

Functionalism, Darwinism, and the Psychology of Women

A Study in Social Myth

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The psychology of women is acquiring the character of an academic entity as witnessed by the proliferation of research on sex differences, the appearance of textbooks devoted to the psychology of women, and the formation of a separate APA division, Psychology of Women. Nevertheless, there is almost universal ignorance of the psychology of women as it existed prior to its incorporation into psychoanalytic theory. If the maxim "A nation without a history is like a man without a memory" can be applied, then it would behoove the amnesiacs interested in female psychology to investigate its pre-Freudian past.

This article focuses on one period of that past (from the latter half of the 19th century to the first third of the 20th) in order to clarify the important issues of the time and trace their development to the position they occupy in current psychological theory. Even a limited overview leads the reader to appreciate Helen Thompson Woolley's (1910) early appraisal of the quality of the research on sex differences:

There is perhaps no field aspiring to be scientific where flagrant personal bias, logic martyred in the cause of supporting a prejudice, unfounded assertions, and even sentimental rot and drivel, have run riot to such an extent as here. (p. 340)

The Functionalist Milieu

Although the nature of woman had been an academic and social concern of philosopher psychologists throughout the ages, formal psychology (its

inception usually dated 1879) was relatively slow to take up the topic of female psychology. The "woman question" was a social one, and social problems did not fall within the sharply defined limits of Wundt's "new" psychology. The business of psychology was the description of the "generalized adult mind," and it is not at all clear whether "adult" was meant to include both sexes. When the students of German psychology did venture outside of the laboratory, however, there is no evidence that they were sympathetic to those defending the equality of male and female ability (cf. Wundt, 1901).

It was the functionalist movement in the United States that fostered academic psychology's study of sex differences and, by extension, a prototypic psychology of women. The incorporation of evolutionary theory into the practice of psychology made the study of the female legitimate, if not imperative. It would be incorrect to assume that the psychology of women existed as a separate specialty within the discipline. The female was discussed only in relation to the male, and the function of the female was thought to be distinctly different from and complementary to the function of the male. The leitmotiv of evolutionary theory as it came to be applied to the social sciences was the evolutionary supremacy of the Caucasian male. The notion of the supplementary, subordinate role of the female was ancillary to the development of that theme.

The influence of evolutionary theory on the psychology of women can be traced along two major conceptual lines: (a) by emphasizing the biological foundations of temperament, evolutionary theory led to serious academic discussion of maternal instinct (as one facet of the general topic of instinct); and (b) by providing a theoretical justification of the study of individual differences,

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evolutionary theory opened the door to the study of sex differences in sensory, motor, and intellectual abilities. As a whole, the concept of evolution with its concomitant emphasis on biological determinism provided ample "scientific" reason for cataloging the "innate" differences in male and female nature.

This article examines three topics that were of special significance to the psychology of women during the functionalist era: (a) structural differences in the brains of males and females and the implications of these differences for intelligence and temperament, (b) the hypothesis of greater male variability and its relation to social and educational issues, and (c) maternal instinct and its meaning for a psychology of female "nature." As the functionalist paradigm gave way to behaviorism and psychoanalytic theory, the definition and "meaning" of each of these issues changed to fit the times. When issues faded in importance, it was not because they were resolved but because they ceased to serve as viable scientific "myths" in the changing social and scientific milieu. As the times change, so must the myths change.

The Female Brain

The topic of female intelligence came to 19th-century psychology via phrenology and the neuro-anatomists. Philosophers of the time (e.g., Hegel, Kant, Schopenhauer) had demonstrated, to their satisfaction, the justice of woman's subordinate social position, and it was left to the men of science to discover the particular physiological determinants of female inadequacy. In earlier periods, woman's inferiority had been defined as a general "state" intimately related to the absence of qualities that would have rendered her a male and to the presence of reproductive equipment that destined her to be female. For centuries the mode of Eve's creation and her greater guilt for the fall from grace had been credited as the cause of woman's imperfect nature, but this was not an adequate explanation in a scientific age. Thus, science sought explanations for female inferiority that were more in keeping with contemporary scientific philosophy.

Although it had long been believed that the brain was the chief organ of the mind, the comparison of male and female mental powers traditionally included only allusions to vague "imperfections" of the female brain. More precise definition of the

sites of these imperfections awaited the advancement of the concept of cortical localization of function. Then, as finer distinctions of functional areas were noted, there was a parallel recognition of the differences between those sites as they appeared in each sex.

At the beginning of the 19th century, the slowly increasing interest in the cerebral gyri rapidly gathered momentum with the popularization of phrenology. Introduced by Franz Joseph Gall, "cranioscopy," as he preferred to call it, postulated that the seat of various mental and moral faculties was located in specific areas of the brain's surface such that a surfeit or deficiency could be detected by an external examination of the cranium. Phrenology provided the first objective method for determining the neurological foundation of sex differences in intelligence and temperament that had long been promulgated. Once investigation of brain structure had begun, it was fully anticipated that visible sex differences would be found: Did not the difference between the sexes pervade every other aspect of physique and physiological function? Because physical differences were so obvious in every other organ of the body, it was unthinkable that the brain could have escaped the stamp of sex.

Gall was convinced that he could, from gross anatomical observation, discriminate between male and female brains, claiming that "if there had been presented to him in water, the fresh brains of two adult animals of any species, one male and the other female, he could have distinguished the two sexes" (Walker, 1850, p. 317). Gall's student and colleague, Johann Spurzheim, elaborated on this basic distinction by noting that the frontal lobes were less developed in females, "the organs of the perceptive faculties being commonly larger than those of the reflective powers." Gall also observed sex differences in the nervous tissue itself, "confirming" Malebranche's belief that the female "cerebral fibre" is softer than that of the male, and that it is also "slender and long rather than thick" (Walker, 1850, p. 318). Spurzheim also listed the cerebral "organs" whose appearance differed commonly in males and females: females tended to have the areas devoted to philoprogenitiveness and other "tender" traits most prominent, while in males, areas of aggressiveness and constructiveness dominated. Even though cranioscopy did not survive as a valid system of describing cortical function, the practice of comparing the

appearance of all or part of the brain for anatomical evidence of quality of function remained one of the most popular means of providing proof of female mental inferiority. Most comparisons used adult human brains, but with the rise of evolutionary theory, increasing emphasis was placed on the value of developmental and cross-species comparisons. The argument for female mental inferiority took two forms: some argued that quality of intellect was proportional to absolute or relative brain size; others, more in the tradition of cortical localization, contended that the presence of certain mental qualities was dependent upon the development of corresponding brain centers.

The measurement of cranial capacity had long been in vogue as one method of determining intellectual ability. That women had smaller heads than men was taken by some as clear proof of a real disparity between male and female intelligence. The consistently smaller brain size of the female was cited as another anatomical indicator of its functional inferiority. More brain necessarily meant better brain; the exception only proved this rule. Alexander Bain (1875) was among those who believed that the smaller absolute brain size of females accounted for a lesser mental ability. George Romanes (1887) enumerated the "secondary sex characteristics" of mental abilities attributable to brain size. The smaller brain of women was directly responsible for their mental inferiority, which "displays itself most conspicuously in a comparative absence of originality, and this more especially in the higher levels of intellectual work" (p. 655). He, like many, allowed that women were to some degree compensated for intellectual inferiority by a superiority of instinct and perceptual ability. These advantages carried with them the germ of female failure, however, by making women more subject to emotionality.

Proof of the male's absolute brain-size superiority was not enough to secure his position of intellectual superiority, since greater height and weight tended to offset the brain-size advantage. Reams of paper were, therefore, dedicated to the search for the most "appropriate" relative measures, but results were equivocal: if the ratio of brain weight to body weight is considered, it is found that women possess a proportionately larger brain than men; if the ratio of brain surface to body surface is computed, it is found to favor men. That some of the ratios "favored" males while others "favored" females led some canny souls to

conclude that there was no legitimate solution to the problem. That they had ever hoped for a solution seems remarkable; estimates of brain size from cranial capacity involve a large margin of error because brains differing as much as 15% have been found in heads of the same size (Elliott, 1969, p. 316).

Hughlings Jackson has been credited as the first to regard the frontal cortex as the repository of the highest mental capacities, but the notion must have held popular credence as early as the 1850s because that period saw sporadic references to the comparative development of the frontal lobes in men and women. Once the function of the frontal lobes had been established, many researchers reported finding that the male possessed noticeably larger and more well-developed frontal lobes than females. The neuroanatomist Hirschke came to the conclusion in 1854 that woman is *homo parietalis* while man is *homo frontalis* (Ellis, 1934). Likewise, Rudinger in 1877 found the frontal lobes of man in every way more extensive than those of women, and reported that these sex differences were evident even in the unborn fetus (Mobius, 1901).

At the turn of the century, the parietal lobes (rather than the frontal lobes) came to be regarded by some as the seat of intellect, and the necessary sex difference in parietal development was duly corroborated by the neuroanatomists. The change in cerebral hierarchy involved a bit of revisionism:

the frontal region is not, as has been supposed smaller in woman, but rather larger relatively. . . . But the parietal lobe is somewhat smaller, [furthermore,] a preponderance of the frontal region does not imply intellectual superiority . . . the parietal region is really the more important. (Patrick, 1895, p. 212)

Once beliefs regarding the relative importance of the frontal and parietal lobes had shifted, it became critical to reestablish congruence between neuroanatomical findings and accepted sex differences. Among those finding parietal predominance in men were Paul Broca,¹ Theodore Meynert, and the German Rudinger (see Ellis, 1934, p. 217).

¹ Ellis (1934) claimed that Broca's opinion changed over time. Broca

became inclined to think that it [the hypothesized male superiority of intellect] was merely a matter of education—of muscular . . . not merely mental, education—and he thought that if left to their spontaneous impulses men and women would tend to resemble each other, as happens in the savage condition. (p. 222)

Other neuroanatomical "deficiencies" of the female were found in (a) the area of the corpus callosum, (b) the complexity of the gyri and sulci, (c) the conformation of gyri and sulci, and (d) the rate of development of the cortex of the fetus (Woolley, 1910, p. 335). Franklin Mall (1909) objected to the use of faulty research methods that gave spurious differences the appearance of being real. Among the most serious errors he noted was the practice of making observations with a knowledge of the sex of the brain under consideration.

The debate concerning the importance of brain size and anatomy as indicators of intelligence diminished somewhat with the development of mental tests; nevertheless, the brain-size difference was a phenomenon that many felt obligated to interpret. Max Meyer (1921) attempted to settle the matter by examining the various measures of relative difference that had been employed. After finding these methods far too equivocal, he concluded, in the best behavioristic terms, that sex differences in intelligence were simply "accidents of habits acquired."

Characteristics of the female brain were thought not simply to render women less intelligent but also to allow more "primitive" parts of human nature to be expressed in her personality. Instinct was thought to dominate woman, as did her emotions, and the resulting "affectability" was considered woman's greatest weakness, the reason for her inevitable failure. Affectability was typically defined as a general state, the manifestation of instinctive and emotional predispositions that in men were kept in check by a superior intellect.²

One of the most virulent critics of woman was the German physiologist Paul Mobius (1901), who argued that her mental incapacity was a necessary condition for the survival of the race. Instinct rendered her easily led and easily pleased, so much

the better for her to give her all to bearing and rearing children. The dependence of woman also extracted a high price from man:

All progress is due to man. Therefore the woman is like a dead weight on him, she prevents much restlessness and meddlesome inquisitiveness, but she also restrains him from noble actions, for she is unable to distinguish good from evil. (p. 629)

Mobius observed that woman was essentially unable to think independently, had strong inclinations to be mean and untrustworthy, and spent a good deal of her time in an emotionally unbalanced state. From this he was forced to conclude that: "If woman was not physically and mentally weak, if she was not as a rule rendered harmless by circumstances, she would be extremely dangerous" (Mobius, 1901, p. 630). Diatribes of this nature were relatively common German importations; woman's severest critics in this country seldom achieved a similar level of acerbity. Mobius and his ilk (e.g., Weininger, 1906) were highly publicized and widely read in the United States, and not a little of their vituperation crept into serious scientific discussions of woman's nature. For example, Porteus and Babcock (1926) resurrected the brain-size issue, discounting the importance of size to intelligence and instead associating it with the "maturing of other powers." Males, because of their larger brains would be more highly endowed with these "other powers," and so more competent and achieving. Proposals such as these, which were less obviously biased than those of Mobius, Weininger, and others, fit more easily into the current social value system and so were more easily assimilated as "good science" (cf. Allen, 1927, p. 294).

The Variability Hypothesis

The first systematic treatment of individual differences in intelligence appeared in 1575. Juan Huarte attributed sex differences in intelligence to the different humoral qualities that characterized each sex, a notion that had been popular in Western thought since ancient Greece. Heat and dryness were characteristic of the male principle, while moisture and coolness were female attributes. Because dryness of spirit was necessary for intelligence, males naturally possessed greater "wit." The maintenance of dryness and heat was the function of the testicles, and Huarte (1959) noted that if a man were castrated the effects were the same "as if he had received some notable damage

² Burt and Moore (1912, p. 385), inspired by contemporary theories of cortical localization of function, proposed a neurological theory of female affectability. On the basis of the popular belief that the thalamus was "the centre for the natural expression of the emotions" while "control of movements and the association of ideas" was localized in the cortex and the common assumption that the male was more inclined to be intellectual and rational and the female more passionate and emotional, they concluded that in the adult male the cortex would tend to be "more completely organized," while in the adult female "the thalamus tends to appear more completely organized." They came to the general conclusion that "the mental life of man is predominantly cortical; that of woman predominantly thalamic."

in his very brain" (p. 279). Because the principles necessary for cleverness were only possessed by males, it behooved parents to conduct their life-style, diet, and sexual intercourse in such a manner as to insure the conception of a male. The humoral theory of sex differences was widely accepted through the 17th century, but with the advent of more sophisticated notions of anatomy and physiology, it was replaced by other, more specific, theories of female mental defect: the lesser size and hypothesized simpleness of the female brain, affectability as the source of inferiority, and complementarity of abilities in male and female. It was the developing evolutionary theory that provided an overall explanation for why these sex differences existed and why they were necessary for the survival of the race.

The theory of evolution as proposed by Darwin had little to say regarding the intellectual capacity of either sex. It was in Francis Galton's (Charles Darwin's cousin) anthropometric laboratory that the investigation of intellectual differences took an empirical form (Galton, 1907). The major conclusion to come from Galton's research was that women tend in all their capacities to be inferior to men. He looked to common experience for confirmation, reasoning that:

If the sensitivity of women were superior to that of men, the self interest of merchants would lead to their being always employed; but as the reverse is the case, the opposite supposition is likely to be the true one. (pp. 20-21)

This form of logic—women have not excelled, therefore they cannot excel—was often used to support arguments denigrating female intellectual ability. The fact of the comparative rarity of female social achievement was also used as "evidence" in what was later to become a widely debated issue concerning the range of female ability.

Prior to the formulation of evolutionary theory, there had been little concern with whether deviation from the average or "normal" occurred more frequently in either sex. One of the first serious discussions of the topic appeared in the early 19th century when the anatomist Meckel concluded on pathological grounds that the human female showed greater variability than the human male. He reasoned that because man is the superior animal and variability a sign of inferiority, this conclusion was justified (in Ellis, 1903, p. 237). The matter was left at that until 1871. At that time Darwin took up the question of variability in *The Descent of Man* while attempting to explain how it could

be that in many species males had developed greatly modified secondary sexual characteristics while females of the same species had not. He determined that this was originally caused by the males' greater activity and "stronger passions" that were in turn more likely (he believed) to be transmitted to male offspring. Because the females would prefer to mate with the strong and passionate, sexual selection would insure the survival of those traits. A tendency toward greater variation per se was not thought to be responsible for the appearance of unusual characteristics, but "development of such characters would be much aided, if the males were more liable to vary than the females" (Darwin, 1922, p. 344). To support this hypothesis of greater male variability, he cited recent data obtained by anatomists and biologists that seemed to confirm the relatively more frequent occurrence of physical anomaly among males.

Because variation from the norm was already accepted as the mechanism of evolutionary progress (survival and transmission of adaptive variations) and because it seemed that the male was the more variable sex, it soon was universally concluded that the male is the progressive element in the species. Variation for its own sake took on a positive value because greatness, whether of an individual or a society, could not be achieved without variation. Once deviation from the norm became legitimized by evolutionary theory, the hypothesis of greater male variability became a convenient explanation for a number of observed sex differences, among them the greater frequency with which men achieved "eminence." By the 1890s it was popularly believed that greater male variability was a principle that held true, not only for physical traits but for mental abilities as well:

That men should have greater cerebral variability and therefore more originality, while women have greater stability and therefore more "common sense," are facts both consistent with the general theory of sex and verifiable in common experience. (Geddes & Thomson, 1890, p. 271)

Havelock Ellis (1894), an influential sexologist and social philosopher, brought the variability hypothesis to the attention of psychologists in the first edition of *Man and Woman*. After examining anatomical and pathological data that indicated a greater male *variational tendency* (Ellis felt this term was less ambiguous than *variability*), he examined the evidence germane to a discussion of range of intellectual ability. After noting that there were more men than women in homes for the

mentally deficient, which indicated a higher incidence of retardation among males, and that there were more men than women on the roles of the eminent, which indicated a higher incidence of genius among males, he concluded that greater male variability probably held for all qualities of character and ability. Ellis (1903) particularly emphasized the wide social and educational significance of the phenomenon, claiming that greater male variability was "a fact which has affected the whole of our human civilization" (p. 238), particularly through the production of men of genius. Ellis (1934) was also adamant that the female's tendency toward the average did not necessarily imply inferiority of talent; rather, it simply limited her expertise to "the sphere of concrete practical life" (p. 436).

The variability hypothesis was almost immediately challenged as a "pseudo-scientific superstition" by the statistician Karl Pearson (1897). Though not a feminist, Pearson firmly believed that the "woman question" deserved impartial, scientific study. He challenged the idea of greater male variability primarily because he thought it contrary to the fact and theory of evolution and natural selection. According to evolutionary theory (Pearson, 1897), "the more intense the struggle the less is the variability, the more nearly are individuals forced to approach the type fittest to their surroundings, if they are to survive" (p. 258). In a "civilized" community one would expect that because men have a "harder battle for life," any difference in variation should favor women. He took Ellis to task by arguing it was (a) meaningless to consider secondary sex characteristics (as Ellis had done) and, likewise, (b) foolish to contrast the sexes on the basis of abnormalities (as Ellis had done). By redefining the problem and the means for its solution, he was able to dismiss the entire corpus of data that had been amassed: "the whole trend of investigations concerning the relative variability of men and women up to the present seems to be erroneous" (Pearson, 1897, p. 261). Confining his measurements to "normal variations in organs or characteristics not of a secondary sexual character," he assembled anthropometric data on various races, from Neolithic skeletons to modern French peasants. He also challenged the adequacy of statistical comparison of only the extremes of the distribution, preferring to base his contrasts on the dispersion of measures around the mean. Finding a slight

tendency toward greater female variability, he concluded that the variability hypothesis as stated remained a "quite unproven principle."

Ellis countered Pearson in a lengthy article, one more vicious than that ordinarily due an intellectual affront.³ Pearson's greatest sins (according to Ellis) were his failure to define "variability" and his measurement of characteristics that were highly subject to environmental influence. Ellis, of course, overlooked his own failure to define variability and his inclusion of environmentally altered evidence.

In the United States the variability hypothesis naturally found expression in the new testing movement, its proponents borrowing liberally from the theory of Ellis and the statistical technique of Pearson. The favor that was typically afforded the hypothesis did not stem from intellectual commitment to the scientific validity of the proposal as much as it did from personal commitment to the social desirability of its acceptance. The variability hypothesis was most often thought of in terms of its several corollaries: (a) genius (seldom, and then poorly, defined) is a peculiarly male trait; (b) men of genius naturally gravitate to positions of power and prestige (i.e., achieve eminence) by virtue of their talent; (c) an equally high ability level should not be expected of fe-

³ One of Ellis's biographers (Calder-Marshall, 1959, pp. 97-98) has suggested that Ellis was "wildly jealous" of Karl Pearson's influence on Olive Schreiner, the controversial South African writer. Schreiner first met Pearson in 1885, over a year after she had met Ellis, and according to Calder-Marshall "was vastly attracted to him [Pearson] in what she considered to be a selfless Hintonian sense. . . . She regarded him as a brilliant young man, dying of tuberculosis, whose few remaining years it was her selfless duty to solace" (Pearson died in 1936). Calder-Marshall summed up the triangle in few, but insinuating, phrases:

Exactly what was happening between Karl Pearson and Olive Schreiner during these months [August 1885-December 1886] is a matter more for any future biographer of Olive Schreiner . . . it is enough to know that Olive did her best to remain loyal to both her friends without telling too many lies, and that while Olive remained the most important person in Havelock's life, the most important person in Olive's was Karl Pearson from the time she first met him to a considerable time after she left England. (p. 98)

Ellis's rivalry with Pearson could explain his bitter and supercilious treatment of Pearson's venture into "variational tendency," since Ellis was not one to easily accept an assault on his ego. For his part Pearson "despised the Hinton group, including Ellis. He thought they were flabby-minded, unhealthy and immoral" (p. 97). But these opinions, while possibly influencing him to write on variation originally, did not intrude upon a fair-minded scientific discussion of the matter.

males; and (d) the education of women should, therefore, be consonant with their special talents and special place in society as wives and mothers.

WOMAN'S EDUCATION

The "appropriate" education for women had been at issue since the Renaissance, and the implications of the variability hypothesis favored those who had been arguing for a separate female education. Late in the 18th century, Mary Wollstonecraft Godwin (1759-1797) questioned the "natural" roles of each sex, contending that for both the ultimate goal was the same: "the first object of laudable ambition is to obtain a character as a human being, regardless of the distinction of sex" (Wollstonecraft, 1955, p. 5). Without education, she felt, women could not contribute to social progress as mature individuals, and this would be a tragic loss to the community. Though not the first to recognize the social restrictions arbitrarily placed on women, she was the first to hold those restrictions as directly responsible for the purported "defective nature" of women. She emphasized that women had never truly been given an equal chance to prove or disprove their merits. Seventy years later, John Stuart Mill (1955) also took up the cause of women's education, seeing it as one positive action to be taken in the direction of correcting the unjust social subordination of women. He felt that what appeared as woman's intellectual inferiority was actually no more than the effort to maintain the passive-dependent role relationship with man, her means of support:

When we put together three things—first, the natural attraction between the sexes; secondly, the wife's entire dependence on the husband . . . and lastly, that the principal object of human pursuit, consideration, and all objects of social ambition, can in general be sought or obtained by her only through him, it would be a miracle if the object of being attractive to men had not become the polar star of feminine education and formation of character. (pp. 232-233) ⁴

⁴ One of the severest critics of Mill's defense of women was Sigmund Freud. He felt Mill's propositions were in direct contradiction to woman's "true" nature:

It is really a stillborn thought to send women into the struggle for existence exactly as men. . . . I believe that all reforming action in law and education would break down in front of the fact that, long before the age at which a man can earn a position in society, Nature has determined woman's destiny through beauty, charm, and sweetness. Law and custom have much to give women that has been withheld from them, but the position of women will surely be what it is: in youth an adored darling and in mature years a loved wife. (quoted in Reeves, 1971, pp. 163-164)

Although Mill objected to fostering passivity and dependency in girls, other educators felt that this was precisely their duty. One of the more influential of the 19th century, Hannah More, rejected outright the proposal that women should share the same type of education as men, because "the chief end to be proposed in cultivating the understanding of women" was "to qualify them for the practical purposes of life" (see Smith, 1970, p. 101). To set one's sights on other than harmonious domesticity was to defy the natural order. Her readers were advised to be excellent women rather than indifferent men; to follow the "plain path which Providence has obviously marked out to the sex . . . rather than . . . stray awkwardly, unbecomingly, and unsuccessfully, in a forbidden road" (Smith, 1970, pp. 100-101). Her values were consonant with those held by most of the middle class, and so her *Strictures on the Modern System of Female Education* (More, 1800) enjoyed widespread popularity for some time.

By the latter part of the century, the question had turned from whether girls should be educated like boys to how much they should be educated like boys. With the shift in emphasis came the question of coeducation. One of the strongest objections to coeducation in adolescence was the threat it posed to the "normalization" of the menstrual period. G. Stanley Hall (1906) waxed poetic on the issue:

At a time when her whole future life depends upon normalizing the lunar month, is there not something not only unnatural and unhygienic, but a little monstrous, in daily school associations with boys, where she must suppress and conceal her instincts and feelings, at those times when her own promptings suggest withdrawal or stepping a little aside to let Lord Nature do his magnificent work of efflorescence. (p. 590)

Edward Clarke (see Sinclair, 1965, p. 123) had earlier elucidated the physiological reason for the restraint of girls from exertion in their studies: by forcing their brains to do work at puberty, they would use up blood later needed for menstruation.

Hall proposed an educational system for girls that would not only take into consideration their delicate physical nature but would also be tailored to prepare them for their special role in society. He feared that women's competition with men "in the world" would cause them to neglect their instinctive maternal urges and so bring about "race suicide." Because the glory of the female lay in motherhood, Hall believed that all educational and social institutions should be structured with that

end in mind. Domestic arts would therefore be emphasized in special schools for adolescent girls, and disciplines such as philosophy, chemistry, and mathematics would be treated only superficially. If a girl had a notion to stay in the "male" system, she should be able to, but, Hall warned, such a woman selfishly interested in self-fulfillment would also be less likely to bear children and so be confined to an "agamic" life, thus failing to reproduce those very qualities that made her strong (Hall, 1918).

Throughout Hall's panegyric upon the beauties of female domestic education, there runs an undercurrent of the *real* threat that he perceived in coeducation, and that was the "feminization" of the American male. David Starr Jordan (1902) shared this objection but felt that coeducation would nevertheless make young men more "civilized" and young women less frivolous, tempering their natural pubescent inclinations. He was no champion of female ability though, stressing that women "on the whole, lack originality" (p. 100). The educated woman, he said, "is likely to master technic rather than art; method, rather than substance. She may know a good deal, but she can do nothing" (p. 101). In spite of this, he did assert that their training is just as serious and important as that of men. His position strongly favored the notion that the smaller range of female ability was the cause of lackluster female academic performance.

The issue of coeducation was not easily settled, and even as late as 1935, one finds debates over its relative merits (*Encyclopedia of the Social Sciences*, 1935, pp. 614-617).

THE BIOLOGICAL BASES OF SEX DIFFERENCES

The variability hypothesis was compatible not only with prevailing attitudes concerning the appropriate form of female education but also with a highly popular theory of the biological complementarity of the sexes. The main tenet of Geddes and Thomson's (1890) theory was that males are primarily "catabolic," females "anabolic." From this difference in metabolism, all other sex differences in physical, intellectual, and emotional makeup were derived. The male was more agile, creative, and variable; the female was truer to the species type and therefore, in all respects, less variable. The conservatism of the female insured the continuity of the species. The authors stressed the

metabolic antecedents of female conservatism and male differentiation rather than variational tendency per se, and also put emphasis on the complementarity of the two natures:

The feminine passivity is expressed in greater patience, more open-mindedness, greater appreciation of subtle details, and consequently what we call more rapid intuition. The masculine activity lends a greater power of maximum effort, of scientific insight, or cerebral experiment with impressions, and is associated with an unobservant or impatient disregard of minute details, but with a more stronger grasp of generalities. (p. 271)

The presentation of evolutionary theory anchored in yin-yang concepts of function represents the most positive evaluation of the female sex offered by 19th-century science. Whatever woman's shortcomings, they were necessary to complete her nature, which itself was necessary to complete man's: "Man thinks more, woman feels more. He discovers more, but remembers less; she is more receptive, and less forgetful" (Geddes & Thomson, 1890, p. 271).

VARIABILITY AND THE TESTING MOVEMENT

Helen Thompson (later Woolley) put Geddes and Thomson's and other theories of sex differences in ability to what she felt was a crucial experimental test (see Thompson, 1903). Twenty-five men and 25 women participated in nearly 20 hours of individual testing of their intellectual, motor, and sensory abilities. Of more importance than her experimental results (whether men or women can tap a telegraph key more times per minute has lost its significance to psychology) was her discussion of the implications of the resulting negligible differences for current theories of sex differences. She was especially critical of the mass of inconsistencies inherent in contemporary biological theories:

Women are said to represent concentration, patience, and stability in emotional life. One might logically conclude that prolonged concentration of attention and unbiased generalization would be their intellectual characteristics, but these are the very characteristics assigned to men. (p. 173)

In the face of such contradictions, she was forced to conclude that "if the author's views as to the mental differences of sex had been different, they might as easily have derived a very different set of characteristics" (pp. 173-174). Thompson singled out the variability hypothesis for special criticism, objecting not only to the use of physical variation as evidence for intellectual variation but

also to the tendency to minimize environmental influences. She held that training was responsible for sex differences in variation, and to those who countered that it is really a fundamental difference of instincts and characteristics that determines the differences in training, she replied that if this were true, "it would not be necessary to spend so much time and effort in making boys and girls follow the lines of conduct proper to their sex" (p. 181).

Thompson's recommendation to look at environmental factors went unheeded, as more and more evidence of woman's incapability of attaining eminence was amassed. In the surveys of eminent persons that were popular at the turn of the century, more credence was given to nature (*à la* Hall) than nurture (*à la* Thompson) for the near absence of eminent women (Cattell, 1903; Ellis, 1904). Cattell (1903) found a ready-made explanation in the variability hypothesis: "Women depart less from the normal than man," ergo "the distribution of women is represented by a narrower bell-shaped curve" (p. 375). Cora Castle's (1913) survey of eminent women was no less critical of woman's failure to achieve at the top levels of power and prestige.

One of the most influential individuals to take up the cause of the variability hypothesis was Edward Thorndike. Much of the early work in the testing movement was done at Columbia University, which provided the perfect milieu for Thorndike's forays into the variability problem as applied to mental testing and educational philosophy. Thorndike based his case for the acceptance of the variability hypothesis on the re-evaluation of the results of two studies (Thompson, 1903; Wissler, 1901) that had not themselves been directed toward the issue. Thorndike insisted that greater male variability only became meaningful when one examined the distribution of ability at the highest levels of giftedness. Measurement of more general sex differences could only "prove that the sexes are closely alike and that sex can account for only a very small fraction of human mental differences in the abilities listed" (Thorndike, 1910, p. 185). Since the range of female ability was narrower, he reasoned, the talents of women should be channeled into fields in which they would be most needed and most successful because "this one fundamental difference in variability is more important than all the differences between the average male and female capacities" (Thorndike, 1906):

Not only the probability and the desirability of marriage and the training of children as an essential feature of woman's career, but also the restriction of women to the mediocre grades of ability and achievement should be reckoned with by our educational systems. The education of women for . . . professions . . . where a very few gifted individuals are what society requires, is far less needed than for such professions as nursing, teaching, medicine, or architecture, where the average level is the essential. (p. 213)

He felt perfectly justified in this recommendation because of "the patent fact that in the great achievements of the world in science, as, invention, and management, women have been far excelled by men" (Thorndike, 1910, p. 35). In Thorndike's view, environmental factors scarcely mattered.

Others, like Joseph Jastrow (1915), seemed to recognize the tremendous influence that societal pressures had upon achievement. He noted that even when women had been admitted to employment from which they had previously been excluded, new prejudices arose: "allowances and considerations for sex intrude, favorably or unfavorably; the avenues of preferment, though ostensibly open are really barred by invisible barriers of social prejudice" (pp. 567-568). This was little more than lip service because he was even more committed to the importance of variational tendency and its predominance over any possible extenuating factors: the effects of the variability of the male and the biological conservatism of the female "radiates to every distinctive aspect of their contrasted natures and expressions" (p. 568).

A small but persistent minority challenged the validity of the variability hypothesis, and it is not surprising that this minority was composed mainly of women. Although the "woman question" was, to some degree, at issue, the larger dispute was between those who stressed "nature" as the major determinant of ability (and therefore success) and those who rejected nature and its corollary, instead emphasizing the importance of environmental factors. Helen Thompson Woolley, while remaining firmly committed to the investigation of the differential effects of social factors on each sex, did not directly involve herself in the variability controversy. Leta Stetter Hollingworth, first a student and then a colleague of Thorndike's at Teachers College of Columbia University, actively investigated the validity of the hypothesis and presented sound objections to it. She argued that there was no real basis for assuming that the distribution of "mental traits" in the population conforms without exception to the Gaussian distribu-

tion. The assumption of normality was extremely important to the validity of the variability hypothesis, because only in a normal distribution would a difference in variability indicate a difference in range. It was the greater range of male ability that was used to "prove" the ultimate superiority of male ability. Greater range of male ability was usually verified by citing lists of eminent persons (dominated by men) and the numbers and sex of those in institutions for the feeble-minded (also dominated by men). Hollingworth (1914) saw no reason to resort to biological theory for an explanation of the phenomenon when a more parsimonious one was available in social fact. Statistics reporting a larger number of males among the feeble-minded could be explained by the fact that the supporting data had been gathered in institutions, where men were more likely to be admitted than women of an equal degree of retardation. The better ability of feeble-minded women to survive outside the institutional setting was simply a function of female social role:

Women have been and are a dependent and non-competitive class, and when defective can more easily survive outside of institutions, since they do not have to compete *mentally* with normal individuals, as men do, to maintain themselves in the social *milieu*. (Hollingworth, 1914, p. 515)

Women would therefore be more likely to be institutionalized at an older age than men, after they had become too old to be "useful" or self-supporting. A survey of age and sex ratios in New York institutions supported her hypothesis: the ratio of females to males increased with the age of the inmates (Hollingworth, 1913). As for the rarity of eminence among women, Hollingworth (1914) argued that because the social role of women was defined in terms of housekeeping and child-rearing functions, "a field where eminence is not possible," and because of concomitant constraints placed on the education and employment of women by law, custom, and the demands of the role, one could not possibly validly compare the achievements of women with those of men who "have followed the greatest possible range of occupations, and have at the same time procreated unhindered" (p. 528). She repeatedly emphasized (Hollingworth, 1914, 1916) that the true potential of woman could only be known when she began to receive social acceptance of her right to choose career, maternity, or both.

Hollingworth's argument that unrecognized dif-

ferences in social training had misdirected the search for *inherent* sex differences had earlier been voiced by Mary Calkins (1896). Just as Hollingworth directed her response particularly at Thorndike's formulation of the variability hypothesis, Calkins objected to Jastrow's (1896) intimations that one finds "greater uniformity amongst women than amongst men" (p. 431).

Hollingworth's work was instrumental in bringing the variability issue to a crisis point, not only because she presented persuasive empirical data to support her contentions but also because this was simply the first major opposition that the variability hypothesis had encountered. Real resolution of this crisis had to await the development of more sophisticated testing and statistical techniques. With the United States' involvement in World War I, most testing efforts were redirected to wartime uses. This redirection effectively terminated the variability debate, and although it resumed during the postwar years, the renewed controversy never attained the force of conviction that had characterized the earlier period. "Variational tendency" became a statistical issue, and the pedagogic implications that had earlier colored the debate were either minimized or disguised in more egalitarian terms.

After its revival in the mid-1920s, investigation of the variability hypothesis was often undertaken as part of larger intelligence testing projects. Evidence in its favor began to look more convincing than it ever had. The use of larger samples, standardized tests, and newer methods of computing variation gave an appearance of increased accuracy, but conclusions were still based on insubstantial evidence of questionable character. Most discussions of the topic concluded that there were not enough valid data to resolve the issue and that even if that data were available, variation within each sex is so much greater than the difference in variation between sexes that the "meaning" of the variability hypothesis was trivial (Shields, Note 1).

Maternal Instinct

The concept of maternal instinct was firmly entrenched in American psychology before American psychology itself existed as an entity. The first book to appear in the United States with "psychology" in its title outlined the psychological sex differences arising from the physical differences

between men and women. Differences in structure were assumed to imply differences in function, and therefore differences in abilities, temperament, and intelligence. In each sex a different set of physical systems was thought to predominate: "In man the arterial and cerebral systems prevail, and with them irritability; in woman the venous and ganglion systems and with them plasticity and sensibility" (Rausch, 1841, p. 81). The systems dominant in woman caused her greatest attributes to lie in the moral sphere in the form of love, patience, and chastity. In the intellectual sphere, she was not equally blessed, "and this is not accidental, not because no opportunity has offered itself to their productive genius . . . but because it is their highest happiness to be mothers" (Rausch, 1841, p. 83).⁵

Although there was popular acceptance of a maternal instinct in this country, the primary impetus for its incorporation into psychology came by way of British discussion of social evolution. While the variability hypothesis gained attention because of an argument, the concept of maternal instinct evolved without conflict. There was consistent agreement as to its existence, if not its precise nature or form. Typical of the evolutionary point of view was the notion that woman's emotional nature (including her tendency to nurturance) was a direct consequence of her reproductive physiology. As Herbert Spencer (1891) explained it, the female's energies were directed toward preparation for pregnancy and lactation, reducing the energy available for the development of other qualities. This resulted in a "rather earlier cessation of individual evolution" in the female. Woman was, in essence, a stunted man. Her lower stage of development was evident not only in her inferior mental and emotional powers but also in the resulting expression of the parental instinct. Whereas the objectivity of the male caused his concern to be extended "to all the relatively weak who are dependent upon him" (p. 375), the female's propensity to "dwell on the concrete and proximate rather than on the abstract and remote" made her incapable of the generalized protective attitude assumed by the male. Instead, she was primarily responsive to "infantile helplessness."

⁵ This sentiment was echoed by Bruno Bettelheim (1965) over 100 years later: "as much as women want to be good scientists or engineers, they want first and foremost to be womanly companions of men and to be mothers" (p. 15).

Alexander Sutherland (1898) also described a parental instinct whose major characteristic (concern for the weak) was "the basis of all other sympathy," which is itself "the ultimate basis of all moral feeling" (p. 156). Like his contemporaries (e.g., McDougall, 1913, 1923; Shand, 1920; Spencer, 1891), Sutherland revered maternal sentiment but thought the expression of parental instinct in the male, that is, a protective attitude, was a much more significant factor in social evolution, an attitude of benevolent paternalism more in keeping with Victorian social ethic than biological reality. The expression of the parental instinct in men, Sutherland thought, must necessarily lead to deference toward women out of "sympathetic regard for women's weakness." He noted that male protectiveness had indeed wrought a change in the relations between the sexes, evident in a trend away from sexual motivations and toward a general improvement in moral tone, witness the "large number of men who lead perfectly chaste lives for ten or twenty years after puberty before they marry," which demonstrated that the "sensual side of man's nature is slowly passing under the control of sympathetic sentiments" (p. 288).⁶

Whatever facet of the activity that was emphasized, there was common agreement that the maternal (or parental) instinct was truly an instinct. A. F. Shand (1920) argued that the maternal instinct is actually composed of an ordered "system" of instincts and characterized by a number of emotions. Despite its complexity, "maternal love" was considered to be a hereditary trait "in respect not only of its instincts, but also of the bond connecting its primary emotions, and of the end which the whole system pursues, namely, the preservation of the offspring" (p. 42). The sociologist L. T. Hobhouse (1916) agreed that maternal instinct was a "true" instinct, "not only in the drive but in some of the detail." He doubted the existence of a corresponding paternal instinct, however, since he had observed that few men have a natural aptitude with babies.

⁶ Similar observations were made concerning women. Sutherland (1898) noted that because social morality had developed to such a high level, women "now largely enter upon marriage out of purely sympathetic attractions, in which sex counts for something, but with all its grosser aspects gone." He happily reported another's finding that "sexual desire enters not at all into the minds of a very large proportion of women when contemplating matrimony" (p. 288).

The unquestioning acceptance of the maternal instinct concept was just as prevalent in this country as it was in Britain. William James (1950) listed parental love among the instincts of humans and emphasized the strength with which it was expressed in women. He was particularly impressed with the mother-infant relationship and quoted at length from a German psychologist concerning the changes wrought in a woman at the birth of her child: "She has, in one word, transferred her entire egoism to the child, and lives only in it" (p. 439). Even among those who employed a much narrower definition of instinct than James, maternal behavior was thought to be mediated by inherent neural connections. R. P. Halleck (1895) argued that comparatively few instincts are fully developed in humans, because reason intervenes and modifies their expression to fit the circumstances. Maternal instinct qualified as a clear exception, and its expression seemed as primitive and unrefined as that of infants' reflexive behavior.

Others (e.g., Jastrow, 1915; Thorndike, 1914a, 1914b) treated instinct more as a quality of character than of biology. Edward Thorndike (1911) considered the instincts peculiar to each sex to be the primary source of sex differences: "it appears that if the primary sex characters—the instincts directly related to courtship, love, child-bearing, and nursing—are left out of account, the average man differs from the average woman far less than many men differ from one another" (p. 30). Thorndike taught that the tendency to display maternal concern was universal among women, although social pressures could "complicate or deform" it. He conceded that males share in an instinctive "good will toward children," but other instincts, such as the "hunting instinct," predominated (Thorndike, 1914b). He was so sure of the innate instinctual differences between men and women that it was his contention (Thorndike, 1914b) that even "if we should keep the environment of boys and girls absolutely similar these instincts would produce sure and important differences between the mental and moral activities of boys and girls" (p. 203). The expression of instincts therefore was thought to have far-reaching effects on seemingly unrelated areas of ability and conduct. For example, woman's "nursing instinct," which was most often exhibited in "unreasoning tendencies to pet, coddle, and 'do for' others," was also "the chief source of woman's superiorities in the moral life" (Thorndike, 1914a, p. 203). Another

of the female's instinctive tendencies was described as "submission to mastery":

Women in general are thus by original nature submissive to men in general. Submissive behavior is apparently not annoying when assumed as the instinctive response to its natural stimulus. Indeed, it is perhaps a common satisfier. (Thorndike, 1914b, p. 34)

The existence of such an "instinct" would, of course, validate the social norm of female subservience and dependence. An assertive woman would be acting contrary to instinct and therefore contrary to *nature*. There is a striking similarity between Thorndike's description of female nature and that of the Freudians with their mutual emphasis on woman's passivity, dependency, and masochism. For Thorndike, however, the *cause* of such a female attitude was thought to be something quite different from mutilation fears and penis envy.

The most vocal proponent of instinct, first in England and later in this country, was William McDougall (1923). Unlike Shand, he regarded "parental sentiment" as a primary instinct and did not hesitate to be highly critical of those who disagreed with him. When his position was maligned by the behaviorists, his counterattack was especially strong:

And, when we notice how in so many ways the behavior of the human mother most closely resembles that of the animal-mother, can we doubt that . . . if the animal-mother is moved by the impulse of a maternal instinct, so also is the woman? To repudiate this view as baseless would seem to me the height of blindness and folly, yet it is the folly of a number of psychologists who pride themselves on being strictly "scientific." (p. 136)

In McDougall's system of instincts, each of the primary instincts in humans was accompanied by a particular emotional quality. The parental instinct had as its primary emotional quality the "tender emotion" vaguely defined as love, tenderness, and tender feeling. Another of the primary instincts was that of "pairing," its primary emotional quality that of sexual emotion or excitement, "sometimes called love—an unfortunate and confusing usage" (p. 234). Highly critical of what he called the "Freudian dogma that all love is sexual," McDougall proposed that it was the interaction of the parental and pairing instincts that was the basis of heterosexual "love." "Female coyness," which initiated the courtship ritual, was simply the reproductively oriented manifestation of the instincts of self-display and self-abasement. The appearance of a suitable male would elicit coyness from the female, and at that point the male's parental in-

instinct would come into play:

A certain physical weakness and delicacy (probably moral also) about the normal young woman or girl constitute in her a resemblance to a child. This resemblance . . . throws the man habitually into the protective attitude, evokes the impulse and emotion of the parental instinct. He feels that he wants to protect and shield and help her in every way. (p. 425)

Once the "sexual impulse" had added its energy to the relationship, the young man was surely trapped, and the survival of the species was insured. McDougall, while firmly committed to the importance of instinct all the way up the evolutionary ladder, never lost his sense of Victorian delicacy: while pairing simply meant reproduction in lower animals, in humans it was accorded a tone of gallantry and concern.

The fate of instinct at the hands of the radical behaviorists is a well-known tale. Perhaps the most adamant, as well as notorious, critic of the instinct concept was J. B. Watson (1926). Like those before him who had relied upon observation to prove the existence of maternal instinct, he used observation to confirm its nonexistence:

We have observed the nursing, handling, bathing, etc. of the first baby of a good many mothers. Certainly there are no new ready-made activities appearing except nursing. The mother is usually as awkward about that as she can well be. The instinctive factors are practically nil. (p. 54)

Watson attributed the appearance of instinctive behavior to the mother's effort to conform to societal expectations of her successful role performance. He, like the 19th-century British associationist Alexander Bain, speculated that not a little of the mother's pleasure in nursing and caring for the infant was due to the sexually stimulating effect of those activities.⁷

Even the most dedicated behaviorists hedged a bit when it came to discarding the idea of instinct altogether. Although the teleology and redundancy of the concept of instinct were sharply criticized, some belief in "instinctive activity" was typically retained (cf. Dunlap, 1919-1920). W. B. Pillsbury (1926), for example, believed that the par-

ental instinct was a "secondary" instinct. Physical attraction to the infant guided the mother's first positive movements toward the infant, but trial and error guided her subsequent care. Instinct was thought of as that quality which set the entire pattern of maternal behavior in motion.

In time instinct was translated into *drive* and *motivation*, refined concepts more in keeping with behavioristic theory. Concomitantly, interest in the maternal instinct of human females gave way to the study of mothering behavior in rodents. The concept of maternal instinct did find a place in psychoanalytic theory, but its definition bore little resemblance to that previously popular. Not only did maternal instinct lose the connotation of protectiveness and gentility that an earlier generation of psychologists had ascribed to it, but it was regarded as basically sexual, masochistic, and even destructive in nature (cf. Rheingold, 1964).

The Ascendancy of Psychoanalytic Theory

The functionalists, because of their emphasis on "nature," were predictably indifferent to the study of social sex roles and cultural concepts of masculine and feminine. The behaviorists, despite their emphasis on "nurture," were slow to recognize those same social forces. During the early 1930s, there was little meaningful ongoing research in female psychology: the point of view taken by the functionalists was no longer a viable one, and the behaviorists with their emphasis on nonsocial topics (i.e., learning and motivation) had no time for serious consideration of sex differences. While the functionalists had defined laws of behavior that mirrored the society of the times, behaviorists concentrated their efforts on defining universal laws that operated in any time, place, or organism. Individual differences in nature were expected during the functionalist era because they were the *sine qua non* of a Darwinian view of the world and of science. The same individual differences were anathema to early learning-centered psychology because, no longer necessary or expedient, they were a threat to the formulation of universal laws of behavior.

In the hiatus created by the capitulation of functionalism to behaviorism, the study of sex differences and female nature fell within the domain of psychoanalytic theory—the theory purported to have all the answers. Freudian theory (or some

⁷ Bain's (1875) position was similar except that he believed that there *was* an innate tendency to nurture that initiated the entire cycle of positive affect-positive action. The instinct was thought to be a natural "sentiment," which was fostered by the long period of gestation and the "special energies" required of the mother to sustain the infant. The positive affect arising from activity connected with the infant then brought about increased nurturance and increased pleasure. At least part of this pleasure was thought to be physical in nature.

form of it) had for some years already served as the basis for a psychology of female physiological function (cf. Benedek & Rubenstein, 1939). The application of principles popular in psychiatry and medicine (and their inescapable identification with pathology) to academic psychology was easily accomplished. Psychoanalytic theory provided psychology with the first comprehensive theoretical explanation of sex differences. Its novelty in that respect aided its assimilation.

Psychology proper, as well as the general public, had been well-prepared for a biological, and frankly sexual, theory of male and female nature. Havellock Ellis, although himself ambivalent and even hostile toward Freudian teachings, had done much through his writing to encourage openness in the discussion of sexuality. He brought a number of hitherto unmentionable issues to open discussion, couching them in the commonly accepted notion of the complementarity of the sexes, thus insuring their popular acceptance. Emphasis on masculinity and femininity as real dimensions of personality appeared in the mid-1930s in the form of the Terman Masculinity-Femininity Scale (Terman & Miles, 1968). Although Lewis Terman himself avoided discussion of whether masculinity and femininity were products of nature or nurture, social determinants of masculinity and femininity were commonly deemphasized in favor of the notion that they were a type of psychological secondary sexual characteristic. Acceptance of social sex role soon came to be perceived as an indicator of one's mental health.

The traps inherent in a purely psychoanalytic concept of female nature were seldom recognized. John Dewey's (1957) observation, made in 1922, merits attention, not only for its accuracy but because its substance can be found in present-day refutations of the adequacy of psychoanalytic theory as an explanation of woman's behavior and "nature":

The treatment of sex by psychoanalysts is most instructive, for it flagrantly exhibits both the consequences of artificial simplification and the transformation of social results into psychic causes. Writers, usually male, hold forth on the psychology of women, as if they were dealing with a Platonic universal entity, although they habitually treat men as individuals, varying with structure and environment. They treat phenomena which are peculiarly symptoms of civilization of the West at the present time as if they were the necessary effects of fixed nature impulses of human nature. (pp. 143-144)

The identification of the psychology of women with psychoanalytic theory was nearly complete by

the mid-1930s and was so successful that many psychologists today, even those most deeply involved in the current movement for a psychology of women, are not aware that there was a psychology of women long before there was a Sigmund Freud. This article has dealt only with a brief period in that history, and then only with the most significant topics of that period. Lesser issues were often just as hotly debated, for example, whether there is an innate difference in the style of handwriting of men and women (cf. Allen, 1927; Downey, 1910).

And what has happened to the issues of brain size, variability, and maternal instinct since the 1930s? Where they are politically and socially useful, they have an uncanny knack of reappearing, albeit in an altered form. For example, the search for central nervous system differences between males and females has continued. Perhaps the most popular form this search has taken is the theory of prenatal hormonal "organization" of the hypothalamus into exclusively male or female patterns of function (Harris & Levine, 1965). The proponents of this theory maintain an Aristotelian view of woman as an incomplete man:

In the development of the embryo, nature's first choice or primal impulse is to differentiate a female. . . . The principle of differentiation is always that to obtain a male, something must be added. Subtract that something, and the result will be a female. (Money, 1970, p. 428)

The concept of maternal instinct, on the other hand, has recently been taken up and refashioned by a segment of the woman's movement. Pregnancy and childbirth are acclaimed as important expressions of womanliness whose satisfactions cannot be truly appreciated by males. The idea that women are burdened with "unreasoning tendencies to pet, coddle, and 'do for' others" has been disposed of by others and replaced by the semiserious proposal that if any "instinctive" component of parental concern exists, it is a peculiarly male attribute (Stannard, 1970). The variability hypothesis is all but absent from contemporary psychological work, but if it ever again promises a viable justification for existing social values, it will be back as strongly as ever. Conditions which would favor its revival include the renaissance of rugged individualism or the "need" to suppress some segment of society, for example, women's aspirations to positions of power. In the first case the hypothesis would serve to reaffirm that there are those "born to lead," and in the latter that there are those "destined to follow."

Of more importance than the issues themselves or their fate in contemporary psychology is the recognition of the role that they have played historically in the psychology of women: the role of social myth. Graves (1968, p. v) included among the functions of mythologizing that of justification of existing social systems. This function was clearly operative throughout the evolutionist-functional treatment of the psychology of women: the "discovery" of sex differences in brain structure to correspond to "appropriate" sex differences in brain function; the biological justification (via the variability hypothesis) for the enforcement of woman's subordinate social status; the Victorian weakness and gentility associated with maternity; and pervading each of these themes, the assumption of an innate emotional, sexless, unimaginative female character that played the perfect foil to the Darwinian male. That science played handmaiden to social values cannot be denied. Whether a parallel situation exists in today's study of sex differences is open to question.

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