upended the sociobiological “theory of women,” with its echoes of ancient theorizing, that began to appear in the literature in the late 1940s and that has persisted in widely cited articles and popular books. The still-to-be-digested revisions of these sciences are not products of specifically feminist research; they belong to ordinary science. But they awaited the political and social changes that brought women, who asked new questions and noticed new phenomena, into the natural and social sciences.

The “theory of women” comprising the three myths was enough to explain women’s exclusion from important offices and activities and to justify behavioral restrictions on women and liberties for men. It was held to explain an important and uncontroversial set of observations. Until quite recently, in what vocational roles did the ordinary person most often find women? Certainly not in the top ranks of commerce, politics, scientific research, literary criticism, public architecture, or the arts – these roles were believed accordingly to lie outside their competence. As Charles Murray asked in 2005, “Where are the female Einsteins?” (Murray 2005b).

According to Richard Lynn (2017: 9–42), men beat women not only at tennis, golf, and footraces but also at thinking. Human males over the age of sixteen, he reported (2017: 145–156), are better than women at Raven’s Progressive Matrices, a test of nonverbal reasoning through pattern analysis that does not depend on cultural knowledge, and better at winning top prizes in science, chess, Scrabble, and bridge. As well as not being found among the decision makers, winners, and influencers, women were not observed seeking and collecting packs of sexual servants. Mostly, women were to be found at home, taking care of things, and as active in the world in helping others and providing for their needs. The normative image emerging from observation was that of a human lacking a first-class

<sup>2</sup> Recent research has also forced a revision of the traditional view that “female” is a scientifically precise term and the traditional view that there are only two sexes. See Fausto-Sterling 2012. This chapter does not go into these interesting issues; I refer here to “males” and “females” and “men” and “women” in the rough, vernacular sense of most social science.

intellect, but possessing propriety, altruism, and charm. There were obvious deviations from the norm, but in fiction and in real life, they were liable to be ridiculed, feared, diminished, obstructed, or tragedified and punished.

I now turn to the three myths in order.

### The Myth of Cognitive Inferiority

The notion that high levels of intelligence are a sex-linked trait shaped by natural selection goes back to Darwin, who was convinced of not only the intellectual inferiority of women but also their lesser creativity, coordination, and even sensory acuity. Darwin supposed that the inheritance of acquired characteristics (“habit”), as well as natural selection on the male sex, had produced this abundance of excellence.

The chief distinction in the intellectual powers of the two sexes is shewn by man’s attaining to a higher eminence, in whatever he takes up, than can woman – whether requiring deep thought, reason, or imagination, or merely the use of the senses and hands . . . The greater intellectual vigour and power of invention in man is probably due to natural selection, combined with the inherited effects of habit, for the most able men will have succeeded best in defending and providing for themselves and for their wives and offspring. (Darwin 1981/1871: 327)

Modern humans have large brains,<sup>3</sup> and our proliferation across the globe and the extinction of our hominin cousins is often ascribed to this anatomical feature. Such large, heavy brains are metabolically costly. Though the brain accounts for only 2 percent of the weight of the human body, it uses 20 percent of the organism’s energy budget just to maintain and regulate basic bodily functions. Why did such an expensive-to-feed organ evolve? What benefits did it bring its possessors?

Following Darwin’s hypothesis, on one view popular in the 1960s, the modern human brain evolved to enable male humans to solve complex survival problems in the environment of early adaptation; men are thus implicitly the developers and owners of these large brains. In the famous Lee and DeVore anthology, *Man the Hunter*, William Laughlin declared that “hunting is the master behavior pattern of the human species”

<sup>3</sup> For comparison, the brain of *Australopithecus australensis*, living about three million years ago, was about 450 ccs, comparable to that of a modern chimpanzee; that of *homo habilis*, 2 million years ago, was about 600 ccs. Modern humans, who have existed for at least 250,000 years, are far larger in overall size and have average cranial capacity of 1,250–1,400 ccs.

(Laughlin in Lee and DeVore 1968: 307). Bipedalism was suggested to have evolved to free the hands for spears, boomerangs, and bows and arrows, and to have led to the evolution of language and intelligence to support the coordinated activity of early hunters. Laughlin detailed the skills required in the hunter: knowledge of animal types and habits; scanning, stalking, and immobilizing; and the retrieval and transportation of the carcass. The growth of the neocortex allegedly allowed for abstract thought, imagination, impulse control, and other well-developed and typically human capacities, and was driven by this hunting adaptation.

On another view, that of Geoffrey Miller (2000: 97), brain growth was driven by sexual selection on male humans. According to Miller, developed mentality was a male display feature, analogous to the peacock's tail, with clever, artistic men preferred by early women as mates. Miller went on to argue that the struggle for wealth, position, and deference through cultural production is the specifically human form of antler-locking, head-butting, or biting and chasing that determine male "access" to fertile females in many other mammalian species. Men are more driven than women are, he thought, to create objects and structures that can make them famous and celebrated, or at least esteemed and respected. Female variants who allocated too much time to the pursuit of status and mating opportunities, on this theory, were out-reproduced by more specialized maternal competitors, and male variants who allocated too much time to direct paternal care were out-reproduced by more specialized promiscuous status-seekers. Implicit in both accounts is that the feeding role and baby care do not require much raw inventive, strategic, and computational brain power, so nature could skimp on this endowment for women and compensate with extra emotional responsiveness.

The notion that male hunting drove the increase in brain size because men but not women needed to be intelligent is no longer regarded with much favor. Animals with much smaller brains can locate, track, slay, and transport prey, and they can strategize and coordinate their kills with others. And where sexual selection is concerned, although humans use their large, evolved, and culturally developed brains for social, cultural, and intellectual purposes, and even to attract mates – for modern men and women both place "intelligence" high on their list of desiderata – a top-level mind is unlikely to be a male display feature females lack. In the peacock case, it is disadvantageous for a female to have a fancy tail. Like many female birds with relatively exposed nests, for her own safety, she must remain "drab" and inconspicuous. In birds that build nests relatively

inaccessible to predators, both sexes are brightly colored.<sup>4</sup> It is hard to see of what protective advantage it could be for women to be less intelligent and less artistic than males.

In any case, the Miller account of the evolution of a sex-linked trait is unsustainable, simply because decades of testing have shown that men and women vary little or not at all with respect to intelligence, currently understood as including memory, learning, problem solving, flexibility in behavior, language fluency, creativity, speed of understanding, and ability to function in social settings (Colom 2000: 57–68).<sup>5</sup> The higher cortical functions needed for planning, designing, and governing, considered in the abstract, are the same in men and women. They have essentially the same ability to recognize patterns and perform inferences. Humor, aesthetic appreciation, and language use are not very different. And apart from some small number of tasks concerned with spatial orientation, nimbleness, perception, and fluency, favoring one sex or the other, men and women differ little in problem-solving ability.

An important datum is nevertheless the “two tails” phenomenon. There are more men at the very top and the very bottom of the IQ scales: men are more variable than women in this regard and in other regards. This has an important biasing effect in social judgment, as I explain later. For now, it is sufficient to remark that in the view of the most recent researchers sex differences in variability do not account for sex differences in high-level achievement. Neither male-favoring cognitive differences nor the number of males in the upper regions of the IQ distribution are large enough to explain the predominance of men in science and engineering (Brush 1991; Halpern et al. 2007).

What do we actually know about brain size, intelligence, and its evolution? We think of our brains as mainly used for planning, strategizing, inventing, and reasoning, but this is an error. Most of the volume of the brain is devoted to sensory perception, the regulation of movement, and physiological homeostasis and periodicity: the regulation of bodily processes, especially the release and suppression of hormones and neurotransmitters. Lynn (1994: 257–271) ascribed male success in general to men’s larger brains,<sup>6</sup> but with the exception of a few traits, such as those related to anger and empathy, and, potentially, spatial abilities, male/female differences in behavior, interests, and mental health are not reliably

<sup>4</sup> In kingfishers, woodpeckers, toucans, parrots, and turacos, the females are as brilliantly colored and conspicuous as the males (Wallace 1889: 273).

<sup>5</sup> See also Halpern and LaMay 2000: 229–246. <sup>6</sup> See also Lynn and Irwing 2004: 481–498.

correlated to brain anatomy (Eliot 2020: 63–82).<sup>7</sup> Larger organisms in any case require more neurons to regulate and control their bodies (Sowell et al. 2007: 1550–1560). According to Lisa Eliot: “Most male/female brain differences are attributable to body size; thus, all brain structures are 10 percent larger in males, but after accounting for individuals’ total brain volume, sex/gender explains only ~1 percent of the variance in structural volumes at both the cortical and subcortical level.” Women have on average thicker cerebral cortices, associated with greater intelligence, than men (Ritchie et al. 2018: 2959–2975).

Evolutionary theory recognizes a number of coexisting conditions for increasing brain size. These include concentrated nutrition on account of its high caloric requirements; a system for cooling the brain, which cannot sweat inside the skull; and parturition of relatively underdeveloped infants. These features would have had to evolve in step with the trend toward larger brains. The following main contenders to the man-the-hunter theory and the peacock’s tail theory regard selection pressures as operating on both sexes and are based on the concepts of longevity, sociality, and expertise.

Kristen Hawkes’ “Grandmother Hypothesis” (Hawkes et al. 1998: 1336–1339) proposes that human evolution involved the coevolution of three features: long life, protracted infancy and childhood, and large brains. Large brains are found only in animals with relatively long gestation, long juvenile periods, delayed reproduction, and long life – animals such as whales, elephants, and humans – committed to the “K-strategy” of reproduction, by contrast with the “r-strategy” of trying to maximize the number of offspring in a short lifetime,<sup>8</sup> in the hope that some manage to survive. According to Figueredo et al. (2006: 246): “Traits associated with a high K-strategy in humans are long-term thinking and planning, commitment to long-term relationships, extensive parental investment, existence of social support structures, adherence to social rules (e.g., altruism and cooperation), and careful consideration of risks.”

Like large brains, long childhood is a *prima facie* evolutionary puzzle. A protracted period of nutritionally dependent, nonreproductive childhood is expensive in biological terms; an organism that can shave a few months off its period of dependency on others and begin to reproduce would seem to have an evident advantage. Hawkes’ hypothesis links the K-

<sup>7</sup> See also Halpern and Wai 2020: 317–345 and Blinkhorn 2005: 31–32.

<sup>8</sup> For the origin of these terms (in “*Kapazitaetsgrenze*” and “rate”) see [https://en.wikipedia.org/wiki/R/K\\_selection\\_theory](https://en.wikipedia.org/wiki/R/K_selection_theory).

strategy to brain evolution, at the same time explaining the cultural importance awarded to grandmothers, especially maternal grandmothers. Hawkes proposed that long childhood and larger brains coevolved with a lengthening human lifespan, including a lengthy post-reproductive phase. While chimpanzee females retain their fertility until they die – the lifespan of a chimpanzee in the wild is about forty-five – the fertility of human females peaks in the early twenties and begins to decline by the early thirties, coming to a decisive end sometime in their early fifties, when hormonal cycling falters and then comes to a halt. Yet a hunter-gatherer female who lives into her mid-forties can expect to live another twenty or so years. Hunter-gatherer males as well tend to outlive their reproductive span when they are not victims of homicide.

Hawkes argued that selection for cessation of reproduction and for a period of post-reproductive vitality in women enabled them to shift their effort from the care and feeding of extra children up to the point of their own demise to the care and feeding of grandchildren. This shift allowed for a prolonged period of nutritional dependency in childhood and the slow maturation of a large brain, a process which in turn gave an even greater selective advantage to hardworking grandmothers (Davison and Gurven 2022: 1–12). Other theorists have argued that the elderly are essential to the human way of life because of their stored knowledge – for example, of unusual foods to be eaten in times of famine (Shipton 1990: 369).

Longevity in turn requires brain redundancy. “The brain,” observes Nick Humphrey (1999: 2),

is . . . a fragile organ, which is vulnerable not only to external knocks, and internal hemorrhages and tumors, but also to intrinsic processes of cell death and decay. By the time we reach middle age, the brains of every one of us will almost certainly have suffered significant structural damage. Yet the fact is that the majority of us will not yet have suffered any obvious intellectual loss.

The reason is that we have more than enough brain to make up for it. The chief purpose of the overly large brain may be to furnish back up power for essential physiological and psychological operations, keeping senescence and senility at bay.

Robin Dunbar’s (2003: 163–181) socialization hypothesis proposes that the brain coevolved with larger tribe sizes and greater interdependence of their members. This created a need for language and for “social intelligence,” for keeping track of one’s relations with a multitude of others, for understanding, predicting, and directing their behavior and adjusting one’s own to it, for political outwitting and outmaneuvering, and



for recognizing and punishing wrongdoers. In a related vein, Dean Falk and Sarah Hrdy have proposed that infants and children, together with their minders, prompted the evolution of the human mind, jointly evolving a propensity for shared attention and playfulness. Hrdy (2009) suggests that human babies evolved into charming, demanding, interactive beings – perhaps even into linguistic beings – in order to engage attention from not only their hormonally saturated mothers but also from others who were less thoroughly primed but whose nervous systems were vulnerable to this type of stimulation. Such babies might have grown up into sociable, mind-reading adults who were in turn better able to soothe and care for active and curious young babies. Falk (2004: 498–501) points out that human babies, unlike ape infants, cannot cling to the fur of their mothers. They need to be set down – parked – so that their mothers can do other things. Mothers needed to warn, control, and reassure when at a distance, and language and empathy permit this.

A third current theory is expertise: Hillard Kaplan and his coauthors (2000: 149–186) have argued that not only expert tracking and hunting but also food preparation practices coevolved with a longer human life-span, and a larger brain that permitted learning, practice, and mental storage. John Skoyles (1999: 1–14) has suggested that large brains coevolved not with general intelligence, which is measured on tests by the speed with which one can spot patterns or complete inferences, and which is measurably normal even in brains of only 750 cubic centimeters (ccs), as compared with the normal brain of around 1,300 ccs, but with the capacity to learn through practice and refinement.

Nonhuman animals, as Descartes noted, are expert but in limited domains, such as nest building and prey snatching, and need little practice to perform activities necessary to survival. Humans, by contrast, can master a variety of skills but only by observing, submitting to instruction, and engaging in solo effort involving much trial and error. They are motivated to learn new arts and to stick with learning even when frustrated. Hunting and foraging animals, as noted, do not need human-level intelligence to find food, but the human way of life requires considerable expertise. The usual diet of the environment of early adaptation was apparently rather chewy and sour. Many vegetable foods require boiling, steeping, or pounding if they are to be made tender, sweet, or nonpoisonous, and considerable technological inventiveness was required to make containers for transporting, processing, and storing. The remarkable tools and techniques of hunter-gatherer women for building shelters, making garments and ornaments, taxidermy, tattooing, and pottery making, as

well as all aspects of food preservation, has been well documented. As one social historian comments (Mason 1929: 158), the modern lucrative employments “originated with her.”

While Lynn’s claims for 3–5 points higher male IQ might seem puzzling, since IQ test are currently formulated so that the average IQ of men and women is the same,<sup>9</sup> the more interesting aspects of his argument concern the so-called right tail of the IQ distribution and mathematical ability.<sup>10</sup> When tests are scaled as described, men are, as noted, more frequently found than women at the high and low ends of the intelligence spectrum. The ability to perform spectacular feats of mental calculation and the hyperfocus on abstract objects associated with tech workers is more common in men. Although the size of the right tail varies from culture to culture and has decreased in recent years, it is still there. Jonathan Wai and colleagues, in their longitudinal study (2010: 412–423), found that in the top 0.01 percent of mathematics SAT students, the male advantage declined from 13.5:1 to 3.8:1 over the decade between 1980 and 1990. The reasons for this dramatic improvement in women’s test scores have not been fully explored, but the most attractive hypotheses must focus on the motivational changes in women and their parents and teachers, brought about by the feminist movement, that encourage the cultivation and display of competence and competitiveness.

Two-thirds of the population falls within the IQ range of 85–115, and most academics are found in the 120–140 regions, comprising about 11 percent of the population. At the very top of the scale, where IQs of 160 and above and dazzling mathematical abilities are found, often along with striking personal qualities,<sup>11</sup> the ratio of men to women is about 6:1. We are talking here about very few people – about 0.03 percent – of the population, or 3 persons per 10,000; approximately 1 in every 20,000 of those is a woman. Yet the cultural worship of the male “genius” – usually associated with mathematical and musical accomplishments known to the general public – operates to the disadvantage of the entire female sex.

Reilly, Neumann, and Andrews (2022) found that men estimate their own intelligence as higher than it is when measured, and women estimate

<sup>9</sup> What is the purpose of this stipulation? One might wonder. There are many purported tests of intelligence, some of which favor women, some men. To bypass arguments about what intelligence *really* is and which test *really* tests for it, a test on which the sexes score the same on average offers a pragmatic solution.

<sup>10</sup> Lynn’s choice of Raven’s Progressive Matrices as a proxy for a general intelligence test arguably reflected a bias in favor of a specific ability. For criticism of the choice, see Gignac 2015: 71–79.

<sup>11</sup> For discussion see Persson 2007: 19–34.

theirs as lower than it is when measured. Married men tend to believe they are more intelligent than their wives (Kidder, Fagan, and Cohn 1981: 239–255). A number of men I have queried in academic life have admitted to the belief that they are intellectually superior to every woman, or nearly every woman, they have ever met. The actual shape of the IQ distribution shows how mistaken this belief is. At any given level, running into someone of the opposite sex with more IQ points than you varies, but given the statistics above, it's bound to be a routine occurrence in any professional milieu. If we installed people in university posts and paid them according to their IQ points alone, the composition and emoluments of our academic faculties would look very different than they do.

Yet the more frequent surfacing of male "geniuses" at such tasks as mathematics, architecture, musical composition, and military conquest in the record of civilization redounds to the credit of the male sex as a whole in our minds. While we would not want to have Bobby Fischer or Isaac Newton on the Supreme Court, it is thanks to the Bobbys and the Isaacs, as well as the Alberts, the Ludwigs, the Alexanders, and the Napoleons, that all men benefit in reputation.

Why do well-educated men tend to believe they are cleverer than all the women they meet? I suspect it is that they feel that they (and not the women they meet) belong to the club of Einstein, Newton, Beethoven, and the top men in their fields, and they know intuitively that they do *not* belong to the club of all the men on the left-hand tail. All women are seen as, by comparison, pretty much average.

### The Myth of Female Domesticity

"There is no society," David Barash told us in his 1979 book *The Whisperings Within*,

historically, or in recent times, in which women have not borne the primary responsibility for childcare. . . . In all societies, men do men things and women are left holding the babies. . . . If male mammals are generally less involved than their mates in caring for offspring, what do they do? Males tend to achieve fitness by making themselves as attractive as possible to females, then rely largely on the females to take it from there. Often, they compete with other males, either for direct access to mates or for access to resources which help them acquire mates. (1979: 126–128)

In this passage, Barash springs from historical time and its written record – beginning about 5,000 years ago – back to the early days of mammalian evolution. He fails to take into account what can be inferred from the

study of contemporary hunter-gatherers, whose forms of social organization are theorized as corresponding to those of the anatomically and neurologically modern humans of the environment of early adaptation and the Paleolithic period. Although the few remaining hunter-gatherers are not living fossils, and although even they have been altered by contact with explorers and occupiers, governments, and trade, their mode of life offers compelling clues as to “human nature” as it whispered within before being shushed and shouted over by the development of civilization through the invention of agriculture and metalworking.

Barash’s claim that women have always devoted more time than men to direct childcare is true, but his statement that women are “left holding the babies” is misleading. The second sentence should have read: There are only a few hunter-gather societies in which women do not bear the primary responsibility for finding and furnishing the majority of food for the community. Only under civilization did some women become dependent on male effort and earnings to sustain themselves and their children, and even under civilization, poor women have continued to be the major providers for the household.

Hunting is a nutritionally and culturally significant activity, but the Lee and DeVore volume – as its own editors pointed out in the introduction – might as well have been titled less sensationally “Man the Hunter-Gatherer,” or even “Man the Gatherer,” for repeatedly the point was made that most of the calories consumed by savannah, desert, and forest-dwelling people are vegetable foods, roots, shoots, fruits, and berries, and that this food was gathered mainly by women. Meat is highly valued by hunter-gatherers for its taste and for its fat, protein, and mineral content. But only in the far northern regions colonized late by humans, where the growing season was short and grasses predominated, has meat been found to compose the bulk of the human diet. For southern populations, it would be more accurate to say that hunting is 25 percent of the food-getting behavior pattern of the human species, and foraging, scavenging, and gathering, 75 percent (Lee in Lee and DeVore 1968: 30–48).

Most hunter-gatherer societies observe a division of labor. This is not because women are not strong enough to kill animals, or because they have limited spatial abilities and cannot find their way around, or because they are too burdened with children. In the Arctic, it has been reported, women will occasionally hunt seal or caribou on their own, or bring down deer with sticks, ropes, dogs, or nets. The Agta women in the Philippines hunt deer and pig in the forest, alone or with the help of dogs, and communal hunting or solitary hunting of small game is an activity performed by both

sexes (Estioko-Griffin and Griffin 1981: 121–154). Latter-day female gatherers range, in groups or very often alone, as much as five to seven miles from camp with their sacks and their digging sticks, while, in many cases, carrying an infant or very young child or in the middle to late stages of pregnancy. Children over the age of two or three are not taken into the bush where they are a nuisance to working mothers: They are too heavy to carry, they cannot walk fast, and they get thirsty and tired; they remain behind with other caregivers, such as grandmothers. While both men and women forage, men do not tend to collect and transport plant materials using nets, containers, or other means, or to share plant foods they have gathered with others as women do.

A point that emerged in *Man the Hunter* is that while gathering is obligatory for human societies, hunting is more or less optional. Many men in hunter-gatherer and indeed in hunter societies are reluctant to hunt, do not enjoy it, or are not very good at it. In the far north, where there is almost nothing else to eat, women must nag men to get them to hunt. Among the Hadza of the Serengeti plateau in East Africa, one of the last hunter-gatherer societies surviving to be studied, only men in their late teens, twenties, and thirties were successful hunters, and about half had failed to kill even one animal the entire year (Woodburn in Lee and DeVore 1968: 54) Older men in their fifties and sixties did not hunt but worked alongside women and sometimes alongside children. "Only about 60 percent of the population of Bushmen in the Kalahari Desert appeared to be working at all" (Lee and DeVore 1968: 36). What did people do the rest of the time? They visited, chatted, gambled, manufactured or repaired things, or rested. This, we can reasonably suppose, was the "master behavior pattern" of our species.

Nothing, accordingly, could be further from the human template than the housewife-at-home-with-the-children. Adult women in hunter-gatherer societies spend time in the company of other adult women in physically demanding and essential economic activity outside the home; children are taken care of by older children and by elderly relatives who are no longer as mobile. Women have not evolved to be round-the-clock hearth-hugging nurturers. They need and gain psychological satisfaction from moving around in the world, exploring their terrain, facing uncertainties and dangers, and bringing back food and necessities to their dependents, both men and children.

The frequently heard argument that it is best for infants and young children to be cared for by the mother alone has no basis in anthropology or psychology and is certainly not a consequence of our evolutionary

history. If women are hormonally and neurologically primed to devote themselves full time to infants and toddlers and to gain satisfaction from doing so, why do somewhere between 10 and 25 percent of women – the higher figure pertains to the lower socioeconomic brackets – develop a tragic array of symptoms, neglecting their babies and young children, physically abusing them, and developing a sense of apathy toward their own lives? Hormonal explanations for post-partum depression have been discredited; and evolutionary explanations have lately come to the fore. Studies from across the globe suggest that depression may be the effect of being unable to cope alone and a signal to others, a cry for more help (Hagen 1999: 325–359).

An important feature of the human way of life is what Hrdy terms “alloparenting.” Human infants, as noted, cannot cling; they must be carried on the hip or in slings or backpacks. As such they are shareable; they can be handed around to female relatives, to fathers, and to older children. Hrdy (1999) proposes that early humans were “co-operative breeders,” that human mothers relied on a spectrum of “allomothers,” not only grandmothers but also fathers, siblings, and other boys and girls for infant and childcare. Where a chimpanzee mother carries her offspring and jealously guards it until it is able to nourish itself, a human mother is willing to relinquish her baby into the arms of others immediately after birth, and other humans are willing to provide it with nutrition and care, freeing the mother for economic tasks and social interaction, and enabling her to become pregnant again, given the short window of peak fertility she has available to her. Cooperative breeding arises in a number of species; it is evidently consistent with selfish genes, though it cannot entirely be explained by kin selection, insofar as distantly or unrelated individuals, including foster children, are observed in babysitting roles.<sup>12</sup>

Barash’s comment that “men do men things” while women mind the baby proved to be not only anthropologically but also historically uninformed. Throughout history, women have always worked outside the home. In ancient Mesopotamia, Wright (1996: 89), following Kang (1973), states, women worked in “harvesting and irrigating fields, carrying and winnowing barley, hauling barley into granaries,” and also in “milling, weaving, and loading goods into boats.” Medieval texts and illustrations cite and depict women in a variety of skilled occupations, as butchers,

<sup>12</sup> The advantage to the individual cooperator may come in the form of expectations of reciprocity, practice, or social stabilization. See Page et al. 2019: 115–116 and Valentine et al. 2020: 1037–1055.

ironmongers, hatters, shoemakers, bookbinders, painters, goldsmiths, innkeepers, veterinarians, and farmers.<sup>13</sup> But the adaptation of women to work outside the home and outdoors and their drive to feed their families had a consequence. For human men, paternal investment is optional, where not enforced by law or rigid custom, and where men have not been forced into provider roles, they can demand status or high wages if they are to work, while most women, except in the historically rare cases of middle-class prosperity, needed to perform manual work of low status outside the home. Even in poor societies, men have more leisure and more discretion over their time, their expenditures, and their choice of activities than women (Dasgupta 1995: 308ff.). In wealthy societies, this extra freedom and leisure enabled them to monopolize the high-status tasks of culture and civilization.

### **The Myth of the Naturally Monogamous Female**

The notion that men are naturally polygamous and women naturally monogamous is a favored topic for journalists and popularizers of evolutionary psychology. While its alleged ramifications are extensive, the credulity attached to it comes as something of a surprise. For in philosophy, theology, and fiction, strict fidelity to a partner was considered the ideal, but real women were known to be alluring, fickle, deceitful, liable to illegitimate pregnancy, and accordingly dangerous.

This myth is pernicious in many ways. It interprets the battle of the sexes as a conflict between a male need for freedom and gratification and a female demand for food, shelter, and money. It confuses female choosiness with a lack of sexual drive. Its proposal that men select sexual partners on the basis of face and figure, whereas women select sexual partners on the basis of status and income, creates a flattering halo around the predatory behavior of older men toward younger women. It tells women not only what they may and may not do in order to be natural and normal but also what they ought to feel rather than what they do feel.

How did this myth get into the books? It was supposed to follow from gamete size and number. We often read that female fertility is a scarce resource while male fertility is nearly boundless. A man, it is supposed, can impregnate hundreds of women in a single year. He can allegedly father healthy children even in advanced old age, while a woman can produce at

<sup>13</sup> Working women who were not "heads of households" were left out of administrative occupational records. See Swanson 1989 and Sharar 1983.

most about twenty children over her entire reproductive lifespan, and she is liable to give birth to genetically abnormal infants toward the end of that period in her forties. Women invest more physiological and behavioral effort into gestation and lactation; men must, it is supposed, invest more physiological and behavioral effort on attempted impregnation. According to A. R. Bateman in a 1948 article cited over 4,000 times, independent of the particular mating system, "it is a general law that the male is eager for any female without discrimination, whereas the female chooses the male" (Bateman 1948: 352). "It pays males to be aggressive, hasty, fickle and indiscriminating," declared E. O. Wilson (1978: 124) some years later. If a man were given "total freedom to act," he maintained, he could produce "thousands" of descendants. Matt Ridley (1994: 172–173) remarks that: "In . . . human terms, men can father another child just about every time they copulate with a different woman, whereas women can bear the child of only one man at a time."

A man's best reproductive strategy, on this view, is allegedly to pursue "mating opportunities" with as many of the "scarce resource" young females as possible; rape is the unfortunate backup option where seduction fails or takes too long. According to David Buss and David Schmitt writing in 1993, in an article cited over 5,000 times, the constraints on male reproductive success involved problems of identifying "accessible" and fertile women and "minimizing commitment and investment" (Buss and Schmitt 1993: 206). (They forgot to mention what is in real life the number one constraint on male reproductive success: not being much liked and trusted by women.) A woman's best corresponding strategy *a priori* was to identify the "best genes" and to try to maximize their possessor's commitment and investment. Having found the best provider her face and figure could attract, there would be no need to look further. His promiscuity should be of no concern to her unless it threatens her food supply or protection. Her infidelity would be, by contrast, unacceptable to him, as his provisioning and protecting efforts would then be directed to the offspring of his biological competitors. It has even been maintained that girlfriends and wives do not object to their partners' "physical" infidelity but only to "emotional" infidelity that might lead to the abdication of the provider.

What do we actually know about sexual strategies, choice, and refusal? Given the variance in male quality, along with greater female direct investment, it pays females to be choosy and males to be competitive. But the average number of offspring generated per male in a community is the same as the average number generated per female, though some individuals



will do better or worse than average (Einon 1998: 413–426). It is inadvisable to try to derive social consequences from comparative gamete size, which holds across the taxa with their many and varied solutions to the problems of reproduction.

In any case, a female preference for lifelong sexual exclusivity is found in very few animals and is not a characteristic of our nearest primate relatives, the common chimpanzees and bonobos, whose lineages branched off from our extinct common ancestor 3–5 million years ago. Like human beings, chimpanzees have preferences and aversions: Females prefer males who remain near them, groom them, and offer them food; males prefer older females to younger, which is unsurprising given that females remain fertile all their lives and that maternal experience is correlated with survival of the offspring. Chimpanzees have three main patterns of sexual association: consortships, in which a female and a male sequester themselves from the rest of the group, remaining together as a sexually exclusive pair for as long as a month; possessive relationships, in which a dominant male tries to monopolize a female in estrus within a group setting by remaining close to her and fighting off other males; and opportunistic mating, in which several males take turns with a single female in estrus (McGrew in Dahlberg 1981: 35–74). Because a female chimpanzee, like a human female in a hunter-gatherer society, is likely to bear only four to five live young during her lifespan, it is evident that most sexual behavior will not result in conception. Sex serves other roles: release of tension, practice, research, making friends. The smaller bonobo has recently drawn attention for its hypersexuality, including female–female, male–infant, and male–male as well as male–female interactions (de Waal 1990: 378–393). Nonreproductive mating cements the social group and reduces hostilities and tensions. Female bonobo anatomy, as well as newer discoveries regarding human anatomy, puts paid to the notion that the clitoris was never more than a residual organ serving no function in motivating mating.<sup>14</sup>

Chimpanzees are distinguished from human beings by a number of important features. One is the recurrence of estrus, which in chimpanzees is fully apparent to males and highly motivating to both males and females. Humans seem to retain something of this feature, but in a dampened form: women at mid-cycle when they are most fertile become more aware of attractive male scents and vice versa. Another feature is the absence of

<sup>14</sup> And now even the snakes; see Folwell, Sanders, and Crowe-Riddell 2022; O'Connell, Sanjeevan, and Hutson 2005: 1189–1195. This research contradicts the claims and arguments of Lloyd 2006.

paternal involvement: Male chimpanzees do not know who their offspring are, and it does not concern them; human beings by contrast attach importance to social fatherhood even in conditions where biological fatherhood is not known, or where it is less significant than the paternal or avuncular role played by a man who has a relationship with the child's mother.

The same three chimpanzee patterns of consortship, aggressive possessiveness, and casual frolicking, as well as bonobo-type homosexual and "pedophilic" activity, appear in human relationships. Humans experience romantic attachments which involve an emotional focus on a single individual, and these can occur at all stages of the life cycle, including its nonreproductive phases, from childhood to old age. Fights over women are common in most societies and a major cause of homicide, as jealousy is a frequent cause of femicide (Taylor and Jasinski 2011: 341–362). And there is one-off casual sex, willingly entered into by both parties in the absence of romance or possessiveness. Women who do not need an unrelated provider or the status and security conferred by marriage and who are outside the control of their elders are motivated by the same drives as men: curiosity, practice, and the thrill of seduction, and they compete for attention. Female–female rivalry, though ignored by male writers of evolutionary psychology, drives the plots of many operas and soap operas. The notion that men and women experience jealousy differently has also been effectively punctured (Harris 2004: 62–71). Both sexes stalk and obsess. Men, being larger, stronger, more irritable, and with more access to weapons, are more prone to express lethal violence.

Casual talk of "mate choice" with regard to humans is misleading in not distinguishing between different sorts of "mates." What makes human society strikingly different from primate society is the social institution of marriage, a form of behavior that is clearly related to human interdependency, long childhood, a need to minimize social frictions between and within groups, and a need to avoid inbreeding. "Mate choice" in this regard has little to do with the preferences exhibited by speed daters. From a comparative ethnological perspective, contemporary Western courtship and marriage practices where young people do their own choosing among people they already know are unusual.

For most of human prehistory, as well as human history, people did not select their own marriage partners; they were selected for them by their parents or close kin, and this system prevails in many parts of the world today. According to R. S. Walker and colleagues (2011), "it is probably safe to conclude that an important selective pressure on the evolution of

human mate choice, certainly more than any other species, has been the direct, deliberate, and conscious intervention of parents and other close kin on the sexual lives of their descendants." In a 2007 comparative study of 190 hunter-gatherer societies, Menelaos Apostolou (2007) found that arrangement, or required approval of marriage partners by parents or close kin, was the primary mode of marriage in 96 percent of his sample. Walker and his coauthors established in turn through genetic analysis that around 85 percent of offspring in these groups were indeed offspring of the married couple. "Reproductive skew" in men – the ability of some to beat the averages while other men fall short – in the earliest human societies appears to have been minimal, with little variance among men (Anderson 2006: 513–520). By contrast, Hrdy (1999: 83) has noted a greater than expected variance in the number of children born to them among women.

Male preferences for particular waist-to-hip ratios or large busts in candidates for marriage, as revealed in answers to questionnaires, are unlikely to have driven the evolution of the female form (Singh 1993: 293–307).<sup>15</sup> These are not necessarily the attributes parents looking for wives for their sons put at the top of their lists. Although reported preferences may involve what people think they ought to prefer and may be different from the preferences of 100,000 or 30,000 years ago, the traits preferred in pre-industrial societies were similar for both sons in law and daughters in law: Surveyed parents cited emotional stability, dependable character, good health, desire for home and children, and pleasing disposition (Apostolou 2010: 695–704). At least as far as revealed preferences are concerned, parents wanted someone *nice* for their children. While the 15 percent or so of nonmarital children would afford more opportunity for reproductive skew, and for criteria such as the waist-to-hip ratio to come into play, we can cautiously conclude that in the human case:

- (1) For most men, generating children with a partner picked out by the parents was the best way to maximize fitness, since most children were born from such unions.
- (2) Competition by men with other men to impregnate the most likely future mothers extramaritally, and the recruitment of extramarital

<sup>15</sup> Though purely aesthetic preferences are likely to play a role in evolution, the hourglass shape appears to represent optimal fat storage for more reliable lactation. See Low, Alexander, and Noonan 1987: 249–257.

sexual partners by women, nevertheless had significant reproductive advantages for both sexes.<sup>16</sup>

- (3) Most differences between human males and human females, regarding sexual motivations and their results, are smaller than commonly supposed (Andersen, Cyranowski, and Aarestad 2000: 385–389).<sup>17</sup>
- (4) Natural selection likely favored nice individuals of both sexes, on the grounds that persons with unpleasant personalities were less likely to be awarded marital partners.

The natural reproductive window for men and women is not as different as is often assumed. Human males continue to produce sperm throughout their lives, but researchers (Rossman 1978: 71) have noted that “[t]here is no functional parameter of aging that falls off more steeply than sexual performance.” In the absence of modern pills and potions, male sexual energy declines earlier than in females, and few hunter-gatherer males father children after the age of 50 (Buller 2005: 220). More important, where maternal age is decisively correlated only with the risk of Down syndrome, paternal age is a risk factor for psychiatric disorders, including schizophrenia, autism, bipolar disorder, and mental disability.<sup>18</sup> The fiction of healthy lifelong male sexuality and fertility that is supposed to incline women toward older, successful male partners, needs to be discarded. Young women’s alliances with very old high-status men may be to their financial or status advantage, or reflect the latter’s gratitude, kindness, and understanding, but as future fathers for their offspring, they were never ideal candidates from the biological point of view.

### **Psychobiosocial Explanation: The Role of Comparative Advantage**

One argument formerly heard that has since disappeared is that academic standards for research and teaching would decline with the entry of women into the higher ranks of the academy. In fact, the opposite has happened, with much sharper competition and the generation of so much new

<sup>16</sup> Hrdy’s research in *Mother Nature* (1999: 235–265) suggested that women benefit from uncertainty of paternity. See also Hrdy 2006: 131–160 and Hoquet 2020: 223–231.

<sup>17</sup> Baumeister claimed that men’s sexuality was more fixed, women’s more influenced by the mores of the time.

<sup>18</sup> The incidence of autism is alleged to double with each decade of paternal age over forty. See Reichenberg et al. 2006: 1026–1032. See also de Kluiver et al. 2017: 202–213. Respect for neurodiversity as one encounters it is one thing; being indifferent as to whether these conditions might arise in one’s own future children is another altogether.

knowledge. This should not be surprising since we now know that women are as cognitively well endowed as men. We know from Cole and Zuckerman's 1987 study that women with children as well as without evolved to be productive workers outside the home, and that, despite their greater choosiness, their appetites and behavior over the course of the life cycle, when not constrained by socioeconomic pressures, are more like those of men than earlier scientific writing and recent journalism proposed.

This leaves us with an explanatory puzzle: namely, how to explain the frequency with which women, until recently, have been found in domestic roles and not in the lucrative and visible professions and in positions of political and economic authority. The hypothesis of a deeply rooted but inexplicable misogyny is not helpful. While we are now aware of centuries of learned discourse on the incompetence and moral undependability of women, this discourse has to be understood as the effect of the observed frequencies as well as their reinforcing cause. And here we must point to certain average differences between men and women that have nothing to do with cognition or the taste for exploration, social participation and economic contribution, and freedom, but that have long worked to the disadvantage of women.

First women are smaller and weaker than men. Women are 90 percent of men's height and 80 percent of their weight. They are less muscular, with 30 percent lesser upper-body strength. Having a smaller vocal apparatus, they speak in higher and softer, accordingly more childlike, voices. Further, as noted by Pinker: "Women experience basic emotions more intensely, except perhaps anger. Women have more intimate social relationships, are more concerned about them, and feel more empathy toward their friends . . . Men have a higher tolerance for pain . . . Women are more attentive to their infants' everyday cries" (2002: 345). Such qualities can be enhanced or diminished by social learning; men can certainly be taught to weep, to cultivate intimate friendships, to shrink from contact sports and dangerous occupations, and to find gratification in soothing and playful contact with infants and young children. Nevertheless, the path of least resistance does not lead that way; it is not the path to respect and social rewards for men. For women, such qualities – especially daintiness, sensitivity, and caring behavior – were valued and inculcated, especially by other women.

Two important drivers of the division of human labor that relegated most women to maintenance tasks were first, the employment of the principle of comparative advantage, and second, the discovery of the advantages of domestication: the cultivation of other living things for their

utility. The principle of comparative advantage says that efficiencies are generated when a group doesn't try to manufacture every socially desired product itself but concentrates on what it can do quickly and well and trades its surplus for things others can make quicker and better. Rather than trying to make soap and baskets, it's best just to specialize in soap and trade with the neighbors for their baskets.

The ultimately pernicious division of labor began with a simple and comparatively innocuous division of labor between gathering for subsistence and hunting for meat, from the greater allocation of aggregate female effort to maintenance and handicrafts and male effort to recreation and warfare. Even looking aside from the responsibilities of care for infants, a small advantage in size, strength, and insensitivity to pain on one side, and in dexterity and visual memory on the other, generates efficiencies. In the exit from the state of nature to herding, farming, and city dwelling, the domestication of animals was followed by the institution of human slavery; ancient civilizations were uniformly slave civilizations. The disadvantages of urban overpopulation and the problems of sexual competition, jealousy, and violence suggested a neat and feasible solution: Lock up the unenslaved women and assign them the backup maintenance tasks. Women's greater vulnerability to coercion and intimidation followed from their smaller size and economic dependency.<sup>19</sup> In accord with the "belief in a just world," people in subordinate positions are assumed to be there because of lacks and failings on their part (Lerner 1980).

Under civilization, as the need for the management of large populations became critical, and as occupations multiplied, institutions such as schools, courts, armies, kitchens, laundries, and workshops appeared, which, once dominated by members of one sex, became inaccessible to members of the other. As the tendency toward formal education and credentialing moved from the crafts into the professions in the early modern period, these habits of exclusion were retained. Men came to occupy specialized roles that were innovative and sometimes dangerous; they became mariners, explorers, and construction workers, later scientists and financiers. The feedback process entrenched role divisions further.<sup>20</sup>

<sup>19</sup> Aristotle took women's size to be proof of their imperfection (Touraille and Gouyon 2008). Dominance in the nonhuman animal world and to a surprising extent in the human world is a matter of size. See Rowell 1974: 131–154.

<sup>20</sup> As E. O. Wilson remarks in *On Human Nature* (1978: 11) in another context: "A small evolutionary change in the behavior pattern of individuals can be amplified into a major social effect by the expanding upward distribution of the effect into multiple facets of social life." See for a full discussion Boulding 1992.

There was accordingly a logic behind the system of different spheres that made it difficult to question. What enabled a rethink was eighteenth-century anthropology. European philosophers speculating on the state of nature with the help of travelers' reports of "found peoples" began to understand how the classless and relatively egalitarian small societies of prehistory had given way to the hierarchically organized slave societies of antiquity and to the tyrannies of their own times. There had always been sporadic uprisings and rebellions of slaves and peasants, and complaints from women, but these had not been guided by a historical theory of the formation of castes and classes, and by forceful challenges to colonial and aristocratic domination. Now, for the first time, it could be seriously questioned whether monarchy, slavery, and patriarchy were just and efficient.

### Conclusions

Robert Trivers and Irven DeVore maintain that, because there are biological, genetic, and natural components to our behavior, "we should start setting up a physical and social world which matches [our] . . . tendencies."<sup>21</sup> Charles Murray (2005a: 13) cautions in turn that "specific [social] policies based on premises that conflict with scientific truths about human beings tend not to work."

What is usually meant by such recommendations, as many of my quotations show, is that we need to turn the clock back. E. O. Wilson in *On Human Nature* (1978: 128) maintained that the world that matches our tendencies involves a division of labor along the traditional lines. Murray and Wilson maintain that "social engineering" and top-down directives such as quotas and affirmative action policies are harmful in forcing people into environments where they do not feel or perform well.

Accordingly, the human sciences have been accused, with good reason, of presenting a "theory of women" that offers to explain and rationalize their subordination. But when political philosophers fret too much over scientism and essentialism or turn their backs on science as too ideologically corrupted to trust, they do a disservice to the many investigators who have observed and experimented carefully. These researchers too took women as objects of study, and in many – though not all – cases they were women whose experiences and interests enabled them to notice different phenomena and to pose different questions. Further, by resisting

<sup>21</sup> Filmscript for *Doing What Comes Naturally*, quoted in Caplan 1978: 321.

science, philosophers fail to address the powerful charge that human beings are not “blank slates.” We should not fear this accusation, I have argued, because the ongoing investigation of human nature turns out to underwrite the shakeup in the professions and family life of the recent era, with its undeniable gains for women individually and for the wider society.

To be sure, we often read about the problems of women in formerly male-dominated occupations – about things that “tend not to work” – ranging from low pay and lack of recognition, to workplace harassment and unwelcome solicitation and bargaining for advantage, to the second shift of maintenance and caring responsibilities. The problems did not arise in the old system of separate spheres, and perforce they would not arise in the dystopian world some would like to “set up.” But ultimately the old system proved not to work by our own improved standards of efficiency, fairness, and personal fulfillment. Its failure forces us to address these new problems separately and in their own terms.

Pinker refers to the “insights of artists” that the human sciences can validate. Marriage, in turn, is one of the top preoccupations of dramatists, novelists, and filmmakers, and while fiction is a mixture of idealization, demonization, and real-world knowledge, the insight gained from art and science, alas, may be that there is no solution, including locking up the women, for human partnering that solves all problems. Monogamy is hard, because the world is full of temptations to which both sexes are liable, and because people change their minds about their current partners in light of experience. Polyandry and polygamy are hard because, while some people appear to be free of jealousy, most know what it is like to suffer its torments, and these arrangements make household economics complicated. Single motherhood is hard; children need more than a single caregiver and benefit from the care and teaching of fathers. Fathers in turn want an appropriate share of parenting. A more humane and scientifically aware society would not take lifelong sexual exclusivity with no lapses from either men or women for granted. It would lay out less romantically but more objectively an account of the advantages of long-term faithful cooperation, and at the same time it would offer us models of fairness and amicability that can operate when partnerships are disrupted.