Foundations of Feminism

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[A Critique]

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TO THE MOTHER WHO WAS

AND

THE MOTHER WHO IS TO BE.

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CHAPTER I

Biological Foundations; Sex and Feminism

"Science, logic, ethics, sociology have no conclusions on the question of 'Feminism' which have the validity of physical 'Law.'"

CHARLES A. BEARD.[1]

I

"THERE are no men, and . . . there are no women; there are only sexual majorities." In these words, W. L. George,[2] a leading representative of English Feminist thought, summarizes what he calls the "revolutionary biological principle" upon which the propaganda he represents rests. In the same sentence he has laid bare a raw surface of pathologic ganglia in the Feminist psyche, which, closely examined, discloses a mechanism far less unique than might be expected.

It is a commonplace of observation that no man, or woman, or movement ever rests satisfied until the program of action selected has been proven by logic, justified by history, confirmed by science and

[1] Beard, Charles A. Letter in *N. Y. Times,* July 18, 1915, Sec. VI., p. 10.

[2] George, W. L. "Feminist Intentions," p. 721. (*Atlantic Monthly,* Dec., 1913, pp. 721-32.)

in general shown *not* to be rooted in prejudice, or instinct, or weakness—as it usually is. W. L. George, by contributing the "scientific" generalization quoted above, has proven to us that neither Feminism nor Feminists are exceptions to this universal form of human self-satisfying egoism—and with the result usually observed.

Whenever logic, history, science, and the rest of the instruments of justification-gymnasts fail to be dutiful, they are tortured, distorted, or ignored, as the case may be, until the point in controversy and the "cause" in general emerge triumphant. Generally, with movements, the most glaring blunders are enacted in the early stages of development, when arguments, because of their scarcity, are welcome if they show the faintest glimmerings of promise. But there comes a time when the hoary heritage left by the pioneer must be sorted and classified, and either thrown into the junk-heap or retained as a treasure—or a white elephant.

Feminism has now reached the stage when a strong and vigorous catharsis is the only thing that will energize it. Its literature is glutted and congested with the rubbish that many of its well-mean- throat, until it is ready to burst. Nowhere is this ing proponents have succeeded in forcing down its

more clearly shown than in the biological-feministic section, where a series of most glaring and inexcusable errors has been enacted. Scarcely a writer in the field (except Edward Carpenter [3]) seems to be even remotely conscious of the revolutionary changes that biological thought has recently undergone. Book after book is written in which stereotyped ideas and obsolete notions on the origin and evolution of sex are set down, together with blindly partisan affirmations on the severely criticized theory of sexual selection. Nobody seems to realize that Feminism neither has, nor requires, biological justification. Its votaries have ransacked the sciences in search of the materials for a great, barbarously embellished, syllogistic structure in which to worship, when they might have prayed in the simple open before the pure white flame of woman's passion for freedom.

The leaders in the Woman Movement have made the old masculine mistake of imagining that it is only through logic and a rationalizing process that the appeal for new converts is to be made. They have ignored completely the fact that the passion-

[3] Carpenter, Edward. "Drama of Love and Death; a Study of Human Evolution and Transfiguration," pp. 5-23. N. Y., Mitchell Kennerley, 1912.

ate adoption of a creed, a belief, a program of action, is a far more subtle process and is based more on such fundamentally rooted qualities as instinct, the unconscious psychological experiences of childhood, and a multitude of purely subconscious forces than upon any judicial deliberation on the pros and cons offered for consideration. They forget that the number of persons on earth is, after all, small who can say with G. L. Dickinson,[4] "If it were necessary to choose between reason and passion, I would choose reason, . . . for reason to me herself is a passion."

The apostles of Feminism might sit with profit at the feet of Nietzsche,[5] whose misogynism they shun, at least long enough to learn from his keen analysis of the psychology of social philosophers, that even with these rare souls "they all pose as though their real opinions had been discovered and attained through the self-evolving of a cold, pure, divinely indifferent dialectic (in contrast to all sorts

[4] Dickinson, Goldsworthy Lowes. "A Modern Symposium," p. 75, N. Y., McClure Phillips, 1905.

[5] Nietzsche, Friedrich Wilhelm. "Beyond Good and Evil; Prelude to a Philosophy of the Future"; authorized translation by Helen Zimmern, pp. 9-10. London, Good European Society, 1907.

of mystics, who, fairer and foolisher, talk of 'inspiration'), whereas, in fact, a prejudiced proposition, idea, or 'suggestion,' which is generally their heart's desire abstracted and refined, is defended by them with arguments sought out after the event. They are all advocates who do not wish to be regarded as such, generally astute defenders, also, of their prejudices, which they dub 'truths'—and *very* far from having the conscience which bravely admits this to itself. . . . It has gradually become clear to me what every philosophy up till now has consisted of—namely, the confession of its originator, and a species of involuntary and unconscious autobiography."

William James, echoing Pascal's "Le coeur a ses raisons que la raison ne connait pas," asks, "Why was reason given to man, except to find reasons for what he wants to do?" Professor Jowett adds in similar vein, "Logic is neither a science nor an art, but a dodge," and James Huneker concludes, specifying the exact locus of the *Weltanschauung,* "To say 'philosophy' is only to sum up in a fatidical phrase the physiologic states of the particular philosopher." The most amusing example, of course, is the surprising polemical deftness

displayed by the men of science of all the recently belligerent nations in proving their respective countries to be in the right.

But if reason has become a passion with humans, it must not be abused. If the constructionist busybodies in the Feministic camp insist on a free reign, the only remedy, when the ground is sufficiently cumbered with their activity, is, according to Shavian formula, a liberal application of destructionist antidote, which will clear the air and give "breathing space and liberty."

If, then, the psychological mainspring in the brain of the Feminist-educator-philosopher has been correctly described, it is fair to assume that somewhere in the vast array of arguments that have been garnered from the scientific cosmos there will be found evidence of the strained condition which follows from the hasty search for new dicta calculated to impress the layman as final.

II

Biology, for example, has always been the pet of the pamphleteer, since its rich material offers adaptation to almost any cause. Let any movement be proven to have rooted and grown in bio-

logical "law"—of which the lay writer seems to have a most precise knowledge and on which experts are never decided—and then only is the skeptic silenced, and not until then does the expositor feel satisfied and secure. But the polemicist is keenly alive to the illusory character of this biological "law," and by utilizing the most recent scientific discoveries he is often able to refute the conclusive "proofs" that the writer-propagandist has come to consider final and based on eternal "laws."

This last is indeed the pitfall into which Mr. W. L. George and his co-apologists have fallen and from which they will recover only when they realize that this abuse of the rational process has led to an extreme and untenable position. For if we analyze Mr. George's declaration of principle to the effect that there are no men and that there are no women, we find that we have here nothing less than a sensational denial of our senses; a futuristic attempt to shock by paradox the crystallized notion of the man in the street, which tells him that men are men, and women are women; a biological sweeping aside of all sexual differences. For there are no differences, we are told, and how can there be, since there are no "men" and "women"? This is the shortest cut out of the dif-

ficulty experienced in the interminable discussions on the relative spheres of the sexes, since by wiping out biologically the differences, the line of demarcation between the spheres automatically disappears, and everything is then ready to "identify absolutely the conditions of the sexes."

All this is very clever and might be convincing —provided, of course, it were true. Now—is it? Well, let us examine this "revolutionary biological principle." Let us see what it is; who its author was; how and why he discovered or invented it; and how he proved it.

Otto Weininger, Mr. George tells us, is the immortal who contributed and bequeathed to the Feminist movement the cornerstone upon which its propaganda rests. In a work entitled "Sex and Character," [6] we are told, proof was brought forward for the first time, tending to establish facts leading to the bold and revolutionary conclusion which is quoted at the beginning of this chapter. Essentially and briefly, the theory attempting to prove that the "male principle is to be found in woman, and the female principle in man," was in-

[6] Weininger, Otto. "Sex and Character"; authorized translation from the 6th German edition, p. 67. N. Y., Putnam, 1906.

vented by Weininger in order to explain the mechanism of sex attraction, not only as observed between men and women but between members of the same sex; *i. e.*, homosexual love. The fundamental idea strongly recalls Schopenhauer's theory which bases itself on the assumption that opposites attract, with an important modification. The author assumes that the ultimate cells which make up the body, despite the fact that the individual may be male or female, are not 100% male or 100% female. Instead, it is postulated (and use is made of the universally observed fact that individuals of the same sex differ in degree of masculinity or femininity), the cell of a markedly masculine man is, let us say, 90% male and 10% female. Such a man in seeking a mate would not be attracted, as the older theory demanded, to a blond if he were dark or to a dwarf if he were a giant, but the object of affection must be a strikingly feminine type; for example, one whose cells analyzed 90% female and 10% male, the total being 100% of each sex element. In the same manner, a male of 75% male and 25% female content would seek a female of 25% male, 75% female makeup, etc., the total being again 100% of each.

For proof and illustration of this law Weininger[7] cited the cases that have occurred among geniuses in which masculine women and feminine men (or the converse) were concerned: George Sand and Alfred de Musset; the same lady (whom Nietzsche called Monsieur Sand) and Chopin (designated by Weininger "the only female musician"); Michael Angelo and Vittoria Colonna; Daniel Stern (authoress) and Franz Liszt; August Wilhelm Schlegel and Madame de Staël (whose masculinity is "proven" by the fact that her "work on Germany is probably the greatest book ever produced by a woman"); and Clara and Robert Schumann.

Now it must be admitted that we have here an ingenious and very interesting method of explaining both the complexities of love and the fact that members of the same sex differ in intensity of sex-type, by a simple correlation of the two. But how is it to be put to the experimental test? Can we take two lovers, dissect their body cells, isolate and label the sex elements, saying these are male and these female parts, and calculate the percentage of each? Obviously this is impossible, as Wein-

[7] Weininger, Otto. "Sex and Character"; authorized translation from the 6th German edition, p. 67. N. Y., Putnam, 1906.

inger himself admitted,[8] for "at present empirical knowledge does not enable us to say wherein the masculinity or the femininity of a cell really lies," and the only evidence he could bring in defense of his theory was his own tested observation, which always showed that only markedly masculine males were attracted to equally feminine females, and that men deficient in masculinity paired with "mannish" women and vice versa. If our observations happened to differ from Mr. Weininger's, that ended the controversy, for no other way of settling our differences was at that time available. Now, fortunately for us, and unfortunately for the Weininger theory, this state of affairs has come to an end.

In the giant strides that biology has taken in the last decade, it has become possible to say "wherein the masculinity or the femininity of a cell really lies." To accomplish this it is not necessary to go through a process involving the dissection of the elementary cell. By an indirect method we are enabled to distinguish between the male and the female cell, at least sufficiently to disprove the the-

[8] Weininger, Otto. "Sex and Character"; authorized translation from the 6th German edition, p. 14. N. Y., Putnam, 1906.

ory of Weininger, and with it the "revolutionary biological principle" laid down by George. But before examining the subject in detail, let us first take a survey of the situation.

III

In denying at the very outset the fundamental and current notions regarding the sexes, Feminism has been put on a somewhat mathematical basis; for, in effect, before considering the relations between the sexes, we have to prove first that they exist. In laying down the hypothesis that the male and the female principles are intermixed and that no one person is completely a representative of either sex, the question that has naturally arisen is: What is sex? Without an accurate answer to this question, it is impossible to go further in discussing the psychology or the physiology of sex, or any of its relations and differences, since, if it be indeed proven that no person is a true sex-type, but a conglomerate of two, how is it possible to say such-and-such are female characteristics, others male properties, from an examination of any large number of so-called "males" and "females"?

The answer to these questions, together with the

one raised by Weininger, is to be found in the recent biological literature on the mechanism of sex-determination, which has given us a means of expressing exactly the sex composition of every cell in the body, not by the method of analysis and integration of the male and the female cell-elements, but by a process already beautifully simplified for us by nature, which has furnished us a single cell representative of every other in the body—which we shall call the mother-cell [9]—and from which all the others form by a process of growth, division and subdivision. By careful examination of this mother-cell before and after it is formed in the process of fertilization, which consists in the entrance of the male reproductive cell or spermatozoon into the female egg; in other words, by observing the cellular phenomena connected with reproduction, we shall find that we can clearly distinguish between a mother-cell which is to develop into a male and one that is destined to become a female individual. Not only this, but to anticipate a little, it will be shown that the mother-cell and, therefore, the individual must

[9] The usual biological terminology is to designate this by the name daughter-cell, since, as will be shown later, it is formed by a union of the mother and father cells. It has been called "mother-cell" here because the rest of the body is built up by its continuous division.

be 100% of either one sex or the other, and not as Weininger assumed, fractionally sexed. Let us see now what the mechanism of this process is.

For many hundreds of years the problem of the determination of sex in man has been one of the most prolific sources of speculation. The number of theories that have been advanced in explanation of its mechanism has recently been estimated at about eight hundred. Yet in spite of this plethora of guess-work, and in a measure because of it, experimental science was unable to arrive at the facts until within the last few years. The story of these historically unsuccessful theories is extremely interesting. Many attempted an explanation on the basis of lack, or excess, or kind of nutrition; others on temperature, age of parents, patent medicines, sex segregation in the ovaries, war, economic condition, etc.[10] All of these failed because they were founded

[10] For description see the following, where many of these abandoned hypotheses are put forward seriously and in some cases as "proof" of superiority of one or the other of the sexes:

Thomas, William I. "Sex and Society; Studies in the Social Psychology of Sex," pp. 9-13. Chicago, Univ. of Chicago Press, 1907.

Gallichan, Catherine Gasquoine Hartley. "Truth about Woman," pp. 40-44. London, E. Nash, 1913.

Geddes, Patrick, & J. A. Thomson. "Evolution of Sex," pp. 117-134. N. Y., Scribner, 1897.

on the idea of physical regulation, which when we examine into sex determination as it occurs demonstrably in nature, will be found to have little or no effect.

At the climax to the sex act, millions of microscopic spermatozoa (male reproductive cells) are hurled at the single egg of the female. If we follow their course, it will be observed that they move rapidly toward the egg until one enters it, causing a reaction to occur, which excludes all others. Immediately afterward the cells fuse and begin to grow and multiply by division; *i. e.*, segmentation begins, and the embryo develops. This, in a rough way, summarizes the reproductive process. But let us put the individual cells under a high-power microscope and observe the detailed history of their smallest parts.[11] Looking at the egg, it will be observed that

[11] For a fuller description, see:

Morgan, Thomas Hunt. "Heredity and Sex," pp. 35-72. N. Y., Columbia Univ. Press, 1913.

Doncaster, Leonard. "Determination of Sex," pp. 50-72. Cambridge, Univ. Press, 1914.

Loeb, Jacques. "Mechanistic Conception of Life," pp. 16-23. Chicago, Univ. of Chicago Press, 1912.

——— "Organism as a Whole," pp. 198-228. N. Y., Putnam, 1916.

Calkins, Gary Nathan. "Biology," pp. 210-19. Ed. 2, rev. N. Y., Henry Holt, 1917.

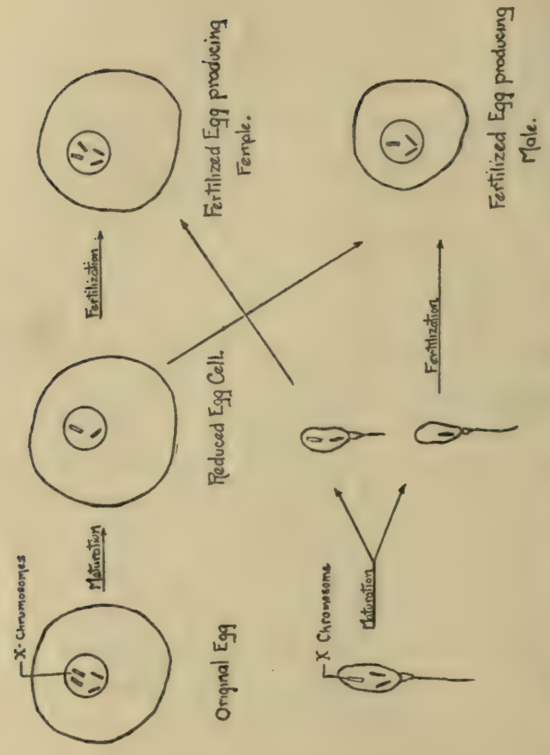
Castle, William E. "Genetics and Eugenics," pp. 169-79. Cambridge, Harvard Univ. Press, 1916.

it consists of a small circular so-called nucleus carrying all the hereditary units, surrounded by a mass of protoplasm which serves as food material for the young embryo. Closer examination will show that the protoplasm is comparatively homogeneous, whereas the nucleus contains smaller elements, called chromosomes. Similar examination of the male spermatozoon will show that, like the egg, it contains a nucleus, but only this, and that it is not surrounded by protoplasm. Moreover, while the egg is passive and quiescent, the spermatozoon moves about actively by means of constant agitation of a tail attached to its nucleus. Again it will be observed that the nucleus of the male, as in the case of the female cell, contains these small rod-shaped bodies called chromosomes. If we look more closely and count the chromosomes in each of the sex cells, we will find that there is a difference in the number —the female having 48, the male 47. It will also be noted that two of the 48 in the female cell are larger than any of the others, while in the male only one is larger than the rest. These large chromosomes have been designated by the letter "X," and must be followed carefully, since they are closely connected with the mechanism of sex determination. Each sex cell, then, contains 46 small chromosomes

and the female differs from the male cell in having in addition two large "X" chromosomes instead of one.

This numerical difference in chromosomic content is rendered more striking by a series of complicated evolutions that the germinal elements now undergo —a process called maturation, which will be described here only in terms of its end effects. (See accompanying diagram.) This amounts in brief to a cleavage of each of the sex cells into two equal parts with a corresponding halving in the number of chromosomes they contain. For the egg this means a reduction from 48 to 24 chromosomes, of which 23 are small and one is a large "X;" and for the sperm, since there is originally an odd number (47), the production of two spermatozoa, one containing only 23 small chromosomes, the other 23 of the small *plus* the large "X" element (in other words, exactly like the egg cell).

If one of the latter spermatozoa (the one like the egg cell), of 24 chromosome content, penetrates the egg in fertilization, it merely undoes the work accomplished during the maturation division; *i. e.*, brings the egg cell back to the 48-containing condition where it was originally; and indeed, in such a case, will result on development into a female indi-



DIAGRAMMATIC OUTLINE of SEX-DETERMINATION by CHROMOSOMES.

FOR THEORETICAL SPECIES HAVING 4 CHROM. FEMALE-3 MALE.

vidual. If, however, the spermatozoon of the type unlike the egg cell succeeds first in fertilization, the total number of chromosomes mounts to the original male count (24, the female, plus 23, the small male sperm) or 47 in all, and in this case a male embryo will be produced by the continued division and segmentation of this mother-cell. The equations noted below show this process in the two variations, as male and as female end-products:

MALE

23 ordinary + 1 X-chromosome (female) + 23 ordinary chromosomes (one type of male) = 46 ordinary + 1 X-chromosome (male)

FEMALE

23 ordinary + 1 X-chromosome (female) + 23 ordinary + 1 X-chromosome (other type of male) = 46 ordinary + 2 X-chromosomes (female)

We have here, stripped of all technical terms, a rough picture of the mechanism of sex determination as it has been observed by many biologists. The case described above is only that of man and in order to visualize the case of other animals it is only necessary to change the number of chromosomes in the cell, retaining as before a difference in chromosomic content by one for the two sexes.

We see, therefore, that the sex of an individual depends entirely on the chance entrance of one or the other of the two types of male reproductive cells into the female egg. The fundamental difference between the sexes is, then, one of chromosomic constitution and we can define rigidly the male and female on this basis. Thus, a male is an individual developing from a mother-cell containing 47 chromosomes; a female, one who develops from a 48-chromosome cell; or, in simpler terms, the cells of the male contain one X-chromosome, those of the female two X-chromosomes. The duality of type in the spermatozoa enables us to explain at the same time the practical equality in the production of the sexes; for, since each cell-type is present in equal numbers, we must expect this result from the theory of probability, provided each has an equal chance for fertilization. The actual sex-ratio in man, 105 males to 100 females, exhibits a preponderance for males, possibly because of a difference in bulk and velocity for the two types of male cell.[12]

[12] The X-chromosomes may be larger or smaller or equal in size to the "ordinary" individuals, depending on the species. For the purpose of clearness of illustration they have been called "large" here. In the case of man experimental difficulties are so great that there is some doubt even as to the actual number of chromosomes to the cell.

The whole problem of controlling sex in such a manner as to be able to produce at will the sex desired, simmers down entirely into a question of finding some agency which has a selective action, say, some complex organic chemical compound which will destroy one or the other of the undesirable gametic (cell) types. In many of the lower animals such simple variables as temperature, moisture and nutrition have been found to exert sufficient selective action to affect appreciably the sex-ratio but up to the present these agencies have been entirely impotent in the case of man. The solution of the problem awaits the perfection of our, as yet, rudimentary knowledge of the physics and chemistry of life cells and processes.

IV

Although the mechanism of sex-determination has been known and described now for several years, it is a surprising fact that little or no reference is found to it in the most recent Feministic literature. This is all the more striking when we stop to consider what a beautiful biological "proof" it might have offered in the hands of a competent feminist for a final and conclusive settlement of the

vexed question concerning the relative superiority of the male and female.[18] For when it has been shown that the female of the species always contains in every cell of her body one more chromosome (and that a large one of the X-type) than the most prepossessing representative of the corresponding male branch, what better proof have we that throughout nature the female is of a higher type?

Like all biological proofs of this kind, however, there is one fatal objection; and that is, that the near-sighted and round-shouldered biologist, stooping over his microscope in the seclusion of the laboratory, has been stupidly unaware of the Feminists' longing to land the female of the species on top and so, by way of interest and diversion, has been able to show that while, in the case of man, the

[18] "The first man to suggest a relation between the odd chromosome and sex determination (McClung)," says W. E. Castle in his "Genetics and Eugenics," * "supposed of course that the extra chromosome must go to produce a male, the more important sex, and he called it a *male sex-determining chromosome,* but it turned out otherwise. The extra chromosome is really a female sex determinant. When a difference exists between the *sexes in chromatin content, it is regularly the female that has the larger supply.*"

* Castle, William E. "Genetics and Eugenics," p. 177. Cambridge, Harvard Univ. Press, 1916. Referring to: McClung, C. E. "The Accessory Chromosome—Sex Determinant?" (Biological bulletin, v. 3, 1902, pp. 43-84.)

female is indeed richer in chromosomes, this is not at all true with certain more obscure animals, where conditions are quite reversed, and sex is determined not by the presence of dual spermatozoic types but by two kinds of egg, in which case the male instead of the female can boast possession of the extra chromosome. Here an unrealized biological "proof" of the superiority of one of the sexes takes its place beside the others that have been or ought to be discredited.

Lest it be thought that the foregoing is the statement of an imaginary argument that might never have been seriously used, it may be well to point out a few examples of far-fetched and fantastic notions concerning the sexes that have been deduced from constitutional considerations of cell phenomena. A favorite idea, illustrating to what limits some otherwise sane and logical writers will carry an attractive comparison (and aggravate it in its many plagiarized versions) is the much-abused attempt to form a parallelism between the psychic side of sex and the highly contrasted activity of the male and female germ cells, the one being small, active, motile; the other, large, quiescent, passive.

Jean Finot was the first to realize the absurdity

of this type of comparison. In his "Problems of the Sexes" he wrote:[14] "The reasoning of the biologists and the psychologists is, we observe, analogous. From their observation of the differences of the two cells that produce life these investigators not only derive all the qualities of woman but seek justification for the part she has played in history." He then quotes from a series of writers and workers, Geddes and Thomson, Brooks, Rolph, Sabatier and Fouillée, whose correlation of cytological and psychic phenomena is rhetorically summarized by Rosa Mayreder[15] as follows: "The masculine polarization gives, *as the properties of the germ-cell show,* mobility, energy, initiative, the inclination to sweep afar and the ability to assert oneself under unfavorable conditions. The feminine postulates stability, passive self-dependence, an inclination to be firm and shut off from outside influence. If we pursue these deductions further, then we may say that the choleric-sanguine temperament presents itself as the masculine, the phlegmatic-lymphatic as the feminine temperament; the male sex embodies the progressive

[14] Finot, Jean. "Problems of the Sexes"; tr. by M. J. Safford, p. 194. N. Y., Putnam, 1913.

[15] Mayreder, Rosa. "Survey of the Woman Problem"; tr. by Herman Scheffauer, p. 13. London, Wm. Heinemann, 1913.

or centrifugal element that renews and transforms the species, the female sex the conservative or centripetal, that maintains and preserves the species unchanged." Frau Mayreder thinks that "here we seem to have a firm foundation for what may be considered as psychic sex-characteristics, and taken for granted in all sexually differentiated individuals."

To those of us who know that the static condition of the female germinal unit and the highly contrasted activity of its mate mean nothing as compared to the number, orientation, distribution and intrastructure of their chromosomes, the misshapen form of analogy given above is self-condemnatory. From the point of view of our present knowledge of the mechanism of sex-determination, neither of the cells can possibly be symbolic of the sexes which produce them, since the chances are equal that on fertilization they will be converted into representatives of the opposite sex.

Yet Mrs. Gallichan,[16] using the same phenomenon to exalt rather than ridicule women, believes that in the coming together of the reproductive cells "the male cellule . . . impregnates and becomes fused

[16] Gallichan, Catherine Gasquoine Hartley. "Truth about Woman," p. 53. London, E. Nash, 1913.

within her cellule, which . . . preserves its individuality and continues as the main source of life," forgetting that she is bringing up a beautiful subject for scholastic hair-splitting. For who but Solomon could decide which of two globules of mercury or two conjugating cells loses its identity on fusion? The very nature of the act compels the conclusion that each suffers an "abnegation of its own being," since the individuality of the most essential parts, *i. e.,* the nuclei, completely disappears. One begins to scent in this type of "scientific" exposition the stigma of sex comparisons. Everywhere there is the insinuating implication of the glorification of one of the sexes with a corresponding depreciation of the other. One can recognize all the catch-words and platitudes, reappearing in scientific form—the appeal to "individuality," "self-assertion," "self-abnegation," "stability," as a recrudescence of the archaic habit of the pioneer suffragist soap-boxer and "anti," mechanically marshaling the whole store of obscure biological analogy and psycho-pompous rhetoric to the defense and attack of repressed womanhood.

We have now passed in review the mechanism of determining sex and some of the more important conclusions for the Feminist that can be drawn from

a knowledge of this wonderful and fascinating process. From it we have learned, for one thing, what sex really is, and how its two branches can be defined and differentiated in scientific terms. With this starting-point, and the fallacious Weininger-George hypothesis disposed of, we can begin to consider the distinguishing marks which characterize the sexes, with a view to determining whether there is anything inherent in the constitution of either which delimits its activity to any fixed "sphere," or whether, as Feminists claim, we can "identify absolutely the condition of the sexes."

V

There is one thing, however, that remains possibly in the mind of the critical lay reader as a persistent source of doubt; *i. e.*, that despite this scientific array of evidence which claims to have furnished an explanation of the mechanism of sex-determination, and a rigorous method of defining each sex, it is still a matter of common observation and experience that the "female principle is to be found in man and the male principle in woman." It is not unusual to see mannish women, with small hips, flat breasts, deep bass voices and a growth of beard (scanty at

least), the type Schopenhauer has called the "charming androgyne;" and conversely, feminine men—with scanty beard, flabby muscles, high-pitched voices; men who use rouge and a powder puff, or sit at home and knit or crochet, and are ultra-fastidious in their dress. Theodore Roosevelt has variously applied the terms "mollycoddle" and "sissie" to this latter type and Schopenhauer called them less vigorously and in a more scholarly fashion, the "repulsive gynander." Among women of genius, mannishness has been in some cases so striking, as with George Sand, who wore trousers, smoked cigars, and had a bass voice, and with George Eliot, who has been called "George Sand plus science and minus sex," that it led the Goncourts to say: "There are no women of genius, the women of genius are all men." This was also inspired probably by the supposed belief that originality, initiative, vigor, and perseverance are exclusively male attributes.

The idea that all the superior qualities to be found in the female are in direct proportion to the concentration of maleness in the organism reaches its most complete form of statement in the misogynomaniacal work of Otto Weininger. Using his specially created theory of mixed sex-personality for the purpose of reducing the mind of woman to nil,

he mentions a long list of eminent women in whom masculinity of appearance or character was sufficiently marked for him to conclude that[17] "all women who are truly famous and are of conspicuous mental ability, to the first glance of an expert reveal some of the anatomical characters of the male, some external bodily resemblance to a man." He enumerates, among others, George Eliot, Lavinia Fontona, Annetta von Oroste-Hülschoff, George Sand, Sonia Kovalevsky, Rosa Bonheur and Catharine II of Russia.

Now, however little one sympathizes with Weininger's obsession, it remains an uncontrovertible fact that from superficial observation, many of the characteristics that have come to be associated in the lay mind with one or the other of the sexes are shared, sometimes strikingly, by both; and that if, as has been shown, every individual is to his last cell 100% male or 100% female, how is the latter notion to be reconciled with the former, without creating a paradoxical position? The clearing up of this difficulty follows immediately from a consideration of the so-called secondary sexual char-

[17] Weininger, Otto. "Sex and Character"; authorized translation from the 6th German edition, p. 65. N. Y., Putnam, 1906.

acters. When we examine the various factors upon which the verdict "androgyne" and "gynander" rests, it will be found that these are exclusive properties that one sex has acquired, and that distinguish it from the other; as for instance, the beard, the muscles, the chest, etc. To these Darwin gave the name secondary sex characters. By inquiring into the Darwinian and other explanations on the origin and nature of these characters, we shall be in a position to understand how anomalous secondary characters arise and how and why mannish women and feminine men exist. Incidentally, we shall consider at length the problems that have been injected into Feminism by the theory of sexual selection.

In his "Descent of Man," Darwin [18] enunciated for the first time in its present complete form what we know as the theory of sexual selection. This theory is supplementary to his exposition on Natural Selection in the "Origin of Species," and was formulated from the necessity that he felt of interpreting the facts left unexplained by the latter concerning the secondary sexual characters. These characters are familiarly illustrated in the gorgeous

[18] Darwin, Charles. "Descent of Man and Selection in Relation to Sex," v. 1, pp. 253-423. 2 v. London, John Murray, 1871.

plumage of male birds, the beautiful and variegated coloring of male butterflies and moths, the antlers of the bull-moose and elk-stag, the mane of the lion, and the beard of man, all lacking or slightly developed in the female. Many of these differences are apparently useful, others quite useless, while in some cases their presence is distinctly harmful. Thus, the antlers of the stag are useful in defense; the brood-sacs of the kangaroo, opossum and certain frogs are efficiently utilized in caring for the young; and the colors of many birds, harmonizing with the environment, protect them from detection by preying animals. On the other hand, the beard of man, the comb and wattles of the cock and a variety of other small bodily differences in the sexes seemingly have no use; while the vivid and conspicuous coloring, the loud song, the stridulations and calls of many male animals, their great weight of plumage or horn, may expose them to attack or embarrass them in escape from their enemies.

Briefly summarized, it was believed by Darwin that all these qualities, present in most cases in the one sex only, represented the accumulated results produced by the selection of the female, during untold generations, of only those males who exhibited the most highly developed of these characters. He

came to this conclusion from his own observations and notes on male birds and insects "showing off" in front of the females, as in the case of the peacock and spider, and the desperate struggles among male mammals in which the female was the prize. The love of the hen for the æsthetically superior cock is a good illustration of the "showing off" type of selection, especially in the peacock, as Darwin himself noted. "Many female progenitors of the peacock must, during a long line of descent, have appreciated this superiority,—for they have unconsciously, by the continued preference of the most beautiful males, rendered the peacock the most splendid of living birds;"[19] and again,[20] "There are many other structures and instincts which must have been developed through sexual selection—such as the weapons of offense and the means of defense possessed by the males for fighting with and driving away their rivals—their courage and pugnacity—their ornaments of many kinds—their organs for producing vocal or instrumental music—and their glands for emitting odors."

[19] Darwin, Charles. "Descent of Man and Selection in Relation to Sex," v. 2, p. 141. 2 v. London, John Murray, 1871.

[20] ——— ——— v. 1, p. 258. 2 v. London, John Murray, 1871.

VI

The importance of this theory in contemporary Feminist discussions can hardly be over-emphasized (though it is hoped that with the passing of biology as a prop for Feminism it will mean nothing in the study of this movement in the future), and the psychology of writers on the Woman Movement who have accepted and defended it is easy to follow. For a great many years the opinion was held by biologists (Darwin included) that the female represented a state of arrested development. Throughout our higher life the critical values are higher for the male than for the female. In man the male brain is heavier, the body larger, stronger, and more decorated. Among birds the males alone are decorated and gifted with the power of song; while for insects the same is true for color and stridulation. Hominists, and biologists with an illegitimate propensity toward dabbling in sociology, seized upon these facts and developed ponderous theories eloquently proclaiming the wonderful strength, power and beauty of the male in nature. The female was depreciatively referred to as constitutionally incomplete—in a state of "arrested development."

Under these circumstances, nothing could possibly have been more agreeable to those who were trying to show that women were not in such a condition than a scientific hypothesis which, though acknowledging the superiority of the male ("efflorescence," it was called), attributed all the characters marking his supremacy to the selective creation of the female, who through her choice of the most highly developed of her suitors, had picked out for transmission and intensification the very properties that made the one apparently superior to the other. The human mind is never so much struck as by the paradox of reversed extremes. Any scheme of things transferring bodily the laurels of supremacy from Man to Woman was not going to be overlooked, at least not by Feminists.

It is not surprising, then, that when Professor Lester F. Ward [21] of Brown University, in his "Pure Sociology," brought forth an apparently staggering array of evidence based on the Darwinian Theory of Sexual Selection, proving the supremacy of Woman in the way that has been indicated, it

[21] Ward, Lester F. "Pure Sociology; a Treatise on the Origin and Spontaneous Development of Society." N. Y., Macmillan, 1903. (Ed. 2, N. Y., Macmillan, 1916.)

was utilized and eulogized to its full capacity. Charlotte Perkins Stetson Gilman,[22] perhaps the greatest American Feminist living, dedicated her work, "A Man-made World," to "Lester F. Ward . . . one of the world's greatest men . . . to whom all women are especially bound in honor and gratitude for his Gynæcocentric Theory of Life, than which nothing so important to humanity has been advanced since the Theory of Evolution, and nothing so important to women has ever been given to the world." Whole books, and the essential parts of many books [23] have been written with this theory as a basis.

[22] Gilman, Charlotte Perkins Stetson. "Man-made World; or, Our Androcentric Culture." N. Y., Charlton Co., 1911.

[23] See:

Christie, Jane Johnstone. "Advance of Woman from the Earliest Times to the Present," pp. 17-28. Philadelphia, Lippincott, 1912.

Gallichan, Catherine Gasquoine Hartley. "Truth about Woman," pp. 45-69. London, E. Nash, 1913.

Gilman, Charlotte Perkins Stetson. "Women and Economics," pp. 171-73. Ed. 6. London, Putnam, 1908.

Nearing, Scott, & N. S. Nearing. "Woman and Social Progress," pp. 10-17. N. Y., Macmillan, 1912.

See also the following for an unsuccessful attempt to answer Ward:

Bax, Ernest Belfort. "Fraud of Feminism," pp. 128-34. London, Grant Richards, Ltd., 1913.

According to this gynæcocentric or female-center hypothesis, as opposed to the previously held androcentric or male-center theory, all our higher life has evolved from and revolved about the female. Ward, in the course of his argument, sketches a vivid and interesting picture of the evolution of sex, showing how all was in the beginning "female;" how with the first coming of the male, he is little more than an insignificant organ, a sac carrying the reproductive element, living as a parasite on his mate. The female, either unhappy at being victimized as a host upon which her spouse feeds, or shocked æsthetically at having such a puny mate; or, still more probably, out of an overflowing compassion, develops suddenly a hyper-discriminatory instinct which impels her to choose for a mate only the largest and most prepossessing of her suitors, with the result that must be obvious. In a few hundred generations (or a few hundred thousand—time matters naught) the male has detached himself from his female and has augmented his organization to a sufficient extent to be labeled now—an Individual. But our never-satisfied female is not so easily made content. Something or somebody whispers into her ear, or if she has no ears, into her soul, "The insignificant male must be improved, he must be

made larger, stronger, more beautiful"—and without a single egotistic thought that this would lead eventually to such ingratitude in far-off man, as is shown by his branding her "arrested development," she continues to select, and again and again to select until in the higher species her male has already equaled her in size. But she does not stop even here. In this divinely wild, altruistic outburst of instinct, she continues to pick, to choose, to eliminate, until a mate is produced who far surpasses her in color, strength, size, ornament, power of song, etc., etc.; in other words, in possession of the secondary sexual characters that she lacks.

This is a beautiful, appealing and arresting picture. But unhappily not all pictures indicated by the above adjectives are true. Moreover, it is to be noted that there is nothing original in the theory except the interpretation. Ward has merely taken the sexual selection theory long before brought out by Darwin and by extreme accentuation on the almost conscious choice of the male by the female, has attempted to exalt the latter at the expense of the former. It is a noteworthy fact, however, that he has selected the *weakest* element in the sexual selection theory (as we shall see later), *i. e.*, the matter of choice, as the foundation of his theory.

VII

Long before the gynæcocentric theory had been formulated (and its author acknowledges his indebtedness to Darwin's Sexual Selection Theory), the theory upon which it bases itself, that is, sexual selection, had been subjected to study and attack, indeed to such an extent that Darwin himself admitted many of its limitations. Since that time, and with the revolutionary development of biological thought and experiment, the objections have grown in volume and potency, so that now, as one of the greatest living American biologists [24] puts it, "In the light of the many difficulties that the theory of sexual selection meets with, I think we shall be justified in rejecting it as an explanation of the secondary sexual differences amongst animals." Such an unqualified sweeping aside of this great Darwinian Theory and, with it, the important gynæcocentric theory of Ward by a great living authority, must command the interest of every student of Feminism; and we shall therefore examine in more detail the evidence having such far-reaching importance for Feministic thought.

[24] Morgan, Thomas Hunt. "Evolution and Adaptation," pp. 220-221. N. Y., Macmillan, 1903.

For many years following the publication of Darwin's "Origin of Species," the idea of evolution had taken such a grip on every branch of thought that the history and the development of almost all our sciences and institutions had to be rewritten.[25] Not only in theology but in the more exact departments of human knowledge, the passing of the idea of special creation and the birth of the notion of gradual development had to be reckoned with as a new means of interpreting the phenomena of life. It was perfectly natural under these circumstances for the ideas of Darwinism and Evolutionism to become freely intermixed and to be used interchangeably as methods of expressing any idea associated with a gradually developing progression. Herbert Spencer [26] was particularly active in applying the evolutionary principle to all departments of knowledge, as is fully shown in his "Synthetic Philosophy." But most scientists, especially biologists, were unable to realize that whereas Evolution and the idea that living things have sprung one from the other in a continuous or continual intergrading series are

[25] Seward, A. C. "Darwin and Modern Science; Essays in Commemoration of the Centenary of the Birth of Charles Darwin and of the Fiftieth Anniversary of the Publication of the 'Origin of Species.'" N. Y., Putnam, 1909.

[26] Spencer, Herbert. System of "Synthetic Philosophy."

irrefutable and generally accepted facts, Darwinism, which not only affirms Evolution but proceeds to draw a picture of *how* this progression has come about and *how* these intergrading series of living species have passed from one to the next—that this Darwinism is far from being final, conclusive and not open to question. The Darwinian theories, however, had taken such a hold on biological thought that it was, for a time, considered almost bad form to indulge in any destructive criticism of them. Reviewing this period historically, Dewar and Finn [27] in their "Making of Species" tell us:

"For some time after the publication of the 'Origin of Species' Mivart appears to be almost the only man of science fully alive to the weak points of the Darwinian theory. The great majority seem to have been dazzled by its brilliancy.

"The main attack on Darwinism was conducted by the theologians and their allies, who considered it to be subversive of the Mosaic account of creation. . . . The theologians were in the unfortunate position of warriors who do not know what it is against which they are fighting; they confounded Natural Selection with Evolution, and directed the main force of their attack against the latter, under the impression that they were fighting the Darwinian theory. . . . When this attack had been repulsed,

[27] Dewar, Douglas, & Frank Finn. "Making of Species," p. 7. N. Y., John Lane Co., 1909.

men believed that the theory of natural selection (Darwinism) had been demonstrated, that it was as much a law of nature as gravitation. What had happened was that the fact of evolution had been proved, and the Theory of Natural Selection (of Darwin) obtained the credit. Men thought that Darwinism was evolution. . . . Darwin thus became a dictator whose authority none durst question. A crowd of slavish adherents gathered around him, a herd of men to whom he seemed an absolutely unquestionable authority. It still retains this position in the popular mind."

Now, whatever may be said in depreciation of the Darwinian apostles fails by far to apply to Darwin himself. Sensing the justice and strength of many of the objections to his theories, he at least, in his own characteristically fair and honest manner, acknowledged many weaknesses, strengthened others, but succeeded in answering satisfactorily with the fragmentary experimental data then at hand, most of the arguments directed against his evolutionary scheme. Since his death, and with the enormous growth of the experimental idea in biology, the critics of his theories have succeeded in undermining and destroying many vital parts of the ingenious scheme which he laid out as depicting the mechanism of the Origin of Species, without in the least affecting, and if anything strengthening, the idea

of an Evolution, which he first expressed fully.

The worst blow, perhaps, to the Darwinian structure was the destruction of the idea of the inheritance of acquired characters by Weissmann and since then, through the studies on variation, another great supporting arm of his theory has been seriously put in doubt; the Natural Selection hypothesis being apparently the only one to come through unscathed, but only in those phases of it which depict the destruction of the unfit through their inability to live or become adapted to their environment. Hundreds of alternative attempts to explain the origin of species and yet avoid the shortcomings of the Darwinian scheme have been proposed and more or less accepted. To-day, so open-minded has the biologist become that he is ready to entertain the most revolutionary ideas. A striking illustration of this is to be found in the recent address of the President of the British Association for the Advancement of Science, William Bateson,[28] one of the greatest living English naturalists. He states:

"The present generation of evolutionists realizes perhaps more fully than did the scientific world in the last century that the theory of Evolution has

[28] Bateson, William. "President's Address," pp. 4 & 17. (Brit. Assn. for Advancement of Science. Report of proceedings, 1914, pp. 3-21.)

occupied the thoughts of many and found acceptance with not a few before ever the 'Origin' appeared. We have come also to the conviction that the principle of Natural Selection cannot have been the chief factor in delimiting the species of animals and plants, such as we now with fuller knowledge see them actually to be. We are even more skeptical as to the validity of that appeal to changes in the conditions of life as direct causes of modification, upon which, latterly at all events, Darwin laid much emphasis. . . . But as we have got to recognize that there has been an Evolution, that somehow or other the forms of life have arisen from fewer forms, *we may as well see whether we are limited to the old view that evolutionary progress is from the simple to the complex, or whether after all it is conceivable that the process was the other way about.*" (My italics.)

In other words, we are asked to put aside the Darwinian, and more especially the Spencerian notion, that there has been an evolution from the simple to the complex. We are asked, in effect, to open our minds to the idea that possibly things have gone from the complex to the simple; that the ape, let us say, is more complex (assuming we have evolved from him) than man. This is not presented to us as a fact but it is urged on us that we must be prepared to reject our preconceived notions, so that when the evidence is before us we can be

sufficiently unprejudiced to accept these paradoxical facts as truths, should they prove to be facts.

There is abundant evidence that in many cases new species *are* born from older ones by the *loss* of a character. It has been so difficult, however, to prove conclusively that they are born by *gaining* functions and properties, that it has become more convenient to assume that whenever something has been gained, there has really been a loss—of an inhibiting factor. Thus, it is possible that it is only necessary to an aboriginal negro, to attain the genius and mentality of a Goethe, that he lose certain inhibiting factors. In this sense, he is more complex than a Goethe in that his complexity is of a negative variety. The ape might easily become a man if he could in some way lose certain inhibitors that hold him back in apedom; and it is an actually observed fact that by losing the pigmentation factor two negro parents have born a white child.[29]

[29] For a photograph of such a family, see the following:

Conklin, Edward Grant. "Heredity and Environment in the Development of Man," p. 289. Princeton, Univ. Press, 1915.

Pearson, Karl, E. Nettleship & C. H. Usher. "Monograph on Albinism in Man"; Atlas part I, Fig. 417. London, Dulan & Co., 1911. (Drapers' Co., research memoirs, Biometric series VI.) *Note*: This work contains a large number of photographs showing white children born of parents of the black and yellow races.

VIII

What has all this to do with Feminism? the reader asks. Just this: That without a knowledge of the present unsettled condition of evolutionary thought, it is impossible to appreciate the wild and incoherent applications of the developmental notion that Feminists have made throughout their writings in treating of the evolution of love, marriage, the family, etc. A critical appreciation of biological limitations will help the student as nothing else can to an intelligent reading of Feministic literature, throughout which a most surprising ignorance of the modern biological situation is everywhere to be found.

If we take, for example, the sweeping picture of Ward tracing in parallel the evolution of species and of sex from amœba to man, we are otherwise unable to appreciate in the least how much pure imagination is contained in such a phantasmagorical portrait; for we will have learned that science is as yet entirely ignorant of the exact sequence of species [30] or of sex types; that while the one was advancing, the other may have been retrogressing;

[30] Bateson, William. "Problems of Genetics," p. 90. New Haven, Yale Univ. Press, 1913.

that while Ward naïvely assumes everywhere evolution from simple to complex, there is the possibility and a strong probability that at certain times the process was reversed, *i. e.*, from complex to simple; that, as Morgan has put it: [81]

"There can be no doubt that our minds are greatly impressed by the construction of a graded series of stages connecting the simpler with the complex. It is true that such a series shows us how the simple forms *might conceivably pass* by almost insensible (or at least by overlapping) stages to the most complicated forms. This evidence reassures us that a process of evolution could have taken place in the imagined order. But our satisfaction is superficial if we imagine that such a survey gives much insight either into the causal processes that have produced the successive stages, or into the interpretation of these stages after they have been produced."

And yet Ward's theory was avidly taken up by writers on the Woman Movement, without stopping to examine the enormous amount of fatal evidence against it, which we shall now reproduce in part, and which, disregarding the foregoing criticism, was more than sufficient to kill the gynæcocentric theory before ever it was born.

Theories stand or fall, in these scientific days, ac-

[81] Morgan, Thomas Hunt. "Heredity and Sex," p. 1. N. Y., Columbia Univ. Press, 1913.

cording to the way they respond to the rigors of experimental treatment, and the sexual selection hypothesis has been no exception. As soon as the first wave of approbation and acceptance of Darwinian theories had passed, a period of feverish experimental activity set in, which is rising now to a high-water mark. Natural Selection, Sexual Selection, Variation, Heredity, Adaptation, Malthusianism, all the factors of Darwinism were and are still being scrutinized, examined, studied, and weighed in the laboratory. If, then, we turn to these pages in the empirical examination of evolutionary science and search among the records on Sexual Selection, we shall be able to deduce from them some solid conclusions regarding the acceptance or the rejection of the theory.

Butterflies and moths are fairly familiar to the average intelligent layman; the differences in ornamentation are quite marked for the two sexes and the results of a careful investigation in their mating habits would furnish fair material for polemical discussion. Mayer,[32] with this idea in mind, chose to experiment on an American moth (Callo-

[32] Mayer, Alfred Goldsborough. Described on pages 120-123 of Vernon Lyman Kellogg's "Darwinism To-day." N. Y., Henry Holt, 1908.

samia promethea) in which the females are a dull reddish brown and the males are blackish, both sexes having quite different patterns which could easily be distinguished by the female. In accordance with the Sexual Selection Theory, the blackness of the males and the complexity of their patterns should be due to the selection by the female of the darkest and the most intricately ornamental males, during many generations, culminating in the production of the present black individual.

The test of the hypothesis was carried out in the following ingenious way: The wings of a number of females were cut off, leaving only the stumps, to which male wings were glued, thus giving them the appearance of true males. In the same way female wings were glued to amputated males and each group was allowed to mate with normal members of the other sex. In each case the following astonishing results were reported: Mating occurred with normal frequency; normal males paid no attention to males with female wings and even when the wings of the males were cut off and allowed to remain that way they were accepted by their females. Mayer went a step further and proved that the sexes do not locate one another through the eyes but by the sense of *smell* and that males with the

sense of smell artificially destroyed were unable to find females. His conclusions from these critical and revolutionary studies were the only ones possible. "We are, therefore, forced to conclude," he says,[33] "that the melanic coloration of the male has not been brought about through the agency of sexual selection on the part of the female."

The only straw left for the defender of the Ward-Darwinian theories to grab at in the face of this brilliant work is that in some mysterious way the sense of smell is of such a kind that it corresponds to and can be substituted for the sense of sight here lacking. Granting even such an assumption, cases can be sighted, as for example among lizards, where the optic nerve is well developed and where mating was observed by Douglass to occur almost without preference when females were presented with males in the most variable breeding coats, even when without tails. Among the crayfish, though there is sexual differentiation, mating occurs by trial and error, the males during the mating season turning over every crayfish encountered and often attempting to copulate with their own sex. No selection can possibly occur here and mating is obviously brought

[33] Mayer, Alfred Goldsborough. "On the Mating Instinct in Moths." (Psyche, v. 9, 1900, pp. 15-20.)

about by the sense of touch. The evidence soon becomes overwhelming.[34]

In the gypsy moth the males find the females by smell; in the silkworm moth, males with blackened eyes find mates as readily as normal individuals; crabs find one another by touch; ants by odor; spiders by touch; the fruit fly by odor; and in the case of certain annelids and copepods, where the sexes differ markedly, the mechanism of attraction is thrown open to speculation since these animals are sightless, etc., etc. In the case of the annelids, Darwin himself admitted that "the differences do not seem to be of a kind which can be safely attributed to sexual selection."

Yet this is not all. Not only has it been shown that mating is quite independent of sight in many cases, and that therefore the secondary sexual char-

[34] The material used for this chapter has been drawn from:
Kellogg, Vernon Lyman. "Darwinism To-day," pp. 106-128. N. Y., Henry Holt, 1908.
Morgan, Thomas Hunt. "Evolution and Adaptation," pp. 167-221. N. Y., Macmillan, 1903.
——— "Heredity and Sex," pp. 101-31. N. Y., Columbia Univ. Press, 1913.
Geddes, Patrick, and J. A. Thomson. "Evolution of Sex," pp. 8-14. N. Y., Scribner, 1897.
Dewar, Douglas, & Frank Finn. "Making of Species," pp. 297-344. N. Y., John Lane Co., 1909.
Holmes, Samuel J. "Studies in Animal Behavior," pp. 219-238. Boston, Richard G. Badger, 1916.

acters cannot have been produced through the use of this indispensable instrument to selection, but the sexual selectionist is asked to explain how, in a great many cases, the sexes are equally highly ornamented, as in the parrot, cockatoo, kingfisher, pigeon, starling (some), hummingbirds, reindeer, zebra, starfish, etc.; how it is possible to account for the interesting case of polymorphism among butterflies, where there are as many as three differently ornamented *females* to each male; why in many cases birds *after mating* leave the nest and with a *third partner* execute wild flights, evolutions that the Ward-Darwinians suppose to occur only before mating for the purpose of display and choice; why the "deadly" encounters among male mammals are rarely fatal and sometimes sham, thus allowing the vanquished to mate and perpetuate themselves; why many fishes though richly decorated and differentiated should be so, when in most cases the female lays her eggs to be fertilized by the first male who happens along. Surely there can be no selection here, nor among beetles, where the males are so dirty that the colors cannot be seen by the female. Thus we might go on indefinitely, even disregarding some twenty highly technical objections compiled by Morgan, *in themselves* fatal to the

theory, and still find that a substantial case against sexual selection can be made out.

The decision of modern biology in the face of such incontrovertible evidence has been almost unanimous. Delage and Goldsmith [35] in their "Theories of Evolution" think that "the theory of sexual selection is to be discarded in its entirety;" Jordan and Kellogg [36] conclude that "several other serious objections can also be urged against the sexual selection theory, but the most important one of them all is that all the evidence . . . based on actual experiment, is strongly opposed to the validity of the assumption that the females make a choice among the males based on the presence in the males of ornament or attractive colors, pattern, or special structures." According to Dewar and Finn,[37] "Darwin's theory of sexual selection is unable to account satisfactorily for all the phenomena of sexual dimorphism," and Geddes and Thomson [38] conclude that:

[35] Delage, Yves, and Marie Goldsmith. "Theories of Evolution"; tr. by André Tridon, p. 107. N. Y., Huebsch, 1912.

[36] Jordan, David Starr, and V. L. Kellogg. "Evolution and Animal Life," p. 79. N. Y., Appleton, 1907.

[37] Dewar, Douglas, and Frank Finn. "Making of Species," p. 321. N. Y., John Lane Co., 1909.

[38] Geddes, Patrick, and Thomson, J. A. "Evolution of Sex," p. 28. N. Y., Scribner, 1897.

"When we consider the complexity of the markings of the male bird or insect, and the slow gradations from one stage of perfection to another, it seems difficult to credit birds or butterflies with a degree of æsthetic development exhibited by no human being without both special æsthetic acuteness and special training. Moreover, the butterfly, which is supposed to possess this extraordinary development of psychological subtlety, will fly naïvely to a piece of white paper on the ground, and is attracted by the primary æsthetic stimulus of an old-fashioned wall-paper, not to speak of the gaudy and monotonous brightness of some of our garden flowers. . . . And even among birds, if we take those unmistakable hints of the real awakening of the æsthetic sense which are exhibited by the Australian bowerbird or by the common jackdaw in its fondness for bright objects, how very rude is this taste compared with the critical examination of infinitesimal variations of plumage on which Darwin relies. Is not, therefore, his essential supposition too glaringly anthropomorphic?"

Finally Morgan [39] thinks, as before quoted, that "in the light of the many difficulties that the theory of sexual selection meets with, I think we shall be justified in rejecting it as an explanation of the secondary sexual differences amongst animals." These miscellaneous quotations from representative English, American and French authorities, together with

[39] Morgan, Thomas Hunt. "Evolution and Adaptation," pp. 220-221. N. Y., Macmillan, 1903.

the evidence cited, bring us to the inevitable conclusion that the case for the Darwinian theory of sexual selection, and more especially Ward's female-center or gynæcocentric theory of life, has quite collapsed. We have now to pass on to a consideration of the more modern notions concerning the origin and the nature of secondary sex characters.

While modern biologists the world over have long known the limitations of the Darwinian theory of Sexual Selection, they at the same time realize fully the stupendous task involved in finding a substitute theory that will explain away with such brilliantly imaginative ease the infinite phenomena connected with sexual differentiation or the lack of it that are to be found throughout nature. They have not, however, been backward in proposing new ideas with the object in mind of clearing away long-standing difficulties; and for the serious student of biology there is no more interesting field than the study of these theories, especially along the lines of sexual selection. Since the purpose of this book, however, is not to drag the Feminist all over the biological field but to pull him off, a consideration of the alternative hypotheses offered to replace that of Darwin cannot be entered into here. Merely for the sake of completeness, then, an outline of what

is now considered one of the better explanations of the origin of secondary sexual characters will be given.

IX

Briefly stated, secondary sexual characters are supposed to be born in exactly the same manner in which new species come into being—by the process called mutation or discontinuous variation. In the case of new species it was first supposed (Darwin) that in the clash with the environment, the weakest of the species die off, leaving the strong to mate and continue the race. The survivors, parents of the new race, bear progeny varying in a haphazard way along different lines. Some of these variations, proving useful in the struggle for existence, are carried to the next generation, which again varies within itself and again in the same favorable direction as the first variation. This continuous variability series, piling itself up, coupled with the reaction of the organism on its environment and its consequent modification, constitutes, when all the resulting characters have been transmitted for a sufficiently large number of generations, the genesis of new species.

According to our present knowledge, while it is

true that the weaker members of a race die more easily in the struggle for life, it is not proven that acquired characters are transmitted and that continuous variation gives new species. Conversely, it is found that, for some unknown reason, any two parents may at any time bear a child differing radically from themselves; *i. e.,* may throw off full-fledged the first member of a new species which will breed true and whose existence is conditioned entirely by the one factor—the ability to survive in the environment into which it is born. In the same manner a race in which the sexes are identical may suddenly produce an individual differing from one or both of the parents but only in the one sex.[40] This discontinuous variation or mutant will continue to transmit its characters through the one sex indefinitely and possibly augment its difference from the other sex by a further mutation or series of mutations, the differentiating factor being in some unknown manner tied up with the sex factor.

This theory is strikingly illustrated by the case of

[40] For a more detailed account, see:
Dewar, Douglas, & Frank Finn. "Making of Species," p. 341. N. Y., John Lane Co., 1909.
Morgan, Thomas Hunt. "Heredity and Sex," pp. 73-100. N. Y., Columbia Univ. Press, 1913.

tri- and polymorphism among butterflies. In this condition a species consists of a single type of male and two or three different types of *females*. In such a case the older idea would have been that the difference in the female types is possibly due to sexual selection. The difficulty of such an explanation is easily imaginable, necessitating that the males have simultaneously several different tastes, and is further complicated by the entire absence of transitional forms. On the other hand, by assuming that the new forms appear suddenly by mutation, the difficulties of the older theories are avoided and a hypothesis that will withstand the test of experiment (Mendel's laws) is provided, the conditions for existence of the new unisexual variation being only that its new characters are not fatal to its existence.

By means of the newer explanation it is not necessary to assume that the sexes locate one another by the eye, ear, nose, hand, or what-not; or that in some mysterious manner the female of the species has suddenly acquired a rigorous hyper-æsthetic instinct; or that for another reason the male is more variable than his female; or that song, flight, dance, stridulation, etc., are selected values—it is simply assumed that the secondary sexual characters have

sprung suddenly into existence, that the environment did not kill their possessors, and that therefore they exist.

X

In the course of this long digression, the reader may experience a rude wrench when brought back to the beginning of the foregoing sexual selection discussion and reminded that it was occasioned by an inquiry into the reasons underlying the existence of inverted sex types. According to the evidence of sex determination by chromosomes, it was shown that sex is rigidly determined by chromosomic content. It will be recalled, we were attempting to explain the fact that, in spite of this, there exist masculine women (androgynes) and feminine men (gynanders); that some women wear beards, have bass voices, angular forms, etc.; that there are beardless men, with high-pitched voices, womanly habits, etc. From the discussion of sexual selection and secondary sexual characters, it now becomes evident that the androgyne and the gynander are types in which the secondary sexual characters are anomalous. A man or woman who for some reason comes into possession of the secondary ornament of the opposite sex is nevertheless a true sex type, for our

newer knowledge tells us that the apparent inversion of sexuality—shown by abnormality of secondary sex characters—is a pathologic condition which can be reproduced in an artificial way and which has no connection with the real sex of the individual.

If it were possible to transform experimentally a normal highly feminine female, with mammary development, lack of body-hair, wide pelvis, high-pitched voice, and other marks characteristic of her type, into a flat-breasted, hairy, angular, coarse-voiced individual, it would be possible then to determine the factors which influence femininity and masculinity. In the same manner, any simple operation that would partially or completely feminize a normal masculine male would shed light on the mechanism of the process which makes possible the "repulsive gynander" type.

Historically, of course, both of these experiments and the results following from them have been known to man for centuries, not only for the members of his own species but also for the domesticated animals with whom he has lived. During the Middle Ages, and as late as 1800, for example, when it was desired to preserve the high soprano voices of Italian choir boys, an adult feminine character, the result was accomplished by removal of the genital

organs. Among the Pueblo Indians, by excessive abuse of the sex-function, the men have been observed to become "women-men," *i. e.*, the sex-organs atrophy, the beard falls out, and the breasts give milk. In Bombay, ablation of the ovaries is still practiced with the result that the menses are suppressed, the voice becomes harsh, the breasts shrink, the face hairs, and the form becomes masculine.

Modern biology and medicine have been able to study the process at even closer range.[41] Noting the close interdependence between the normal development, physical and psychical, of the secondary sexual characters and disease or removal of the sex organs, these sciences have gradually closed in on the mechanism of this interrelation, and have iso-

[41] Books used in this discussion are:

Tandler, Julius, & Siegfried Gross. "Die Biologischen Grundlagen der sekundären Geschlechtscharaktere." Berlin, Julius Springer, 1913.

Bell, William Blair. "Sex Complex; a Study of the Relationship of the Internal Secretions to the Female Characteristics and Functions in Health and Disease." N. Y., William Wood, 1916.

Sajous, Charles E. deM. "Internal Secretions and the Principles of Medicine." Ed. 6. 2 v. Phila., F. A. Davis, 1914.

Vincent, Swale. "Internal Secretions and the Ductless Glands." London, Edward Arnold, 1912.

Morgan, Thomas Hunt. "Heredity and Sex," pp. 132-60. N. Y., Columbia Univ. Press, 1913.

lated in part the factors determining the apparent masculinity and femininity of the individual.

The biologist, on the one hand, intent on solving the problems revolving about sexual selection and the determination of sex, has tried the effects of castration and transplantation wherever it has been possible in animals exhibiting sexual dimorphism. Everywhere he finds that baffling diversity of reaction that nature has seemingly with intent distributed through its species for his especial bewilderment. Thus, among insects, where the sex differences are so extreme that the male and female often have blood of different color, he observes that removal of the sex glands and transplantation of the organs of one sex into the other fail to produce any changes whatsoever in the secondary ornamentation. On the contrary, removal of the ovary in the young chick permits the resulting hen to develop the plumage of the cock. In birds, the general observation has been that the sex organs of the female in some manner *repress* the assumption of male characters. Brought face to face with the observation that castration in one great animal group (insects) produces absolutely *no* result, and in another (birds) results in a *male* transformation

as soon as the repressive female influence is removed, the biologist has, to add to his confusion, the antithetical case in still another great group (Crustacea), where a *female* transformation comes with the removal of the *male* influence, as in the well-known case of parasitic castration of a certain species of crab, in which the disappearance of the gonads of the male through the agency of the parasites living on him is attended with a full development of the secondary sexual characters of the female, sometimes also, it is claimed, with a growth of the sex organs of the female in place of those of the male.

In the higher species (mammals) where the reactions indicate the case of man himself, it is found that for horned species in which the one sex is horned (usually male) castration represses development of horns or antlers or permits only rudimentary structures to appear. Injection of extract of the testes into females of many species results in the appearance, for a short time at least, of the male secondary characters. In a remarkably successful experiment recently performed by Steinach (and the only one of its kind on vertebrates), a male guinea pig was castrated and the genitals of the female transplanted into him. The mammary

glands, hair, structure, and even sexual behavior of the animal then assumed all the proportions and characters of the true female.

The apparent masculinity or femininity of a given individual is seen then to be dependent highly on (1) the animal group concerned; (2) the presence or absence, euphoria or disphoria, of the sex glands. Remove the sex glands, or transplant them, inject their extracts (ovarian or testicular) and the true male or female immediately changes in all the characters which serve as criteria for judging sexuality, physical and psychical.

XI

Meanwhile the medical scientist, with the vast data of pathology before him, has recorded striking modifications in the secondary sex characters, not only when the sex glands themselves were affected but also when organs which apparently had no connection with them whatever were diseased or atrophied. Adding to his records the data accumulated painstakingly by the biologist, he has finally succeeded in solving the entire mystery surrounding the secondary sexual ornamentation in its physiological and pathological phases. He has collected

and bound together the properties of a whole cycle of organs which, when properly classified, show a common mechanism. Summarized briefly, he has shown that in common with the sex glands, there are a number of other glands distributed throughout the body which each pour into the blood stream a specific substance of unknown constitution, which has the peculiar property of influencing in some way the secondary sexual characters. These substances he has designated by the name "hormones."

All the hormones taken together and poured into the central arterial system not only perform their own missions but interact with, counteract, or intensify the properties of their companion hormones. The sex glands, for example, contribute the properties generally associated with the characters of the typical male and female; *e. g.,* stature, weight, beard, breasts, pelvis, muscles, etc. Other glands—these have all been called from the property they have in common "ductless glands" (since they have no outlet or duct and have no connection with the nervous system)—these other glands modify in some specific way perhaps only a few of those affected by the sex gland; *e. g.,* the thyroid promotes skeletal growth and the development of the sexual gland; the thymus gland exercises an inhibitory in-

fluence upon the development of the testes; the suprarenals regulate blood pressure; the pituitary influences growth and has an indirect influence upon the development of the genitalia.

It can be readily seen from this that the normality as regards sex type is highly dependent upon the balance of development of the "ductless glands" which make up the internal secretory system. Any abnormality in growth of any ductless gland means a proportional change in its contribution of hormones and therefore an indirect change in apparent sex; *i. e.,* development of secondary sex characters. Thus medical science has come to the conclusion that masculinity and femininity are each a function of the activity of all the internal secretions taken together. W. B. Bell [42] in his "Sex Complex," after a painstaking examination of all the evidence in this field, writes:

"The essential fact then to be borne in mind in regard to this subject is that *femininity itself is dependent on all the internal secretions.* It used to be thought that a woman was a woman because of her ovaries alone. But . . . there are many individuals with ovaries who are not women in the strict

[42] Bell, William Blair. "Sex Complex; a Study of the Relationship of the Internal Secretions to the Female Characteristics and Functions in Health and Disease," p. 5. N. Y., William Wood, 1916.

sense of the word, and many with testes who are really feminine in every other respect. This indicates . . . that we can no longer consider that the gonads act alone in their influence on the female characteristics and genital functions, except in regard to the production of ova. We must, in fact, consider the ovaries as part of a system, to which most, if not all, the other endocritic glands belong, and in which these other organs in relation to the reproductive functions figure with as great importance as the ovaries themselves. It must be remembered, too, that when we speak of genital functions of the ductless or endocritic glands, we refer not only to their influence on the integrity of the uterus —anatomical and physiological—but also on the general metabolism, which is influenced to subserve the necessities of the special functions, and on the psychology of the individual."

We can readily understand, then, that underdevelopment or atrophy of any of the ductless glands will result in such a displacement of the normal hormonic equilibrium that the true female or male will take on certain secondary characters of the other sex. Under these conditions, we have a rational explanation for the fact that the apparent sexuality may not be 100% male or female, due to abnormal hormonic conditions, while the true sexuality cannot be otherwise than 100%, due to the fixity of the chromosomic conditions. The mollycoddle, the

sissy, the feminine man, the gynander, the androgyne, the man-woman, the bearded lady, and similar pathological individuals are true sex types in which the internal secretory equilibrium has been disturbed.

We can understand now why removal of the genitals does not always result in the assumption of the characters of the opposite sex. When the sex glands are removed, the remaining ductless glands continue to pour into the system their specific secretions and to maintain an equilibrium among themselves which may leave the castrate in such a condition that his apparent sexuality is very doubtful. It is for this reason that authorities have differed very much among themselves in the descriptions of these types. Vincent,[43] for example, claims that the type approaches that of the infantile. Tandler and Gross [44] hypothecate a type which harks back to what they call a species type in which a sexual development is retained corresponding to the degree of evolution or degeneration of the species itself. Cases are at hand in which a good many of the

[43] Vincent, Swale. "Internal Secretions and the Ductless Glands," p. 69. London, Edward Arnold, 1912.

[44] Tandler, Julius, & Siegfried Gross. "Die Biologischen Grundlagen der sekundären Geschlechtscharaktere," pp. 57-61. Berlin, Julius Springer, 1913.

characters of the opposite sex have been assumed; *e. g.,* the breasts giving milk. The number of cases is so small, however, that even the authorities have been reluctant to make generalizations. The general effect is to produce an individual whose outward sex ornamentation is an expression of the hormonic equilibrium of the remaining ductless glands and, depending upon the virility or quiescence of these remaining parts, the secondary sexual characters take on an appearance which, as we have said, may be variously interpreted as feminine, infantile, or characteristic of the species.

When closely examined in the light of our newer knowledge, the problem presented by Weininger and George, originally based on the purely hypothetical speculations of Weininger and expressed finally in the statement of George that "there are no men and there are no women," is seen to have been an exaggeration drawn from what Jacques Loeb [45] has recently called "the pseudo biology of litterateurs and politicians." Every individual is 100% male or 100% female and his or her apparent sex is really nothing more than an expression of the internal hormonic equilibrium.

[45] Loeb, Jacques. "Biology and War," p. 76. (*Science,* v. 45, Jan. 26, 1917, pp. 73-76.)

XII

Even as the geometrician assumes contrary to Euclid that parallel lines meet at infinity and builds a new geometry unreal and fantastic upon this hypothesis, so the speculative intellectuals in the Woman Movement, assuming an imaginary condition, have worked up a system whose truth is in direct proportion to the soundness of the assumptions from which they have started. Like the speculative geometrician, they have created an interesting toy, beautiful, alluring, complex, useless. Unlike the mathematician, however, they have thrown themselves into a trance condition which urges them to believe that this pure product of their imagination is a reflection of reality. In the foregoing chapter we have tried to remove this hypnotic influence. It is a noteworthy fact that the best works in the feministic field have studiously ignored biological considerations. The works of Olive Schreiner, Ellen Key, Rosa Mayreder, are each an eloquent expression of their author's inmost "bigotry," biases, prejudices, convictions. Each expresses with all the violence of her innermost sincerity the white-hot thought that has been engendered by the suffering of her fellow-women.

Every movement suffers from the softness produced by the coddling of the intellectuals who insist on fondling it. For the old and fully grown movement this has little effect, since the skeleton and proportions have rounded and set; for a young movement—Feminism, for example—one which is still in its comparative childhood, the fondling of the intellectual has left its mark by the deformation impressed upon the infantile, soft, plastic, unossified bones. The George-Wagstaff-Ward-Christie-Gallichan type with nothing to express but the re-digested conviction of the true Olive Schreiner-Ellen Key feminist type is forced to embellish what is felt with what has been learned or read. The result has been in the biological field, for example, the aimless scientific potpourri which we have reviewed in this chapter. Everybody seems to have taken to the newer education which assumes that the child, in order to attain its fullest intellectual development, must be surrounded in subconscious and unconscious ways with all the symbols, signs, pictures, toys, that our modern scientific era dictates as its only proper aura. It remains to be seen whether the savage in the infant will urge it to smash these artificial toys and substitute the legitimate, spontaneous plaything which, the theory of reca-

pitulation tells us, children instinctively take to.

Blanche Shoemaker Wagstaff, C. Gasquoine Hartley Gallichan, Jane Johnstone Christie, Charlotte Perkins Stetson Gilman, Professor W. I. Thomas and Scott Nearing are not content to say in direct and unequivocal language what they think about women and the Woman Movement. Their souls are too full to allow them to express themselves in an impromptu spontaneous manner, so they hie them to the nearest library, hang over the catalogue many days, digging out everything that has been written anent either of the sexes for the last hundred years, then six months over obsolete science and ultra-modern speculation alike, cramming down everything found under the rubrics Male and Female. Finally they emerge from the shaded portals of the Temple of Knowledge, feeling very much like butterflies moulting out of their chrysalides. As full-fledged experts they can now attack the subject with the heavy pomposity that the average German author might use in cataloguing all the opinions since Noah as to the origin, shape, color and form of the hairs on an ant's abdomen.

In the classic manner, they take their readers sagely into their confidence and, scorning such hackneyed terms as Paleozoic, Mesozoic, Carboniferous

—take them gently by the hand and lead them 'way, 'way, 'way back to the time when the landscape was a mosaic of Unicellular beings—here the long story is aptly begun, because in that grand old time, you are told, ALL was Female. Here we have it: "What I wish to establish now is that the male developed after and, as it were, from the female. The female led, and the male followed her in the evolution of life"—contributed by C. Gasquoine Hartley Gallichan.[46] "The female is not only the primary and original sex, but continues throughout the main trunk. The male is a mere afterthought of nature," quoted approvingly by Scott Nearing [47] and J. J. Christie [48] from Lester F. Ward.[49] Charlotte Perkins Stetson Gilman [50] similarly adds: "Biological facts point to the very gradual introduction and development of the male organism solely as a reproductive necessity," and Professor W. I.

[46] Gallichan, Catherine Gasquoine Hartley. "Truth about Woman," p. 44. London, E. Nash, 1913.

[47] Nearing, Scott, and N. S. Nearing. "Woman and Social Progress," p. 12. N. Y., Macmillan, 1912.

[48] Christie, Jane Johnstone. "Advance of Woman from the Earliest Times to the Present," p. 21. Phila., Lippincott, 1912.

[49] Ward, Lester F. "Pure Sociology; a Treatise on the Origin and Spontaneous Development of Society." Ed. 2, pp. 313-14. N. Y., Macmillan, 1916.

[50] Gilman, Charlotte Perkins Stetson. "Women and Economics," p. 172. Ed. 6. London, Putnam, 1908.

Thomas [51] echoes, "Life itself was in the beginning female, so far as sex could be postulated of it at all, and the life-process was primarily a female process, assisted by the male." Many of these authorities are "on the ground floor" as regards nature's secrets and can tell just which way biological evolution will turn next. Blanche Shoemaker Wagstaff [52] is sponsor of the following: "The modern woman's movement may be called the manifestation of an *organic desire* to revert to a compound sex. . . . Hundreds of years from now nature may attain its supreme end by evolving an ascendant form of human life possessing colossal reproductive energies. Man as he is known to-day, will almost cease to exist; occurring only at rarer and rarer intervals, he will be reduced to a mere functionating servility like the male bee, who is a stingless drudge. The superior force of the female will combine infinite generative power."

Of course, after any student of logic has read this "irrefutable" evidence which proves that everything began with the Female, that the male is an

[51] Thomas, William I. "Sex and Society," p. 224. Chicago, Univ. of Chicago Press, 1907.

[52] Wagstaff, Blanche Shoemaker. "Elimination of the Male." (*International*, Nov., 1913, pp. 319-21.)

afterthought of nature, that the male's wonderful development and superiority force him to admit to his mate that she made him all he is to-day—he must agree that all this data can lead to one conclusion only—Woman must have all labor for her province, she must make herself economically independent. In short, because she came before the male existed, it follows she *must* be a Feminist!

If the logician is so easily satisfied, the sophomore fresh from a botanical laboratory is not. He looks with astonishment at the silly controversy as to whether the female or the male cell came first in the beginning—for just now he has been studying a series of plants under the microscope which illustrates the fact that the first beginnings of sex in plants are shown beautifully by a *gradual* increase in size from a neutral *intermediate* type to an enlarged female cell on the one hand and from this type to a small male cell on the other hand. The most primitive cell is midway between the male and female cells in size and character and each of these has developed from it. Priority claims mean nothing then in the plant world.

Yet how has this evidence escaped the ferret-like habits of the Feminist writer-philosopher-educator-biologist-omni-scientist? The only explanation we

can offer is that although the data has existed and has been taught by modern botanists for some years past, it was not included in Geddes and Thomson's "Evolution of Sex," [53] which has so often served as an original source.[54] The very recently published "Evolution of Sex in Plants" by Professor Coulter [55] of Chicago University appeared only in 1914; *i. e.*, after most of the Feminists had "proven" that life starts with the Female from data out of a work written in 1897.

It is rather heartless to nullify so many sentimental analogies that our well-meaning imaginative intellectuals have injected into their works, but science has nothing to contribute in the way of thrilling material for literary hysteria. We must inevitably come to the final conclusion that "science, logic, ethics, sociology, have no conclusions on the question of 'Feminism' which have the validity of 'Physical

[53] Geddes, Patrick, and J. A. Thomson. "Evolution of Sex." N. Y., Scribner, 1897.

[54] The authors themselves wrote in the preface to the edition of 1901:

> "Our hope is that the growing strength of the still young school of experimental evolutionists may before many years yield results which will involve not merely a revision but a recasting of our book."

[55] Coulter, John Merle. "Evolution of Sex in Plants." Chicago, Univ. of Chicago Press, 1914.

Law,' " as Professor Beard [56] puts it. The more progressive elements in our political life, who have paid any serious attention to Feminism as a possible successor to Suffrage, have gradually come to the same view and it is hoped that, as the *New Republic* [57] says, "Before many years are over, the appeal to 'science' will be abandoned. Maybe in the good time coming, the most impulsive biologist will no more dream of deciding whether society gets along further on father-wit than on mother-wit, than of deciding for which of his two legs the sphere is the home."

[56] Beard, Charles A. Letter in *N. Y. Times,* July 18, 1915, sec. VI., p. 10.

[57] Editorial in *New Republic,* Sept. 23, 1916.

CHAPTER II

Psychological and Physiological Foundations;

Sex Differences as a Basis for Sex Spheres

"There is no more fruitless argument than that which seeks to prove the inferiority of woman in comparison with man, unless it be the endeavor to prove their sameness."

ELLEN KEY.[1]

I

"WE claim all labor for our province," cries Olive Schreiner.[2] "Give us labor and the training which fits for labor! We demand this not for ourselves but for the race." And one wonders whether, in this cry for economic independence—whose justice let us assume none will deny—the intellectuals in the Feminist Movement, sitting cozily in their warm well-appointed studies, are thinking in terms of the middle-class professional women, teachers, social workers, art students, whom they have been addressing in the soft shaded light of the Woman's Club auditorium, or whether they are thinking of their more unfortunate sisters, that vast

[1] Key, Ellen. "Love and Ethics"; tr. by M. B. Borthwick and F. L. Wright, p. 45. Chicago, Ralph Fletcher Seymour Co., 1912.

[2] Schreiner, Olive. "Woman and Labor," p. 33. London, T. Fisher Unwin, 1911.

army of jaded girls and spent women pouring out of the shops at night, whose days are passed in the heavy hot air of steam laundries, or behind "rush" counters humanely equipped with stools upon which there is no time to sit, or as operators, with backs and bodies crouching over the motor-driven machine, eyes fastened on the blur of the flashing needle and the stream of disappearing cloth, and whose nights are spent in relaxation at the movies, or in a cheap dance hall, or in entertaining the "young man" in the front parlor with the phonograph in the hope that through him will come freedom. For the worker, man or woman, labor has no glamor—that is why we have Socialists and Wives. With the ditch-digger it is the monotony of the shovel and pickax, with the university professor it is the monotony of old formulæ and blockheads. The working woman will chance the flip of the coin of fortune and gamble the tangible if not dependable comfort of married life and work against the relentless grind and the deadly monotony of the shop. For her, it is wiser in her own mind to be the personal slave of a human feeling animal than the impersonal slave of the adamantine, unfeeling system. Call her a "parasite" with Olive Schreiner, or prove to her that she is selling her

body for the sustenance of her soul, with Charlotte Perkins Gilman, and she will dully shrug her shoulders, for these are only words, and work is work—that she knows. Feminists need to go to Mrs. Atherton to be reminded that "there is something insidiously fascinating in work to women that never have worked." [3] The cry for economic independence will be answered, if it is answered at all, by women who are able to earn a livelihood by intellectual means, for they alone can work under conditions sufficiently mild to enable them to couple motherhood and labor, and they alone have aspirations, ideals, illusions. That is why we have the Woman's Club auditorium filled with professional women, social workers, teachers, art students, etc.

But the call for women to make all labor their province has æsthetic and social limitations as well. "If it could be shown that the women of to-day were growing beards, were changing as to pelvic bones, were developing bass voices," writes Charlotte Perkins Gilman,[4] "then there would be cause for alarm. But the one thing that has been shown in what study we have been able to make of women in in-

[3] Atherton, Gertrude Franklin. "Living Present," p. 272. N. Y., F. A. Stokes, 1917.

[4] Gilman, Charlotte Perkins Stetson. "Women and Economics," p. 159. Ed. 6. London, Putnam, 1908.

dustry is that they are women still. . . . A female horse is no less a female than a female starfish but she has more functions." True enough, women are still women, also functional females; they are still attracted to males; they even mate with them. That they bear offspring, as true females should, has frequently been observed in spite of their additional "functions." To be sure, as Mrs. Gilman affirms, the working woman's flowing beard, narrow hips and bellowing bass voice are not yet assaulting the optic and auditory nerves, in testimony of the horrible contribution of industry to secondary ornament, but the marks are nevertheless present and unmistakable.

It is hardly necessary to hit a man on the head with a sledge-hammer to wake him, nor must he have horns and a tail to prove he is an animal; similarly, it is a queer criterion that requires women to grow beards in order to prove that industry is creating a condition of "alarm" among them. That it is undermining the efficiency of the future mother is undeniable; infant mortality statistics among working mothers have long shown this—in fact, so much so that Feminists have been in the front rank of the fighters for amelioratory legislation, and health records in the city indicate only too strongly

the prevalence of anæmia, chlorosis, neurasthenia, varicose veins and functional disorders among its woman workers. A recent study on infant mortality and its relation to work among foreign-born women in the United States says: [5]

"Perhaps the greatest lesson these studies among foreign mothers teach us is the effect of hard work upon infant mortality. The extent to which prospective mothers increase the family revenue apparently regulates the extent to which their babies die. These women add a few dollars a week to their husbands' earnings, but they pay a dreadful penalty in the loss of their children. Among foreigners those nationalities which limit their women's work to household duties, such as the English and the Germans, have the best luck with their babies. Those peoples, such as the southern and eastern Europeans—Slovaks, Poles, and Serbo-Croatians—who regard their women almost as much as their men as family breadwinners, lose their infants to a much greater degree. And, as though in obedience to a hitherto undiscovered law, the races whose women work hardest pay the greatest penalties of this kind."

Since the circle of women who enter into rural occupations is limited, it is somewhat difficult to estimate their reaction to the arduous type of labor in

[5] Hendrick, Burton J. "Problem of Infant Mortality," p. 725. (*Harper's Magazine*, Oct. 1917, pp. 723-29.)

which they engage. In this connection, it will be interesting to read the reports that will no doubt be soon forthcoming, giving the results of these experiments in the countries that have been at war. Agriculture demands for its pursuit a strong healthy body, and the women who have been engaged in it, either by heredity or by environment, have had to maintain a condition of physical vigor in striking contrast to their weak, becorseted sisters of the city.

II

If these women have gained on the physical side, they have however lost correspondingly on the æsthetic. Professor Edward Allsworth Ross,[6] in his "Changing America," sketches in this connection the following convincing picture:

"Society can have the kind of women it wants. Take the women of eastern Prussia, for instance. These peasant women bear a child in the morning; in the afternoon they are out in the field. There the women work right alongside the men. I have seen them, and what a type they are, squat, splay-footed, wide-backed, flat-breasted, broad-faced, short-necked—a type that lacks every grace that we associate with woman."

[6] Ross, Edward Allsworth. "Changing America; Studies in Contemporary Society," pp. 74-75. N. Y., Century, 1912.

Speaking of women who work in the city, he continues:

"Now, there will be a disappearance of the race, if we extend no hand to help these working girls. What will happen will be that the girls of a distinctly feminine type, the girls who have the qualities of fineness, grace and charm will prove too fragile to meet the conditions. They will collapse and go to the bad, they will lose their health, or if they endure until they are married and become mothers, they will not be able to be mothers of full families, of sons and daughters that will endure to the end.

"But some there be who would stand the conditions. And of what type would they be? They would be of this other type—the type that appears in those peasant women. In three or four generations we would have in this country all through the lower stratum that coarse type replacing the high-strung, high-bred, feminine type which is our pride and which extends up and down through all layers of society in this country. Do we want to have that differentiation of physique? Do we want to have a reversion down in the stratum that has to work with its hands, of the feminine form to the masculine peasant type, to that Flemish-mare type that has lost the charm and grace of woman?"

The ironical Feminist reading this will regard it as an illustration of the universal masculine self-assumed prerogative of dictating what women shall

do and how they must look. When Dr. Ross puts the question as to which type of womanhood is preferable, the question arises,—Whom is he addressing? Feminists will unanimously answer,—He is asking *men* whether they want to buy with their economic power the beautiful, weak, subservient women to whom they are accustomed, or whether their money is to buy a sense-repelling, coarse, self-dependent "cart-horse" type. They will brand the whole thing as an example of what they have been fighting tooth and nail; *i. e.,* the attitude of Nietzsche that "man makes himself an image of woman and woman shapes herself to this image." Anna Garborg expressed it more incisively when she defined womanhood satirically as the "summary of all the peculiarities and idiosyncrasies, the advantages and the faults that make woman desirable to man."

Feminists very likely will even laud this "splay-footed, flat-breasted, broad-faced, short-necked" type. They will point to the inspiration that the ugly laboring man held out to centuries of artists and imaginative writers; they will dwell on how it was neglected, and wax eloquent with the prospect of a Millet or a Meunier, a Tolstoy or a Hauptmann arising to immortalize in paint and marble

and letters this patient, struggling, self-dependent mother whose coarse, repellent exterior, like that of her immortalized brother-worker, is a deceptive mask of the noble spirit within.

This is not idle speculation, for witness what Mrs. Gallichan, Feminist and author of "The Truth about Woman," has seen:[7] "A beautiful woman porter in one village carried our heavy luggage, running with it on bare feet, without sign of effort. She was the mother of four children, and her husband was at the late Cuban War. She was upright as a young pine, with the shapeliness that comes from perfect bodily equipoise. I do not wish to judge from trivial incidents, but I saw in the Gallegan woman a strength and beauty that has become rare among women to-day." Possibly the near future will permit us to see troupes of soulful Feminists leading organized expeditions into railway stations, snatching the luggage from out the reluctant hands of new arrivals, swinging bags and umbrellas gracefully to their heads and trotting off barefooted and equipoised. Of course, Mrs. Gallichan's observations, as must be expected, are colored with her biases. The more prosaic eyes of an American

[7] Gallichan, Catherine Gasquoine Hartley. "Truth about Woman," p. 286. London, E. Nash, 1913.

woman physician in Germany [8] during the war report the 'longshore women of Cuxhaven as being "mere shapeless snags of women—flat-chested and devoid of feminine grace, slouching along with unwomanly disregard of their appearance. And yet, only three years ago, these coarse, frowzy creatures were noted for the sturdiness of their carriage and a certain rugged voluptuousness."

With rare spirit, Mrs. Gallichan reminds us of the enervation and helplessness that civilization brings, for the sounder instinct of less civilized (and less economically fortunate) women has led them to adopt more vigorous forms of calisthenics. "Japanese women," she says,[9] "will coal a vessel with rapidity unsurpassable by man and the pitbrow women of the Lancashire collieries are said to be of finer physical development than any other class of women workers." Mrs. Jack London,[10] who certainly cannot be accused of obtuseness in the judgment of woman's social progress, remarks (in connection with her observations of Japanese women

[8] Dr. Adele N. Phillips and Russell Phillips. "Auf Wiedersehen," Berlin, p. 526. (*Atlantic Monthly*, Oct. 1917, pp. 524-34.)

[9] Gallichan, Catherine Gasquoine Hartley. "Truth about Woman," p. 284. London, E. Nash, 1913.

[10] London, Charmion Kittredge. "Our Hawaii," p. 48. N. Y., Macmillan, 1917.

workers in Hawaii): "Female field laborers may be picturesque in some lands; but I am blest if these tiny Japanese women, with their squat, misshapen bodies and awful bandy legs, and blank, sexless faces, look well in ours."

Spencer and Gillen[11] and other ethnologists have commented on the early senescence of the hard-working savage women, of whom it is said: "As is usual in the case of savage tribes, the drudgery of food-collecting and child-bearing tells upon them (women) at an early age, and between 20 and 25 they begin to lose their graceful carriage; the face wrinkles, the breasts hang pendulous, and, as a general rule, the whole body begins to shrivel up, until at the age of 30 all traces of an earlier well-formed figure and graceful carriage are lost, and the woman develops into what can only be called an old and wrinkled hag." Nor is this condition limited to savage society for, writes Mrs. Atherton,[12] "the fact, of course, remains that the women of the farms and lower classes generally in France are almost painfully plain, and look hard and weather-beaten long before they are thirty." There is no

[11] Spencer, Baldwin, and F. J. Gillen. "Native Tribes of Central Australia," p. 46. London, Macmillan, 1899.

[12] Atherton, Gertrude Franklin. "Living Present," p. 253. N. Y., F. A. Stokes, 1917.

doubt but that men and women alike for the most part would subscribe to the statement of Tolstoy [13] that "to see a young woman capable of bearing children at men's work will ever be deplorable. To see such a woman is like the sight of a rich loam that is covered with gravel for a place or promenade."

III

But æsthetic considerations aside, the nobility of labor indicates nothing but the persistence of good qualities in the face of conditions which tend to destroy them; and just as there is no excuse for the existence of poverty with its concomitant filth and waste of life merely because it is an incentive to activity and attainment, so there is no necessity for making all labor the province of woman, if it is to be bought at a price which, though it produce an economically independent woman and thereby set all feminist souls a-flutter, requires in return a ruthless selection among women in industry; the crippling and decrepitation of their mother-power; and the undeniable wastage of a large percentage of good hereditary material which might be and ought to be saved.

[13] Tolstoy, L. N. "Church and State; and Other Essays," p. 139. Boston, B. R. Tucker, 1891.

Feminists have been curiously blind to these things; they do not seem to be alive to the fact that the working woman who practices self-flaggelation by going to work, like the mediæval monk, attains an ideal but ruins her health. Their works are replete with exalted pictures of women expressing their repressed individualities in industry or realizing their ideals through labor. They prove to you with inexorable logic that the old home has disappeared. If statistics were available, they could show figures for the growth of the institution of the delicatessen shop and how in conjunction with precooked canned goods and predigested foods the old-fashioned kitchen has been almost displaced. They sketch a Utopia in which both the man and the woman devote their days to soul-ennobling labor while their meals are being cooked by a kitchen engineer, a man whose knowledge covers the chemistry of food, dietetics and dyspepsia, and to whom an appeal to Hooverize waste would be an insult; their beds are being made by a gentleman who has prepared a monograph on "Studies of the Temple of Morpheus" and who moves with the rapidity of a moving-picture film shown at double speed; the dishwasher wears tortoise-shell glasses and has simplified his movements so as to satisfy

any expert on scientific management; and so with nurses, carpet-sweepers, seamstresses, the manager of the apartment's dog day-nursery, etc., etc.

The fact of the matter is, as Anna Garlin Spencer puts it,[14] "about 75% of girls who enter trades and occupations between the ages of 14 and 17 years (and this class in the United States constitutes a large part of that wage-earning army of seven million or more women) enter occupations which offer no future of either financial or educational advance." The researches of Warren and Sydenstricker[15] of the Federal Public Health Service show that "approximately one-fourth of the women workers 18 years of age and over employed in the principal manufacturing industries earned less than $200 a year and two-thirds earned less than $400." So much for individuality and its expression; furthermore, the wage-earning girl is so taken up with restoring to her person at night by

[14] Spencer, Anna Garlin. "Woman's Share in Social Culture," p. 118. N. Y., Mitchell Kennerley, 1913.

[15] Warren, Benjamin S., and E. Sydenstricker. "Health Insurance: Its Relation to Public Health." (U. S. Public Health Service. Public Health Bulletin 76, p. 34.) Washington, Govt. Printing Office, 1916.

means of fine clothes and artificial manipulation a simulation of the youth she is being robbed of during the day, that when the home is finally successfully caught and landed, it need not be equipped à la mode; it may lack electric flat irons, vacuum sweepers, automatic washing machines, Maxim-silenced babies, et al.; she will still be so well satisfied that she will even forego the pleasure of returning to her work, the most modern improvement in the home.

It is one of the weaknesses of mankind that it sees mainly what is in front of its nose: that is why our best literature is often thinly disguised autobiography; the recognition of this fact is the reason for the laboratory method of education; it is the explanation as well for many a successful advertising campaign; and it tells us why Feministic literature reflects almost always the atmosphere in which it is born—*i. e.,* that of the middle-class writer whose friends are women of the laboratory, the studio, the newspaper office, the business world, the class-room—women who read the *Boston Transcript,* the *New York Evening Post* and the *Atlantic Monthly,* who know their Nietzsche and Weininger, their Olive Schreiner and Charlotte Perkins Gilman,

their Whitman and Ibsen. The "unrest" of women that the Feminist author always portrays, consequently, seems to be the unrest among women of this class and rarely among the women of the cannery, the cotton-mill, the store, the factory—women who read the yellow sheets for the human interest in "Mutt and Jeff" or "Abie the Agent," whose literature is the *Moving Picture Magazine* and whose "unrest," if there is any at all, is the universal unrest of labor.

IV

When we turn now to a consideration of the scientific facts bearing on the question of sex differences as affecting sex spheres, we meet with an even greater tendency toward forming broad generalization from local impressions; and here, as nowhere else, the appeal to the layman's interest is made through the romance of the clever rather than through the realism of the true.

To any one accustomed to the rigorous proofs and close reasoning of the exact sciences, the methods employed by students of sex differences in reaching conclusions is astonishing. Opening a book on such a subject one would expect it to

begin with some such scientific statement as this: "Male and female of the Genus Homo are identical in their properties and reactions except in so far as (1) the extra X-chromosome possessed by the female creates a difference from her male and (2) the specific hormones of each sex maintain this difference in whole or in part." Then there would follow a detailed account of the attempts to trace differences and their maintenance by hormones. If the discussion happened to swing toward psychological differences it is not improbable that the conflicting positions held by modern psychologists would prove interesting. To the average layman of to-day the psychologist suggests a mystic person with powers even more potent than those of the family physician. He is the sort of person who can neatly entrap you in conversation and with one piercing glance read all the illicit thoughts you try to hide. He may indeed in a rare case be such a person; generally he is not. If he is, it is often in spite of his scientific training, for psychologists have come to the pass in their arguings where they themselves doubt whether theirs is a true science. "Psychology," writes John B. Watson [16] of Johns

[16] Watson, John Broadus. "Behavior; an Introduction to Comparative Psychology," p. 6. N. Y., Henry Holt, 1914.

Hopkins University, "has failed signally during the fifty-odd years of its existence as an experimental discipline to make its place in the world as an undisputed natural science."

What does actually occur when we turn to a modern work on sex properties and differences is this: Suppose the book happens to be Laura Marholm's "Studies in the Psychology of Woman." [17] The book begins in this manner:

"She sat upon her handsome puffed divan, surrounded by many soft embroidered cushions, busily engaged in embroidering one more. Before her, on a table, stood the lamp adorned with a pink shade, and underneath lay books, magazines, colored wools and the pattern of her embroidery. Behind the red glass door of a pretty majolica stove, burning logs crackled and snapped and the long red flames played at hide and seek.

"Her hair was blond and her face was rosy—or was the warm tint only the double reflection from the fire and pink lampshade?"

until one wonders whether this is a scientific inquiry or a Henry James novel.

Suppose again the book happens to be "The In-

[17] Marholm, Laura, pseud. (Laura Mohr Hansson.) "Studies in the Psychology of Woman"; tr. by G. A. Etchison. N. Y., H. S. Stone & Co., 1899.

telligence of Woman," by W. L. George [18] which limits itself, as the title implies, to psychological differences. We should expect to find here, as in the preceding work, an objective record covering every possible variation of each psychic character in the Genus Homo Female. As a matter of fact, we find that the author has taken some sixty-odd women friends, marked each a case and from their methods of arguing war and other questions, recited a narrative which does not pretend to be objective, and has concluded that women are this, that and the other, in confirmation of some very clever opinions that have been maturing in his own shrewd brain this many a year. Are women more moral than men? asks George. Let us see, says the investigator, knitting his thought-heavy brow:

"Women do run up milliners' bills, but men boast of never paying their tailors. . . . Besides women usually pay their losses, while several men have not yet discharged their debts of honor to me."

Then comes the ominous question,—Are women superficial? And adown the corridors of Truth thunders the crushing answer:

[18] George, W. L. "Intelligence of Woman," pp. 25-27. Boston, Little Brown, 1916; also in the *New York Times*, Jan. 9, 1916, sec. IV., p. 15.

"Men do not, as a rule, use postscripts, and it is significant that artists and persons inclined toward the arts are much more given to postscripts than other kinds of men. One might say that women correspond by postscript; some of them put the subject of the letter in the postscript, as the scorpion keeps his poison in his tail. I have before me letters from Case 58, with two postscripts, and one extraordinary letter from Case 11 with four postscripts and a sentence written outside the envelope. This is the apogee of superficiality."

A less pretentious observer, older in years, failing to find anything particularly scientific either in the method or in these results, ventured to suggest that possibly Mr. George's hasty conclusions might be explained by the folly of his youth, to which came the appropriate hot reply:[19]

"I am continuously told that I am too young to understand women, and that I shall know better when I am older. In the first place, I am 34, and if, after being married twice, I am not entitled to opinions, shall I be fitter at 44? I submit that experience has not everything to do with knowledge; man learns all he can up to a certain age, more or less advanced, and then stops."

One need only, then, be thirty-four years of age and married twice to qualify as a psychological expert on the intelligence of women. After the same crite-

[19] George, W. L. "Letter to the *New York Times*," Feb. 18, 1917, sec. VI., p. 56.

rion, persons of this same age and conjugal experience ought to be competent to express an authoritative opinion on chemistry, physics, mathematics and, if they are at all of the school of "introspective" psychologists—on feeble-mindedness.

The circle of observers who see general relations is, however, wide. "Femmes! Femmes!" wrote Stendhal. "Vous êtes bien toujours les mêmes;" and Max Nordau, pseudo-psychologist, repeats: "One woman is as like another that, if you know one, you know all with but few exceptions;" to which John Stuart Mill replies, "One can, to an almost laughable degree, infer what a man's wife is like, from his opinions about women in general." This is, by the way, another illustration of the tyranny of the contiguous, exemplified by the type who, according to Mill, "thinks he perfectly understands women, because he has had amatory relations with several, perhaps with many of them." Everybody seems bent on having a fling. Mœbius holds women conservative; Heine thinks they are revolutionary; Lecky sees them law-abiding and Lombroso as "half Criminaloid;" John Stuart Mill thinks woman so complex that the husband can scarcely understand her; Nietzsche asks why man thinks woman profound and answers, "because he can never fathom

her depths—woman is not even shallow;" Schopenhauer repeatedly affirms that woman's sole function is nothing but reproduction (as if it were possible to conceive of any other or higher function for man!); Herbert Spencer thought woman a man in a state of arrested development; Faguet contrariwise claims "the only difference between the sexes is, woman is a man capable of maternity." Havelock Ellis thinks woman closer to the child than man; but according to Nietzsche, "better than man doth woman understand children, but man is more childish than woman." W. I. Thomas prefaces his "Sex and Society" [20] with the statement that "The body of morphological, physiological, ethnological and demographical data which follows becomes coherent indeed only on the assumption that woman stands nearer to the plant process than man." The assumption of woman's closer relation to the plant is just sufficiently preposterous from the modern biological standpoint that the consequent incoherence of Mr. Thomas's book is not to be wondered at.

It is hardly necessary to point out that these private prejudices,[21] whether or not they come into the

[20] Thomas, William I. "Sex and Society," p. 4. Chicago, Univ. of Chicago Press, 1907.

[21] For elaborate treatment of absurd and contradictory opinions by many writers, see:

procession embellished with technical terminology, have no real value whatever in any serious consideration of sex differences.

V

One of the first substantial attempts to point out a fundamental difference underlying all sex characters was that of Havelock Ellis, who in his "Man and Woman" [22] undertook to prove that men show in all their characters a greater variability than women. While outwardly such a question would seem only of academic interest, a permanent substantiation of the fact that men possess a greater inherent tendency toward producing extreme effects, as, for example, extraordinary tall or short stature, abnormal light or heavy weight, would account at the same time and in the same way for the more frequent occurrence on the psychic side of the extreme phenomenon of genius among men. Moreover, it would negate the most fundamental

Mayreder, Rosa. "A Survey of the Woman Problem"; tr. by H. Scheffauer, pp. 2-7. London, W. Heinemann, 1913.

McCrimmon, Abraham Lincoln. "Woman's Movement," pp. 202-221. Phila., Griffith & Rowland Press, 1915.

[22] Ellis, Havelock. "Man and Woman," pp. 410-427. Ed. 4. N. Y., Scribner, 1911.

conviction of the Feminist; *i. e.,* that with equal opportunity women will move out of their present monotonously low level and show under better conditions the great fluctuations which exhibit themselves in the production of genius quite as often as men do.

According to Professor Thorndike, it would seem futile to lavish training and education of all kinds on women and useless to remove all the social impedimenta barring woman from equal opportunities with men, since even under ideal conditions woman's lesser range of variability limits her to mediocre attainment.

"If men differ in intelligence and energy by wider extremes than do women, eminence in and leadership of the world's affairs of whatever sort will inevitably belong oftener to men.[23]

"This one fundamental difference in variability is more important than all the differences between the average male and average female capacities. For even if the average male capacity were slightly lower than the average for women, still a slight excess of male variability would mean that of the hundred most gifted individuals in this country not two would be women, and of the thousand most gifted not one in twenty. . . . Women may and doubtless

[23] Thorndike, Edward Lee. "Educational Psychology," v. 3, p. 188. 3 v. N. Y. Teachers College, Columbia Univ., 1913-14.

will be scientists and engineers, but the Joseph Henry, the Rowland and the Edison of the future will be men. . . . Not only the probability and 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 such professions as administration, statesmanship, philosophy or scientific research, where a few very gifted individuals are what society requires, is far less needed than education for such professions as nursing, teaching, medicine or architecture, where the average level is the essential." [24]

We have now to investigate the data leading to this, for women, revolutionary conclusion.

If we turn to Ellis's original argument, we find that he has fine-combed pathological sources and found congenital, physical and mental anomalies and abnormalities always more common among males than among females. He catalogues cleft palate, hair lip, club foot, malformed ears, deafmutism, transposition of viscera, cretinism, color-blindness, absence of pigmentation, supernumerary digits and nipples, left-handedness, idiocy and genius, and concludes that since (quoting certain authorities) Jewesses

[24] Thorndike, Edward Lee. "Sex in Education," pp. 212-13. (*Bookman*, v. 23, 1906, pp. 211-14.)

more commonly have the Jewish face than Jews (about the existence of which anthropologists are still squabbling), and the women of a certain tribe show an upturned toe more often than the men (an old tribal character); since in addition "women by their smaller size approximate to the probable smaller stature of man's ancestors" and according to Lombroso are afflicted with conservatism and misoneism; it follows that "we have therefore to recognize that in men, as in males generally, there is an organic variational tendency to diverge from the average; in women, as in females generally, an organic tendency, notwithstanding all their facility for minor oscillations, to stability and conservatism involving a diminished individualism and variability."

It must be remembered that in order to have any weight Ellis's evidence must show that the tendency toward greater variability is inherent; in other words, that the male organism in itself has the intrinsic property of wide range, exclusive of properties acquired from its environment. Now the mere fact that certain characters are present (be they pathological or otherwise) at birth, *i. e.*, are congenital, does not imply that they are inherent, for the human infant's birth is not reckoned from

the conventional date of birth, but from the first instant that the sperm and egg cells unite. Strictly speaking, every child is more or less nine months old at the day of birth, and its true inherent characters have been modified during that time by the environment—the mother's pelvis.

When certain data are presented to us therefore regarding congenital conditions, the statistics indicate nothing as to inherent conditions unless they are further supported by evidence showing whether or not the pathological state of affairs is the natural result of the individual's development or whether it has been contributed by the environment, the mother. To be sure, a great many characters enumerated by Ellis, such as cleft palate, hair lip, club foot, malformed ears, deafmutism, transposition of viscera, cretinism, may be inherent; but it is a fact that any one of them may also be due to diseased parents, accident to the embryo, or malnutrition of the mother. "Recent embryological experiments have shown," writes Professor John Arthur Thomson,[25] "that certain types of monstrosity can be readily induced artificially by subjecting the developing ovum to shaking, alterations of tem-

[25] Thomson, John Arthur. "Heredity," p. 289. Ed. 2. N. Y., Putnam, 1913.

perature, injections of various stuffs, and so on." And Ellis himself has contributed damaging evidence to his own argument by writing that "abnormalities of most kinds having their origin in some arrest of development or unknown *pathological accident at an early period in embryonic development,* are for the most part more common in males than in females." [26] (My italics.)

The evidence relating to malformations would seem then to have very little weight since accident to the embryo cannot be distinguished from inherent effects; on the other hand, absence of pigmentation (albinism) and the appearance of supernumerary digits (polydactylism) are very valuable criteria; for these are really in the nature of mutations (as Professor Castle has shown for "polydactylism in rats") and exact statistics on such variables would furnish good material for determining the relative possibility for each sex producing psychic mutations, in which category genius might be classified. Ellis's examination of the data in this connection, it is to be regretted, is very fragmentary, sometimes not going further than a bare statement of fact.[27]

[26] Ellis, Havelock. "Man and Woman," p. 413. Ed. 4. N. Y., Scribner, 1911.

[27] Pearson claims that wider statistics on polydactylism will lead to contrary results.

Much stress was laid by Ellis on the fact that not only *Genius,* but *Idiocy,* the other extreme, occurs more frequently among males, but the validity of his statistics has been seriously questioned by the investigations of Hollingworth,[28] who showed that the data collected comes from reports giving only the total number of inmates in institutions as to sex, in which case males must preponderate. The explanation for the superiority in number for males lies in their greater exposure to economic stress, which makes deficiency such a handicap that they are more likely to come to institutions at an early age. Feeble-minded women, it is pointed out, may stay at home, peeling potatoes, scrubbing, etc., and so escape sometimes permanently, at least temporarily, the asylum. Total figures on the proportions as to sex of idiots in institutions would mean, then, very little.

Mrs. Hollingworth's figures confirm her interpretations strikingly. The records of the Clearing-house for Mental Defectives at the Post-Graduate Hospital, New York, show in 1000 consecutive cases, 490 males and 273 females under 16; but as age advances and more defective females are

[28] Hollingworth, Leta Stetter. "Frequency of Amentia as Related to Sex." (*Medical Record,* Oct. 25, 1913, pp. 753-56.)

ferreted out, the balance swings the other way, and after 16 years of age there are only 78 males to 159 females, while over 30 years there are but 9 males to 28 females. Hollingworth's work shows how carefully statistical evidence must be interpreted to have any value, and at the same time it furnishes the only evidence we have that at the other extreme to genius (*i. e.*, idiocy) there is no proven greater frequency for males than for females, which conversely indicates that there is a possibility that at the other extreme to idiocy, genius, the deficiency of the female may still be explained away possibly by environmental factors and lack of opportunity.

Now it is a noteworthy fact that Ellis does not present a single fact as to the variation in normal characters. Not a single figure presented shows the results of measurement of size, weight, head shape, psychological reaction or anything of this sort for normal individuals. Only abnormal, or as Ellis preferred "anomalous," conditions are compared. It is not surprising, then, that when Ellis's data were first presented for criticism they drew the fire on this account from a very worthy opponent, Professor Karl Pearson.[29] This gentleman attacked Ellis vio-

[29] Pearson, Karl. "Chances of Death and Other Studies in Evolution," v. 1, p. 256. 2 v. London, E. Arnold, 1897.

lently and scrapping all the pathological data as unworthy of test for variability, he branded the whole thesis as "pseudo-scientific superstition," and proceeded to produce evidence, based on measurements of size and weight taken on a large number of normal adults, entirely nullifying Ellis's conclusion. As a result of careful mathematical tests, he was unable to detect any consistent advantage in variability for either sex.

Ellis in his turn, buttressing his argument with quotations from authorities, defended his pathological data on the ground that the line between the normal and pathological cannot be drawn, so that the variability test still holds. But if this is true, it is difficult to see how the validity of testing variability on the basis of normal characters can be denied, so that Pearson's work and his more scientific conclusions even from this point of view must be accepted. Ellis claimed further that measurements of size mean nothing since there is first of all a tendency for large infants to die during birth or shortly after, and since the male infant is larger than the female, there would be a disproportionate elimination of large numbers of males on the upper scale. The measurements, therefore, of size of normal infants, he claimed, are not valid, while the records of adults

must be entirely eliminated on account of the long and unequal effect of the environment on their characters.

The controversy took on a three-cornered aspect when Montague and Hollingworth [30] entered the field in 1914 with a statistical study of 1000 infants of each sex just after birth. These authors, agreeing that the measurement of adults suffers from the limitation of the necessity for correcting the unknown effect of environment, and agreeing with Pearson as to rejecting pathological data, confined their work to healthy new-born infants, pointing out that if, as Ellis contended, abnormally large infants (mostly males) would tend to be eliminated during birth, this objection could not hold for abnormally small infants, and since variability criteria apply as well at the extremities of maximum and minimum, the greater variability of the male would show itself at the minimum extreme (with abnormally small infants), if it were present, even if it were suppressed at the maximum. Not only were they unable to detect a greater male variability among small infants, but in general their conclu-

[30] Montague, Helen, and L. S. Hollingworth. "Comparative Variability of the Sexes at Birth." (*Amer. Journal of Sociology*, v. 20, 1914, pp. 335-70.)

sions substantiated those of Pearson; *i. e.*, that neither sex at birth has any marked advantage in variability.

So far as can be tested, then, the contention of Ellis has no experimental verification at least for physical characters. As to mental characters, Hollingworth points out that there are as yet no reliable figures, and that even Thorndike's conclusions in 1910 as to greater male variability on the psychic side were drawn from what Thorndike himself admitted was a deplorably small quantity of precise data available at that time. Since 1910 a large number of studies of the mental qualities of school children have been made and the conclusions are so conflicting that no definite superiority in variability can be claimed for either sex. Hollingworth, surveying the whole field, concludes as follows: [31]

"1. The greater variability of males in anatomical traits is not established, but is debated by authorities of perhaps equal competence.

"2. But even if it were established, it would only suggest, not prove, that men are more variable in mental traits also. The empirical data at present available on this point are inadequate and contra-

[31] Hollingworth, Leta Stetter. "Variability as Related to Sex Differences in Achievement; a Critique." (*Amer. Journal of Sociology*, v. 19, 1914, pp. 510-30.)

dictory, and if they point either way, actually indicate greater female variability.[82]

"3. But even if it were established that there *actually* is greater male variability in mental traits, it would only suggest, not prove, that there is greater *inherent* variability. For (a) the opportunity and exercise of the sexes has been dissimilar and unequal; (b) intellectual variability has had survival value for men, but for women it has had little or none—this by virtue of the different parts played by the sexes in the perpetuation of the species.

"4. It must be remembered that variability in and of itself does not have social significance unless it is known *in what* the variability consists—whether in greater range, greater frequency at the extremes, as in flattening of curve of distribution.

"5. It is undesirable to seek for the cause of sex differences in eminence in ultimate and obscure affective and intellectual differences until we have exhausted as a cause the known, obvious, and inescapable fact that women bear and rear children, and

[82] The result of the following investigations proves not even an indication of female superiority:

Courtis, Stuart A. "Courtis' Tests in Arithmetic." (In N. Y. C. School Inquiry Committee. Report, 1911-13, v. 1, pt. 2, sec. D.)

Pyle, William Henry. "Examination of School Children; a Manual of Directions and Norms." N. Y., Macmillan, 1913.

Terman, Lewis Madison. "Measurement of Intelligence," pp. 68-72. Boston, Houghton Mifflin Co., 1916.

Trabue, Marion Rex. "Completion-test Language Scales." N. Y. Teachers College, Columbia Univ., 1916.

that this has had as an inevitable sequel the occupation of housekeeping, a field where eminence is impossible.

"As a corollary it may be added:

"6. It is desirable, for both the enrichment of society and the peace of individuals, that women may find a way to vary from their mode as men do and yet procreate. Such a course is at present hindered by individual prejudice, poverty, and the enactment of legal measures. But public expectation will slowly change, as the conditions that generated that expectation have already changed, and in another century the solution to this problem will have been found."

The condition of affairs, as we must see it, is that the variability question is quite unsettled. There is no proof in sight establishing the greater variability of the male anatomically. As to mentality, it is difficult to measure the adult sexes and their variability, and even if this were easy, the results would mean little since, as with adult anatomical characters, so many factors have been at work that inherent and acquired effects have quite obscured one another. On the physical side the obstruction has been surmounted by taking physical measurements of new-born babies as being an approximation of inherent conditions. No data whatever of the same

kind are available for psychic reactions of infants, so that inherent mentality variation cannot even be approximately estimated.

The question, especially from the more important aspect of mental variability with its promise of offering the possibility of foretelling the capacity of women for future attainment of genius, stands not definitely solved, even in an approximate way, and not *absolutely* solvable. At best, we can have only empirical approximations. There are, however, certain sex properties which on theoretical grounds ought to yield some inkling as to the true, inherent variability of the sexes, and a little speculation in this direction may yield fruitful results.

VI

If we admit that measurements on adults are unreliable, we must admit as well that to a lesser extent measurements of infants are unreliable; for while the former exhibit their inherited characters modified by twenty years or more of their environment, the latter show their inherited characters modified by nine months of their environment. If we could place every fertilized germ cell in the same uterus, we would have theoretically the proper basis for

anatomical comparison at birth of these anatomical characters at least. Of course the new-born infant is too weak to give comparable psychic response at birth; but if we assume theoretically that every child after emerging from the common uterus could be surrounded by the same environment for a year, let us say, at the end of that year, we could begin to get out our puzzle-boxes, etc., and after the manner of the behavioristic psychologist working with monkeys, measure the rate of learning, etc., for infants. This ideal condition of a common uterus and environment is practically realized on a very small scale in the case of twins, and the only reported tests (by Thorndike [33]) failed to show any marked difference in the sexes. Failing then in this speculative possibility, there is still another.

Let us remember that the younger the embryo, the less it has been affected by environment and the more its characters furnish a basis for comparing inherent variability. If we follow this line of reasoning to its conclusion then the conditions for comparing inherent properties would become better and better as we pass down through the various embryonic stages, until measurements of characters a few mo-

[33] Thorndike, Edward Lee. "Educational Psychology," v. 3, p. 247. N. Y. Teachers College, Columbia Univ., 1913-14.

ments after fertilization would furnish the best variability comparison basis. Of course this is an impossibility, since characters have not yet developed or are microscopically small. But there is still at this point evidence which tells which of the two sexes, on mathematical grounds, ought to be inherently the more variable.

It must be remembered that the female cell at this stage has its future structure bound up in 48 units (chromosomes) while the male has only 47. This discrepancy in the number of chromosomes ought to indicate something as to the number of different individuals that may result from each, *i. e.*, the variability, since in the case of different species it has been calculated [34] that an animal with 16 chromosomes can yield 65,536 combinations; one with 24 chromosomes, as many as 16,777,216 different individuals; and one with 36 chromosomes, the extraordinary number of 68,719,476,736 combinations! If the male and female represented two different species in which the chromosomes numbered 47 and 48 respectively, the difference in the number of possible combinations would stand therefore overwhelmingly in favor of the female, since

[34] Sutton, Walter S. "Chromosomes in Heredity." (Biological bulletin, v. 4, 1903, pp. 231-248.)

she has a superior number of chromatin units; but under the present conditions, where the difference in chromosomic content is confined within the two sexes of one species, the conclusions to be drawn may be very different. Let us consider, then, in detail the phenomena surrounding chromosome combination, in order that any advantage in number of combinations may be assigned to the proper sex.

Let us recall that before the germ cells unite they go through a process called maturation, whose end effect is to reduce the total number of chromosomes (47 or 48) in each cell to one-half (23 or 24, as the case may be), so that when the egg cell unites with the sperm cell the original number (47 or 48) shall be restored. If we examine maturation for each of the sexes we shall see that the details of its mechanism are quite different (see accompanying diagram). If we consider the male sperm first, it will be observed that the 47 chromosomes arrange themselves in pairs (23 in all), leaving the X-chromosome unpaired. The pairs then unite and at this stage split longitudinally to form two cells, one of which carries with it intact the unpaired and unsplit X-chromosome—thus producing one sperm of 23 units, and one sperm of 23 units plus the X-chromosome. The thing to bear in mind is that the X-chro-

DIAGRAMMATIC SKETCH of MATURATION (combine with diagram Chap. I on sex determination)

mosome in the male cell does not pair or split as do the others.

Now contrast maturation in the egg. Starting with 48 chromosomes, *i. e.*, 46 ordinary and 2 X-chromosomes, *all* the chromosomes arrange themselves in pairs, then unite in pairs, the two X-chromosomes becoming fused [35] into one, and then all *24* fused units split longitudinally, yielding the final 24-chromosome egg, consisting of 23 ordinary and one X-chromosome, ready for fertilization. Now this *24*-chromosome cell is different from that of the male 24-unit cell, since its X-unit has fused with another and has been split, while the male X has not fused or split. This is an important observation to bear in mind. For just as a species reproducing with two sexes gains a variability advantage over asexual species by the fact that it can intermingle the heredity of two individuals, whereas the unisexual type can merely divide and reproduce only itself, so the fusion of the two X-chromosomes in the egg cell and their consequent

[35] Biologists are not sure as to whether fusion really occurs or not. Morgan has experimental evidence showing that they merely twist around one another and split at crossover points; however, the end effect is the same, *i. e.*, an interchange.

See:

Morgan, Thomas Hunt, and others. "Mechanism of Mendelian Heredity." N. Y., Henry Holt, 1915.

splitting in maturation confer a superiority in variability on its X-chromosome over that of the unfused, unsplit male cell X-chromosome, in the same way as in the case of bisexual and unisexual species.

When fertilization takes place, if a sperm of 23 chromosomes lacking the X-unit enters the egg cell, the consequent fusion produces a 47-chromosome, male-producing cell, and its one X-chromosome, derived from the egg, is one that has fused and been split. If, contrariwise, a sperm of 24 chromosomes, containing an unsplit, unfused X-unit, enters the egg, the resulting female-producing cell contains not only the fused and split X-chromosome of the egg but additionally the unsplit, unfused X-chromosome of the sperm.

What interpretation are we to put on these phenomena? First of all, they mean that, since the number of ordinary chromosomes is the same for both sexes, any variability advantage must lie in the X-chromosomes; and since the male cell always contains an X-chromosome contributed by the egg, it means that if the male is a more variable animal this is due to the miniature process of conjugation which goes on in the egg cell during maturation, as a consequence of which each X-chromosome of each mature egg cell, and therefore the X-chromo-

some of the male, is a fused, and because of this fusion, a more variable unit. That is, any superior variability that the male *may* possess is due to processes going on in the female. The female cell always contains *in addition* to the one X-chromosome that the male possesses, the unfused X-chromosome contributed by the sperm cell. The presence of these two X-units as contrasted with *one* for the male means that the female contains two doses of variability to one of the male, for whatever variability the male X possesses, as we have shown, is of female origin.

We can state the whole matter more clearly and simply in another way. Let us suppose that a certain character drops out of the X-chromosome of the male. In maturation, then, only one of the two types of sperm cell will carry this variation; *i. e.*, the one containing the X-unit. When fertilization occurs only those individuals developing from a sperm receiving the X-unit will show this variation; that is, the variation will be transmitted to females and not to males. If, on the other hand, any character should drop out of either of the X-chromosomes of the female, the egg must carry this variation in its mature X-chromosome; therefore, since the egg may develop into a male or a female upon

fertilization, the variation will be transmitted to either the male or the female resulting from it. We have then this condition: Variations in the X of the male cell are transmitted to females only, variations in the X's of the female cell are transmitted to both males and females. Therefore, since variation has two sources for the female and one for the male, it should occur more frequently in the female. This conclusion is dependent on the assumption that the possibility of variation occurring in the *ordinary* chromosomes is equal for both sexes, which we should expect from their equality in number.

There is yet one other way that we may look at cell phenomena as indicating variability. The mere presence of two X-units in the female as against one in the male would lead us to expect greater variability in the former. The justification for this expectation comes from the recent experimental work on the mechanism of Mendelian heredity. The evidence from this source tells us that the X-chromosomes in a cell, just as ordinary chromosomes, have distributed along their length at certain definite points or within certain regions the factors for producing certain characters. If we have two X-chromosomes in a cell standing upright, every

point on one unit representing a certain character has on the other unit, at every point directly opposite it, a corresponding representative of the same character. If these factors happen to be of the same kind they will reënforce one another; if different, they will antagonize or modify one another; and the effects may often be very great.

Thus assume a cell which has but one X-chromosome and at a certain point on it there is a factor for sex; this cell as we know will develop into an individual with all the distinctive characters of the male, and yet if there happens to be in the cell another X-unit, containing also, as it must, at a corresponding point, again the factor for sex, the two factors together give us as we know the entirely dissimilar female. If we bear in mind that factors as they exist in chromosomes are not nicely ticketed points guaranteed to produce, let us say, pink eyes, or bandy legs, but sensitive chemical complexes, as they are, ready to produce entirely dissimilar structures with the least change in chemical or physical environment, we can begin to understand how such amazingly diametrical results are possible. At the same time we can gain an insight into the vast number of possible reactions, combinations, and re-combinations that may occur as the result of bringing

into the reaction sphere of one X-chromosome, an already complicated chemical structure, another X-chromosome with a like intricate arrangement of parts. The range of possible equilibria must necessarily be large; that is, the inherent variability of the female with two X-units reacting on one another will be greater than that of the male with his constitution fixed by one X-unit standing by itself.

Summarizing the results on variability, we may say:

1. There is no experimental evidence proving directly that either of the sexes is more variable than the other, anatomically or psychologically.
2. Neither is there any evidence that one or the other is inherently more variable.
3. It seems impossible actually to measure inherent variability and
4. Speculation as to which sex is *probably* more variable inherently leads to the conclusion that the female at least equals the male and not improbably surpasses him.
5. The variability of the male is due to processes going on in the female.

VII

The question now arises as to why, if women are really as variable as we have been led to believe—

why it is that they have not produced geniuses in numbers comparable to men. The explanation offered by Hollingworth is that too much of their energy has been diverted into reproductive and household channels, notably the former, where eminence is impossible. Probably if a common measure of genius could be found, it might be shown that as mothers the gifts of women have been as great as those of men in music, literature, mathematics and the like. The newer social psychologists have stressed the far-reaching importance of sex-originating impulses as determining the trivial as well as the most deep-seated of our life activities. Any appreciable drain on energy of sex origin, such as motherhood demands, would consequently divert and reduce the total of energy which otherwise might go into the making of a woman genius, and give us a different and very likely a comparatively mediocre product. The obviousness of this limitation to woman's attainment of genius has forced even Feminists to admit its power; and they have expressed it through one of their ablest spokeswomen, Ellen Key,[86] who with unrestrained and characteristic honesty affirms that "woman, by her

[86] Key, Ellen. Quoted by A. L. McCrimmon in his "Woman Movement," p. 218. Phila., Griffith & Rowland Press, 1915.

maternal functions, uses up so much physical and psychical energy that in the sphere of intellectual production she must remain of less significance."

How important this matter of sex activity and energy is considered by modern psychologists may be best illustrated by the following from Professor John B. Watson:[37]

"The student of behavior, when some of the more pressing problems have been solved, will be interested in the types of stimuli which jointly arouse movements in the striped muscles and in the unstriped muscles and glandular tissues in the sex zones, and in the finer analysis of the movements themselves. He will try to determine whether such stimuli arouse these movements by inherent connections or through habit. . . . His primary interest, however, will be engaged in determining the effect of these impulses upon overt movement, since it is highly probable that they are responsible for so-called preferences, which play such an enormous rôle in the daily life of the human being, and for the many forms of artistic, æsthetic, and religious modes of response. To those who have inherent objections to admitting that the æsthetic, artistic, and religious sides of life are at bottom sexual, this view will not sound convincing. Fortunately,

[37] Watson, John Broadus. "Behavior; an Introduction to Comparative Psychology," p. 25. N. Y., Henry Holt, 1914.

thanks to the work of scientific students of social phenomena, we are fast losing our prejudices against admitting the *sex reference of all behavior.*"

Havelock Ellis, in a recent discussion of genius,[38] has well said that its "energy is derived from a reservoir which . . . normally yields the energy of sex or the energy of war, and in genius is diverted into a new channel."

Ellis's allusion to the connection between genius and pugnacity is highly suggestive, for numerous authorities have made similar suggestions. Thorndike, for example, points out [39] that the life activities of men and women are necessarily different because the male has a well developed fighting instinct and the female an equally developed mothering or nursing instinct. It is largely the female's non-resentment to being surpassed and overcome, *i. e.*, her lack of pugnacity, contrasted with the male's sensitiveness to any challenge, which determines relatively the great difference in high attainment. In fact, there is a certain amount of more or less well-founded opinion which attributes to women actual satisfaction in being overpowered. Wester-

[38] Ellis, Havelock. "Mind of Woman." (*Atlantic Monthly*, v. 118, pp. 366-74, Sept. 1916.)

[39] Thorndike, Edward Lee. "Educational Psychology," v. 3, p. 202. N. Y., Teachers College, Columbia Univ., 1913-14.

marck,[40] analyzing the reasons for the subjection of women in savage society, thinks that: "Wives' subjection to their husbands is due to the men's instinctive desire to exert power and to the natural inferiority of women in such qualities of mind and body as are essential for personal independence. . . . In the sexual impulse itself there are elements which lead to domination on the part of men and submission on the part of women." Among certain Slavic races the women consider it a sign of affection to be beaten, and the wives of Italian Camorrists are said to consider their husbands fools if the conjugal ration of kicks is not delivered daily. Havelock Ellis, who has gone into this question in some detail in his "Psychology of Sex," [41] thinks that the woman standing in front of Rubens' "Rape of the Sabines," exclaiming, "I think the Sabine women enjoyed being carried off like that," is characteristic of a more general feeling among her sex. "Woman wants to be possessed," writes Nietzsche. "Man wants to possess; that is love, and this dies with the possession."

[40] Westermarck, Edvard Alexander. "Origin and Development of the Moral Ideas," v. 1, p. 657. Ed. 2. 2 v. N. Y., Macmillan, 1912-17.

[41] Ellis, Havelock. "Studies in the Psychology of Sex"; v. 3, "Analysis of the Sexual Impulse," p. 75. 5 v. N. Y., F. A. Davis, 1901-06.

This lack of pugnacity and the desire to be overpowered, are explained possibly by the lesser strength and size of the female. Recent studies of the sex psychology of monkeys have shown that even among members of the same sex it is common for the weaker members to offer themselves as sex subjects to the stronger.[42] Other things being equal, men find themselves moved and subjugated by personalities embodying superior size and strength. This is why a Russian revolution pivots in its critical moments about the mountainous Rodzianko; the I. W. W., depending essentially on the mob element, moves with the body of "Big Bill" Haywood at its head; the giant Bismarck commits Germany to a policy of blood and iron; and the tempestuous Garibaldi leads the volatile Italian redshirts in their conquests. It is significant also that the weak and puny Nietzsche should have been overpowered by the vision of his Superman, and that he should have made him a great "Blond Beast." In the Woman Movement the same tendency manifests itself in the continual springing up of attempts to prove the existence of a Matriarchate

[42] Kempf, E. J. "Social and Sexual Behavior of Infrahuman Primates with Some Comparable Facts in Human Behavior." (*Psychoanalytic Review,* v. 4, No. 2, April, 1917, pp. 127-54.)

dominated by women of the Amazon type. The most persistent champion of this strong-arm Woman, Mrs. Gallichan, is however so little convinced that she has written three or more books [43] attempting to prove her thesis to herself and everybody else, besides prevailing upon Mr. Gallichan, possibly by matriarchal methods, to publish studies along similar lines.[44]

On the one hand, therefore, we have genius influenced on the energy side by sex activity, which in motherhood with its physiological sex phenomena must have far-reaching psychological consequences; and on the psychological side by the instinctive behavior connected with the consummation of the sex act extending itself into the general activities of the individual.

That genius requires as well the proper internal and external conditions in which to develop must be admitted. A master chess player, for instance, will often refuse to play in a tournament because

[43] The more important works are:
Gallichan, Catherine Gasquoine Hartley. "Truth about Woman." London, E. Nash, 1913.
——— "Age of Mother-Power; the Position of Women in Primitive Society." N. Y., Dodd Mead, 1914.
——— "Position of Woman in Primitive Society; a Study of the Matriarchy." London, E. Nash, 1914.

[44] Gallichan, Walter M. "Women under Polygamy." London, Holder & Hardingham, 1914.

of a bruised finger. Experience has taught him that the slightest subconscious distraction prevents maximum concentration. A personality of great intrinsic worth, potentially a genius, sometimes dies without expressing itself, through the accident perhaps of being a victim at the same time of *Slav inproductivité*. Conception, imagination and the ability for execution may be present but ennui, lack of economic pressure, or lack of vanity, a volatility or lassitude or laziness that turns in revulsion from the operation of mechanically recording psychic reactions, or more likely lack of conditions for concentration, leave the gifted one on the scrapheap of talent in complete obscurity.

If genius is considered in the nature of a mutation arising suddenly in the species, it may be well to point out that especially in such a case does it require proper surroundings. Morgan [45] isolated a mutant fly with supernumerary legs and found that only when reared at the optimum of ice-box temperature did the flies with additional legs appear in quantity.

"A Darwin born in China in 1809," writes Cat-

[45] Morgan, Thomas Hunt, and C. B. Bridges. "Sex Linked Inheritance in Drosophila," p. 31. Washington, Carnegie Institution, 1916.

tell,[46] "could not have become a Darwin;" more likely he would have become a priest, an herb doctor, a cunning river pirate, or a sharp fish dealer—the qualitative superiority of his mind would manifest itself in some other direction. Undoubtedly, as Cattell says, the graveyards of Russia and China, and we may add India, are full of "mute, inglorious Miltons, Lincolns and Darwins." According to him, "The most exceptional ability may be suppressed by circumstances. . . . There may be a hundred thousand men and women having the natural and specific ability of the thousand in this country who have accomplished the best scientific work." The obscure peasant, endowed possibly as richly as a Beethoven, a Cesare Franck, a Tschaikowsky, lacking the opportunity for acquiring formal knowledge, leaves us the deathless, informal folk-song or, not having heard of feet and meter, gives us the equally long-lived ballad. A Liszt, or more especially a Chopin, with the special physiological and psychological structure for manipulating a piano keyboard through the accident of training for the violin might have attained only mediocrity with this instrument, which requires for its exploitation a different set of

[46] Cattell, J. McKeen. "Families of American Men of Science." (*Popular Science Monthly*, May 1915, pp. 504-15.)

specialized muscles and a specialized tonal sensitiveness of a different kind. A child with a vivid sense of rhythm and a delicate ear may by pure chance of training become a great musician, a great poet, or neither of these.

It must be remembered that the arts, especially in their higher aspects of development, are the artificial creations of man; that is why we do not naturally take to the activities to which we are best fitted—if we are to believe the vocational psychologist and the vocational educationalist—and that is why it is not surprising that women, trained as they have been, when they have been trained, for the duties of the kitchen and the nursery, have not broken out as great inventors, mathematicians, physicists, chemists, poets, and what not. The woman of genius thrust into the kitchen, taking her job seriously, finds her ingenuity dissipated in routinizing her work, in marketing and feeding scientifically, in decorating and arranging the home so as to furnish the subtle psychological atmosphere for repose, rest, or recreation. "Going into a country kitchen to make a cup of coffee from the beans," Ida Tarbell relates,[47] "the writer found that the cof-

[47] Tarbell, Ida M. "Ways of Woman," p. 30. N. Y., Macmillan, 1915.

fee mill was taken down after each grinding and its two parts kept in different rooms—twenty steps apart. The coffee was twenty-five steps from the mill. The coffee mill was ten steps from the pot, and when the coffee was ready for the stove, the stove was in another room!" There are thousands of women with the mentality of Ida Tarbell and unnumbered super-Ida Tarbells spending their lives in kitchens, expending their energies in the minutiæ connected with avoiding conditions like these, when the same ability could be turned into fields leading to eminence.

Women who have succeeded in doing things have had to learn to harmonize and synchronize the dreary routine created by their body children with the creation of their brain children. Writing of the training received by the grandmothers of America to-day, Ida Tarbell tells us:[48]

"The child was set at sewing or knitting at three or four—not that she might produce a sampler or a stocking or a quilt, but that she might learn to use her fingers and to use them regularly. She was required to listen to the reading of severe and pious books while she worked—the 'Lives of the Saints' or 'Goldschmidt's Animated Nature'—that she

[48] Tarbell, Ida M. "Ways of Woman," p. 36. N. Y., Macmillan, 1915.

might acquire the habit of using her fingers, one of the most valuable aids a woman can have and something which our present training rarely takes into account. It was this sort of discipline that made it possible for Harriet Beecher Stowe to do housekeeping and care for her babies while she wrote 'Uncle Tom's Cabin.' She had been required as a child to listen to good stiff literature while she worked—her thoughts had been taught to keep time with her fingers."

VIII

Looking over the various factors influencing genius among women here discussed, the one which concerns itself with the energy demand of the maternal instinct is very likely the one which has made and will make the biggest inroads on her attainment of genius. Mrs. Atherton has recently declared her conviction that the most favorable time for women to express and exercise their individualities is when they have reached middle life and have passed through the age of an insistent sex impulse. Then, with the maternal instinct satisfied, the personality can grow and develop unhampered. According to her,[49] "If women are to compete with men on anything like an equal basis, it is when they

[49] Atherton, Gertrude Franklin. "Living Present," pp. 246-47. N. Y., F. A. Stokes, 1917.

are in their middle years, when nature's handicaps are fairly outgrown, child-bearing and its intervening years of lassitude are over, as well as the recurrent carboniferous wastes and relaxations. . . . Every healthy and courageous woman's second vitality is stronger and more enduring than her first. Not only has her body, assisted by modern science, settled down into an orderly routine that is impregnable to anything but accident, but her mind is delivered from the hopes and fears of the early sex impulses which so often sicken the cleverest of the younger women both in body and mind, filling the body with lassitude and the mind either with restless impatience or a complete indifference to anything but the tarrying prince." Mrs. Atherton has admitted for her sex that until and unless the maternal instinct is satisfied, woman's psychic activity is impeded or restrained.

Doubtless, as Hollingworth points out, maternal instinct must be distributed according to the laws of probability so that there are a certain number of women completely lacking in it, another class possesses it superabundantly, while a large group has it in moderate quantity. Man's survival undeniably is attributable in large part to the generous supply of maternal instinct the female of the species

has retained. It may even be, and Mrs. Atherton's notions seem to favor it, that woman has developed for the sake of the species more of this instinct than is good for her as an individual. Biologists are able to show that the well-being and in certain cases the very life of the individual may be sacrificed for the instinct of reproduction; the California salmon, for example, enters fresh water to lay its eggs and thereby dies. A large number of insect species are known in which the deposition of the eggs means rupture of the abdomen and consequent death, and Feminists never tire of narrating how the large female spider and manti almost devour their spouses in the act of mating.

For women and for men alike the reproductive instinct has always been a divertant. Lombroso has enumerated a large number of male geniuses who consciously avoided marriage in order to have more time for study; a still larger number have been sterile (though not chaste) and Cavendish, Ruskin, and especially Carlyle were sexually frigid. In the case of women, George Eliot, the sisters Brontë and Jane Austen were either unmarried or not markedly sexual. George Sand, forsaking husband and family, continued her intense maternalism by playing mamma to the world geniuses of her time;

and the genius for the larger maternalism has manifested itself in such women as Jane Addams, Florence Nightingale, Ellen Key, Valentine Thompson and unnumbered others, who have never had their own body children. Lombroso [50] quotes Bacon as saying that: "The noblest works and foundations have proceeded from childless men, which have sought to express the images of their minds, where those of their bodies have failed. So the care of posterity is most in them that have no posterity." According to Nietzsche, "When a woman has scholarly inclinations there is generally something wrong with her sexual nature. Barrenness itself conduces to a certain virility of taste; man indeed . . . is the barren animal." Herbert Spencer, speaking of George Eliot, thinks that: [51] "In her case, as in other cases, the mental powers so highly developed in a woman are in some measure abnormal, and involve a physiological cost which her feminine organization will not bear without injury more or less profound."

[50] Lombroso, Cesare. "Man of Genius," p. 13. London, W. Scott Publ. Co., Ltd. (Bacon in Essay VII, "Of Parents and Children.")

[51] Quoted by Havelock Ellis in his "Man and Woman," p. 212. Ed. 4. N. Y., Scribner, 1911.

All this evidence expresses in diverse ways the fact that in both man and woman there is a certain relation between sexual and psychical activity. Biologists have been long aware that the brooding instinct in fowl is, for example, a very definite hereditary character which may be followed and cultivated from line to line. Morgan has recently shown that fertility is also a very definite hereditable character. He was able to produce sterile and extremely fertile strains at will. In the same way the reproductive and the paternal and maternal instincts are inherited in man and their claim of energy has probably influenced the flow of energy in the direction of genius. The Freudian notion that a suppressed sexual condition finds a means of expressing itself in some other way is no doubt involved in some manner; that is to say, as Ellis suggests, the energy for genius comes from a suppressed or transformed sex source.

The evidence of Lombroso seems to show that where the reproductory and paternal instincts have been weak, the conditions for genius expressing itself have been best, and the testimony of Mrs. Atherton and of Ellen Key favors the view that a satisfied or non-existent sex instinct is favorable to the

freest mental activity of women. The actual energy demand made on men in the exercise of their instincts is, however, practically negligible whether or not they are utilized to their fullest extent, as compared with the corresponding diversion of energy called for in the case of women. Even if it is admitted that the reproductive instinct is as strong in women as it is in men, it cannot be denied that the maternal instinct and its energy-absorbing power is greater than that of the paternal instinct in man, and in this difference of proportion lies the probable explanation for a large part of the difference in genius production for the two sexes.

The problem of sex and genius, in its various interrelations, is rendered even more paradoxical by the fact that, as the Hollingworths put it in their "Vocational Psychology": [52] "After about twenty years of collecting data by scientific experiments, the hypothesis that there is any innate sex difference in average intellectual ability has been abandoned by all psychologists who base their statements on scientific evidence." The conclusions of one of these psychologists especially qualified to speak on this

[52] Hollingworth, Harry Levi, and L. S. Hollingworth. "Vocational Psychology; Its Problems and Methods," p. 227. N. Y., Appleton, 1916.

matter is interesting. Professor E. L. Thorndike, in his "Educational Psychology," [53] writes:

"The individual differences within one sex so enormously outweigh the differences between the sexes in these intellectual and semi-intellectual traits, that for practical purposes the sex difference may be disregarded. . . . As is well known, the experiments of the last generation in educating women have shown their equal competence in school work of elementary, secondary and collegiate grade. . . . The psychologists' measurements lead to the conclusion that this equality of achievement comes from an equality of natural gifts, not from an overstraining of the lesser talents of women. . . . The differences of men from men and of women from women are nearly as great as the differences between men and women." [54]

The old controversialists in this field used to point at the greater average brain-weight of the

[53] Thorndike, Edward Lee. "Educational Psychology," v. 3, pp. 184 and 205. N. Y. Teachers College, Columbia Univ., 1913-14.

[54] It is significant to note that Ellis has written a whole chapter in which all the evidence collected points to the fact that woman's intellectual development is and has been far inferior to that of man. The evidence and authority offered are of the kind that collapses entirely before the scientific work of recent psychologists, who have shown intelligence to be equal for both sexes. None of his material is here quoted and it is not unlikely that a good deal of the work done in contiguous spheres, in which the evidence and authority are of the same kind, will be proven equally transitory with the development of scientific methods of attack in these fields.

male as proving once and for all his intellectual superiority. Later it was shown that woman's body-weight was also less, and that for each unit of body-weight she carried a greater weight of brain. It was not long before all reference to brain-weight evidence was therefore abandoned. The next line of attack was the psychological test. It is not surprising that many psychologists, starting out with the conviction that men occupied a superior position, should have reported results in accordance with their convictions. The entrance of woman-psychologists into the field, however, has had a wholesome effect. Though the detection of inaccurate methods and unfair interpretation of results has not originated entirely from them, their presence in the field has helped toward bringing the conclusion that there is no definite psychological proof of superiority to the stage where it is being rapidly and universally recognized.

The complications introduced by the investigations of psychologists have left the genius question in very much of a muddle. Robbed of proof making it possible to show by direct measurement that men are intellectually superior to women, psychologists have been hard put for an adequate explanation of the facts as they exist. The proof of the pudding

is certainly in the eating and no one can deny the greater frequency of occurrence of genius among men. Unless the methods of measuring psychological conditions are radically at fault, or statistical data has been consistently misinterpreted, the workers in this field are finding themselves at their favorite indoor sport of creating a theory to fit the facts.

As we have pointed out in another connection, it is a weakness of mankind that it sees mainly what is in front of its nose. Most men feel, and believe, in fact *know,* that they are intellectually superior to women, because they are matching wits with women every day and excelling them. For them that is sufficient proof. No doubt there are psychologists who *know* and *believe* and *feel* the same way. But the tantalizing fact is that the recognized and established methods of testing these things fail to yield results to match up with these convictions. The natural tendency is, then, to appeal to factors that can only be weighed and measured with difficulty and are therefore immune to a certain extent from mortal attack.

The first attempt of this kind, that of Thorndike, offering greater *variability* as an explanation, was put forward when the evidence was by his own admission fragmentary and cannot be maintained in

the face of the diametrically opposite results reported since then by many investigators. His suggestion regarding the lesser pugnacity of women, however, no doubt has considerable material basis. Hollingworth seems to cover even a larger field when she suggests that woman's preoccupation with maternal and household matters has been the great limiting factor, and her ideas gain great support by Mrs. Atherton's contention that only after these maternal demands have been satisfied can women express themselves most freely. The solution of the problem can come only when such a condition of society has been brought about that will allow women, as Hollingworth hopes, to "find a way to vary from their mode as men do and yet procreate." Until then direct evidence will be lacking and the solutions offered will continue to originate from the same unsatisfactory speculative source as we have been forced to adopt in these pages.

The question of the distribution of genius between the sexes is only one aspect of the wide generalization we have been considering as regards superiority in variability. The variability notion in turn had its origin in the attempt to find a single factor covering all the differences between the sexes. On the whole, it has not turned out very success-

fully. Competent investigators in the future, it may be predicted, will stress less and less the variability idea and the tendency will be more and more toward attributing relative achievement to a difference in instinctive qualities.

IX

The fact that psychologists have consistently failed to detect by actual measurement any superiority in intellectual capacity for either of the sexes has emboldened Feminists to hope for some evidence pointing to a like conclusion on the physical side. Every report that might possibly indicate that women possess a hitherto unknown vitality upon which they may draw in case of necessity has been and will be seized upon for proof of this point. The events recently enacted in Europe have brought a large army of women into industry and their ability to stand the gaff will be followed closely for material that will help the Feministic contention. If it should be shown that physically women are able to do the work of men, without serious impairment of health, a good deal of speculative controversy will be done away with. Feminists cannot deny that women on the average are smaller

and not as strong as men. But even if it can be proved that women are able to do the work in proportion to their strength, we may expect a great deal of shouting from the Feminist camp, a re-affirmation that "we are able to identify absolutely the condition of the sexes;" a re-asseveration of Olive Schreiner's stirring cry for "all labor for our province."

Before the recent war a large literature had grown up in which evidence was sought to prove and to refute the idea that women suffer from their participation in industry. This evidence came from a large variety of sources; questionnaires of college girls attempting to determine the effect of mental concentration on health, physiological measurements of women, psychological measurements over long periods of time, infant mortality statistics, opinions of physicians, etc., etc. It was early recognized that, conceding the inferior strength of women, the main limitation to their universal participation in industry must center around what was believed to be the factor contributing most toward interrupting their continuous activity; *i. e.,* their functional periodicity—menstruation.

The literature in connection with this function is enormous. Every imaginable phenomenon has

been connected with it. Savages have furnished plenty of evidence for proving that it has been a mystery to man throughout the ages. Elaborate social customs have been devised by them requiring the wearing of special costumes, badges, or symbols of one kind or another; a special regimen is provided for in many cases and the subject is isolated, tattooed, compelled to fast, eat nauseous food, etc., etc. That the function is still very much a matter of mystery even now is elaborately shown by the activities, one might almost say antics, of the workers in this field. Ellis claims that sexual desire rises to a maximum at this time; others suggest that the function is symbolic or atavistic of an extremely fecund period in the life of the race, *i. e.*, that it is a repeated parturition; Montegazza connects its establishment with the favorable influence of moonlight nights on courtship. It has been blamed on the tide and on the climate. One authority having "discovered" that all periodic diseases go in multiples of seven days thinks that in this lies the secret, while a still greater number think that men and women alike have periodic disturbances.

This notion, ascribing periodicity to men as well as to women, is an interesting and oft-repeated one. It had its origin, not improbably, among medical

men in the desire to discover a startling homology in men to the well-defined periodic phenomenon in women. Whether or not there is any substantial proof to support it, its wide and serious acceptance by certain medical authorities is significant. There can be no question that any final proof of the existence of a period in men is the sort of thing that would appeal powerfully to the imagination. To certain writers it has been the signal for an outburst on the universality of rhythm in the organic world. Ellis, for example, has developed in this connection an elaborate system covering several chapters in his "Psychology of Sex" [55] showing how all the world pulsates in time with tide, moon, climate, sun, etc. The general impression, as one leaves a work of this kind, is that the facts have been strained not a little to maintain the grandeur of the generalization. There is the irrepressible feeling that the author demonstrating the omnipresence of rhythm is in the same hazy borderland of science as the amiable old lady coming out of a spiritualistic meeting talking distantly of the omnipotence of vibrations.

It must be remembered that the facts upon which

[55] Ellis, Havelock. "Studies in the Psychology of Sex," v. 1, pp. 49-66. N. Y., F. A. Davis Co., 1901-06.

the claims for the existence of periodicity in men rest are of the most questionable kind. The evidence coming from physicians is in most cases twenty or more years old and suffers from the inaccurate interpretations and methods prevalent at that time. Often the most far-reaching conclusions are drawn from measurements taken on one individual. Thus Ellis cites [56] as his most important evidence the case of a certain professor in Rutgers College who recorded over a period of time what he calls the "ecboles," or maximum points of his sexual energy. An undeniable rhythm was found and on the basis of this testimony a discussion ensued as to the exact length of time which should be assigned to the male cycle. Considering the fact that the method of investigation was unique and untested and that everything depended on the personal equation of the subject, very much weight should not have been assigned to this record. Nevertheless, it was accepted without qualification and the only question left was to determine the proper length of the period. The professor thought 28 days was about right, but Ellis contended from supplementary evidence he had collected that fortnightly, more prob-

[56] Ellis, Havelock. "Studies in the Psychology of Sex," v. 1, p. 75. N. Y., F. A. Davis Co., 1901-06.

ably 7-day, periods were more representative; however, he thought, it was not impossible that the suggestion of a certain Mr. Laycock of a 3½ day period might more closely approximate the truth. The fact that the professor assigned 28 days to the cycle and Ellis was uncertain in his own mind whether to make it 14 or 7 or 3½ days, is a fair indication of the definiteness of the data. The cycle of three and one-half days, it must be admitted, is a very small cycle; one might say suspiciously small. Indeed, after reading over the evidence carefully, the inevitable truth has to be admitted that it must be one day or some multiple thereof!

Even this possibility has been shattered by the investigations of a Privat-Docent of the University at Vienna, one H. Swoboda,[57] who noted the scientific fact that ladies who go to musical concerts often hum the tunes they have heard there some 18 hours afterward, gentlemen soliloquize lyrically behind closed teeth 23 hours afterward. What is the unavoidable conclusion? Men have a cycle of 23 hours, women one of 18 hours! Sometimes it was noted that the period characteristic of the one sex ap-

[57] Swoboda, Hermann. "Die Perioden des menschlichen Organismus in ihrer psychologischen und biologischen Bedeutung," pp. 31-32. Leipzig, Deuticke, 1904.

peared in the other. Swoboda has the following explanation to offer:

"Just as the 18-hour period, the feminine one, appears in masculine characters, so the 23-hour, masculine, one appears in the female sex. Of course it is never hard, even in these cases, to establish the degree of bisexuality anatomically or psychologically. These periods will probably one day give a welcome means for determining something definite about a certain individual.

"It is noteworthy that none of the persons to whom I applied tests while in the hypnotic state had a 23-hour interval, while on the other hand this interval was apparent in persons who had not been hypnotized, a further proof that the 23-hour is a masculine period and the 18-hour a feminine one."

It is very evident here that the widest generalizations have been drawn from the flimsiest of evidence. It may very well be that men *do* show the phenomenon of periodicity, but the method of attack has been so loose in the scientific sense that all evidence relating to periodicity in men may be regarded with suspicion.

X

Even in works dealing with this function in women, where the most distinctive rhythms might be expected and have been reported, the authenticity

of results is being doubted. In this connection, Hollingworth considers herself justified in asking for control experiments on men, when curves are offered by Stephenson [58] and Jacobi [59] showing for women a sharp break in temperature, pulse, and urea excretion during menstruation—a similar set of curves taken on men might show a similar break, since by actual test Mosher,[60] working at Johns Hopkins in 1901, was able to detect a rhythmic fall of blood pressure in both sexes during the course of one month. Curves have been plotted for women relating to almost every physiological and many psychological variables, such as pulse, temperature, carbon dioxide excretion, urea excretion, vision, etc., and in practically all cases violent breaks during periods have been reported. Most criminal and pathological psychologists following Lombroso believe women especially liable to crime, insanity, hysteria and mental derangements in general during this time, but as is usually the case with alienists

[58] Stephenson, William. "On the Menstrual Wave." (*Amer. Journal of Obstetrics,* pp. 287-94, 1882, v. 15.)

[59] Jacobi, Mary Putnam. "Question of Rest for Women during Menstruation"; the Boylston prize essay of Harvard University for 1876. N. Y., Putnam, 1886.

[60] Mosher, Clelia D. "Normal Menstruation and Some of the Factors Modifying It." (Johns Hopkins Hospital Bulletin, Apr.-May-June, 1901, pp. 178-79.)

and psychiatrists, it is not difficult to cite contrary authorities. The whole "scientific" potpourri has been summarized with Teutonic thoroughness (and it may be added with Teutonic lack of critical evaluation) by Havelock Ellis,[61] G. Stanley Hall,[62] and others.

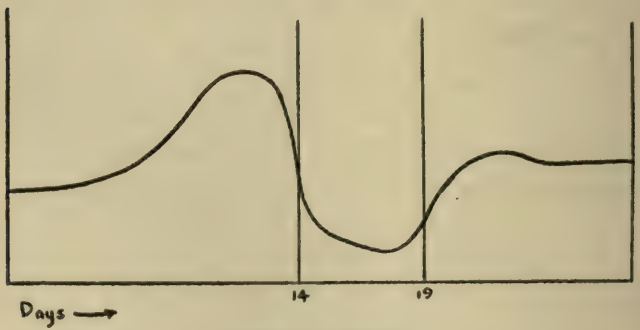
The entrance of Mrs. Hollingworth into this field has had a wholesome effect in the way of clarifying the situation. Workers reporting results previous to her, being men for the most part, set out with the prejudiced notion that the marked physiological phenomena connected with menstruation must be reflected throughout the whole organism, and that this would be shown in measurements of the arterial, nervous and metabolic activities. For many years the mass of results offered gratifying confirmation of these expectations and it was not surprising, then, that when Ott's Curve [63] was constructed and

[61] Ellis, Havelock. "Man and Woman," pp. 279-98. Ed. 4. N. Y., Scribner, 1911.
———— "Studies in the Psychology of Sex," v. 1, pp. 49-109. 5 v. N. Y., F. A. Davis, 1901-06.

[62] Hall, Granville Stanley. "Adolescence," v. 1, pp. 472-512. 2 v. N. Y., Appleton, 1904.
———— "Educational Problems," v. 1, p. 298. 2 v. N. Y., Appleton, 1911.

[63] Van Ott, O. "Des Lois de la périodicité de la fonction physiologique dans l'organisme féminin." (*Nouv. arch. obstet.*, 1890, pp. 502-06; Rép. universel d'obstétrique et de gynécologie.)

published in 1890 showing in composite generalized form variations in pulse, blood pressure and the numerous variables previously catalogued over a period of one month, with the expected graceful rise just before the beginning of the period and a sinuously precipitous drop during catamenia, followed by a slight smooth recovery at the end, the graph was seized upon and reproduced in every work on the subject thereafter, with such gently undulating comments as would conform with its outline and with the enormous amount of summarized data it claimed to epitomize.



OTT'S CURVE

Mrs. Hollingworth, being a woman and disliking perhaps the suspiciously perfect sinuosity of the curve, was the first to take the trouble to investigate in detail the figures from which Ott's curve had

been plotted. To her surprise she found[64] that Ott presented little or no data, but promised to do so in a work which has never yet appeared, so far as can be discovered. Further examination of the literature showed that the conclusions of scarcely any of the investigations relating to physiological, and few dealing with psychological processes and their fluctuations in men and women can be entirely accepted in the light of modern scientific criteria. The importance of this investigation of the literature can hardly be overestimated. In effect, it has shown that there is no authentic proof in existence giving grounds for the belief that rhythmic variations in pulse, temperature, blood pressure, or any of the other factors that might reasonably be expected to change abruptly during menstruation, are any more marked in women than in men. This does not mean that women are not subject to profound changes at this time (further along we shall try to show that there is good ground for believing that they are); it means merely that the evidence collected by physicians some 20 or 30 years ago is

[64] Hollingworth, Leta Stetter. "Functional Periodicity; an Experimental Study of the Mental and Motor Abilities of Women during Menstruation." N. Y., Teachers College, Columbia Univ., 1914.

inadequate, and that until one of the modern generation of medical men undertakes anew a careful investigation of the subject, using instruments of precision, running control experiments on men, and subjecting the results to mathematical test based on the theory of probability, it will be fair to write at the end of the question,—Are the physiological functions of normal women more subject to disturbance than those of normal men?—No Proof!

Hollingworth followed up her study of the literature with an original investigation in which it was attempted to determine on the psychological side whether or not normal women exhibit any periodic mental or motor inefficiency during periods. The work, while carried out with a maximum of care and by the best methods now available (with control experiments on men), cannot claim finality in any respect, and is marred, it must be reluctantly admitted, by a lack of that same clean-cut critical treatment which the author has so successfully applied in the study of the previous literature.

The statement of Prof. Watson in a previous connection that psychology cannot make a claim to a place beside the other sciences is an instructive one and becomes at once apparent in a research of this kind. In the physical and chemical sciences

it is nothing to demand and to expect experimental measurements of the order of accuracy of 1/10th or 1/100th of one per cent. The conclusions that can be drawn from work of such a nature are necessarily dependable. In the psychological sciences this is far from being the case, and the validity of the conclusions is in proportion. Thus if we examine the work of Hollingworth, we find that of some six tests applied (tapping with stylus and with key, steadiness, color naming, opposites, fatiguability), one of the most important, steadiness (nervousness), which ought to be exceedingly delicate so as to detect the expected increased nervousness at menstruation, far from showing variations of 1/100th or 1/10th or even 1%, gives fluctuations of no less than 20% and often 45%.[65] The record of one of the men tested by this steadiness method showed on 5 successive days: 12, 21, 12, 3, and 16, indicat-

[65] The test was carried out in this way:

"The subject, standing, was required to hold at arm's length and unsupported, a brass rod, 2.5 mm. in diameter, in a hole 6 mm. in diameter, which was formed in a brass plate. The time in this test remained constant, the subject being required to hold the rod for 30 seconds, making as few contacts as possible. Each contact was registered by an automatic electric counter. A measure of the involuntary movements of the right arm in a horizontal plane was thus obtained. Any increase in nervousness would presumably be apparent in the number of involuntary contacts registered."

ing possibly that on the second day he had been taking his whiskey straight with the record 21, and that two days later with a mark of 3 he had either returned to his grape-juice according to all the dictates of university sobriety, or had camouflaged some mechanical steadying device in order to win a bet with a fellow testee. The investigator was forced to admit for steadiness that "any conclusions drawn from these records cannot bear great weight."

In the other tests the accuracy was much greater but still exhibited variations of from 2% to 7%. Hollingworth's work suffers further limitations. She was able to make a careful study of only 6 women and 2 men and a rough study of some 17 other women. The subjects were engaged in sedentary occupations of the teacher- and student-type, and were not subjected in any sense to a strain comparable to that of the man or the woman in industry. Even a test of fatigue for long-continued work, a possible equivalent for the much greater "fatigue poison" of industry, was not included. Under the limited circumstances, the investigator claimed to have proven that:

"1. Careful and exact measurement does not reveal a periodic mental or motor inefficiency in modern women.

"2. No part of the period is affected.

"3. Physical suffering seems to affect associational processes adversely, judging from the two instances here recorded when pain was experienced on the first day.

"4. The variability of performance is not affected by physiological periodicity.

"5. No regularly recurring period of maximum efficiency within each month is discernible.

"6. The 'cycle' referred to by Ellis and others is not discovered by methods of precision.

"7. No agreement is established between curves plotted for pulse, blood pressure, temperature, caloric radiation, etc., and the curves of work for the mental and motor traits here tested."

XI

While it must be admitted, in agreement with Hollingworth, that men have studied the phenomena of the menstrual function with the prejudiced attitude that it is an easy matter to show women to be subject to profound changes rendering them periodically semi-invalids, it is also true that women are entering the field with the equally prejudiced attitude that it is impossible to prove that women suffer at continually recurring times changes of any kind tending to incapacitate them. Throughout the investigation we have just been considering (which

ends with an appeal to women to take up this work so that there "may be written a psychology of woman based on truth, not on opinion") there is, for example, a sustained, almost studied attempt to disregard or belittle evidence of far-reaching importance which might contribute toward proving that the periodicity of women is attended with pain and disturbances of various kinds preventing unlimited physical and mental activity.

Hollingworth quotes Mary Putnam Jacobi as saying[66] that "there is nothing in the nature of menstruation to imply the necessity, or even the desirability, of rest, for women whose nutrition is really normal." But she forgets to add that the same authority thinks:[67] "It remains true, however, that in our exciting social conditions 46% of women suffer more or less at menstruation, and for a large number of these when engaged in industrial pursuits or others, under the command of an employer, humanity dictates that rest from work during the period of pain be afforded whenever

[66] Jacobi, Mary Putnam. "Question of Rest for Women during Menstruation"; the Boylston prize essay of Harvard University for 1876, p. 227. N. Y., Putnam, 1886.

[67] ——— ———, p. 232. N. Y., Putnam, 1886.

practicable." The authority of Dr. E. H. Arnold [68] is invoked that he may testify to the fact that in his work at the New Haven Normal School of Gymnastics, incapacity was largely of a fictitious nature and that physical exercise was at all times beneficial. The same savant has also shown, however, that measuring pain on a scale of 1, little or none; 2, slight; and 3, much, his classes showed an average of about 2.5, and that the simple matter of final examinations for graduation with its attendant mental strain and worry was sufficient to increase disturbingly the irregularity record. Opposing the work of Arnold is a study of women students in 1912 at the University of Chicago,[69] in which the records of the Department of Physical Education "show that 32% changed their type of menstruation during the year under the stress of university life. The physical director was able to improve the type of only fourteen of these girls."

[68] Arnold, E. H. "Effect of School Work on Menstruation." (*Amer. Physical Education Review*, Feb., 1914, pp. 113-18; read at the 4th International Congress of School Hygiene, Aug., 1913.)

[69] Quoted by Dr. Caroline Hedger in her address on "Relation of the Education of the Girl to Infant Mortality." (Proceedings of the English-speaking Conference on Infant Mortality, London, Aug., 1913, pp. 287-94.)

There can be little doubt that the consistent reports from all sources as to the universality of pain among women must have some material basis, although the actual figures as to how large this percentage is differ according to various investigators. Even the work of Hollingworth showed impairment of performance in controlled association for the two women (of the 6 tested) who experienced pain.

One of the most exhaustive of the inquiries on menstrual pain, that of Engelmann in 1900 [70] (made by the questionnaire method, which it is known is subject to a certain amount of error, yet surely no more than some "precise" psychological tests), reported suffering among business women, school girls, nurses, and students of gymnastics of from 32% to 95%. Girls attending the schools for gymnastics represent women working under the best conditions, and the figures even here were as high as 71%. "The girl behind the counter," writes Engelmann, "who is on her feet most of the day, with but little space for change of position, shows 91%; those who sit, bookkeepers and stenographers, show 82%; and those who have a certain freedom of motion — floor-walkers, cash-girls, packers — are

[70] Engelmann, G. J. "American Girl of To-day." (Trans. Amer. Gynec. Society, 1900, pp. 3-45.)

noted with only 78%." Professor John Dewey [71] credits woman in college with a proportion of sufferers amounting to 66%, and G. A. Preston,[72] in a study of 200 college women, finds 57% suffered no prostration but only 29.8% were free from pain.

A very recent investigation by Sanes,[73] covering the menstrual histories of 4500 women in health, notes that 47% experienced discomfort and pain. There is no doubt that a good deal, if not all, of this pain is due, as a late article of Dr. Rosalie S. Morton [74] suggests, to improper hygiene, corsets and lack of exercise. This observer reports that:

"The increasing economic value of women's time and industry during the past 20 years, leads an increasing number of patients to seek relief from dysmenorrhea (menstrual pain), while formerly this class of cases patiently bore the ills they considered feminine flesh, unhappily, heir to. A wider knowledge of personal hygiene associated with outdoor activities of women have greatly raised the individ-

[71] Dewey, John. "Health and Sex in Higher Education." (*Popular Science Monthly,* 1886, v. 28, pp. 606-14.)

[72] Preston, Grace A., and others. "Influence of College Life on Health." (Committee of Mass. Medical Society, v. 16, 1895, pp. 165-223.)

[73] Sanes, K. I. "Menstrual Statistics, a Study Based on 4500 Menstrual Histories." (*Amer. Journal of Obstetrics,* 1916, pp. 93-121.)

[74] Morton, Rosalie Slaughter. "Dysmenorrhea." (*N. Y. State Journal of Medicine,* v. 15, 1915, pp. 21-24.)

ual standard of health. The percentage of dysmenorrhea depends largely upon the physical development of the individual. Dr. Howard Kelly's statistics give 70% of college women free from dysmenorrhea. I have found among poorly nourished and overworked factory and store employees only 7% with no pain at periods. . . . Sterility is so often associated with a history of pain from the onset of the periods that it is not fair to those who will have a duty, and the right, to become mothers to deprive them of this, by not even trying to find the cause of the dysmenorrhea. Education regarding the normal period being painless will lead to patients seeking relief before serious conditions arise. No disease starts with its climax and the faulty 'let alone' teaching of centuries has led to all minor conditions being neglected until they have become serious."

Menstrual pain would seem to be largely pathological and avoidable under ordinary circumstances. Dr. Morton's work indicates (Mrs. Atherton refers to her as "the leading woman physician and surgeon in New York") that the conditions for avoiding pain are difficult, almost impossible, of fulfillment for most women, especially those engaged in industry. It emphasizes further the fact that the least negligence, or the imposition of strain of any kind, is immediately reflected in unhealthy menstrual performance.

When women were first admitted into colleges, the authorities came forward with every imaginable sort of pessimistic prophecy. The warning was given out that women would collapse all over the campuses from the mental strain, especially during periods, and that they would emerge from the universities sterile. Everybody knows now how much truth there was in this prophecy and any one who has passed through the supposedly terrific mental strain involved in going through college may well wonder what the fuss was all about. Even the fears of the girls themselves must have been very much allayed when they came into the domestic science classes and learned from their professors the surprising fact that a man placed in a calorimeter placidly riding a bicycle expends a tremendous amount of energy, whereas the same person sitting in the same calorimeter concentrating brain mass and nerves on an examination involving diabolically contrived alphas, and omegas, and sines, and tangents and phase rules and Newton's laws and allegories and imperialisms and categorical imperatives—the student in this welter of brain torture expends not a single additional calorie.

Is it surprising, then, that the figures for pain among college women are lower than for women in

industry? As students, the hygiene of sex is known to them; physical exercise is available, sometimes compulsory; and time for rest can always be found. Besides, the existence of mental fatigue as apart from physical fatigue has never been successfully demonstrated by psychologists,[75] so that if the college woman suffers during periods it is due to faulty posture, lack of exercise and other conditions favoring congestion—which it is in her power to remove. It is safe to predict that if working-women were provided with all the advantages offered college-women, the alarmingly large proportion of sufferers among them reported by Morton, Engelmann and others would disappear. It is not without reason that Annie Marion MacLean writes at the end of her "Wage-earning Women" [76] (the material for which was gathered by hundreds of collaborators in the field):

"The nerve-racking intensity of work in a modern factory makes a day's labor no pleasing pastime. It robs the girl of her vitality; it steals her youth; it breaks her health; and too often it blunts her moral

[75] Hollingworth, Leta Stetter. "Functional Periodicity; an Experimental Study of the Mental and Motor Abilities of Women During Menstruation," p. 92. N. Y. Teachers College, Columbia Univ., 1914.

[76] MacLean, Annie Marion. "Wage-earning Women," pp. 177-78. N. Y., Macmillan, 1910.

sense. It would seem that factory work must be accommodated to the girl or the girl taken out of the factory. The prime function of woman in society is not 'speeding up' on a machine; it is not turning out so many dozen gross of buttons or cans in a day; it is not making the heaviest sale of notions, nor tending the greatest number of looms; it is not breaking records in packing prunes or picking hops; nor yet is it outdoing all others in vamping shoes or spooling cotton.

"The prime function of woman must ever be the perpetuating of the race. If these other activities render her physically or morally unfit for the discharging of this larger social duty, then woe to the generations that not only permit but encourage such wanton prostitution of function. The woman is worth more to society in dollars and cents as the mother of healthy children than as the swiftest labeler of cans. Yet our present industrial practice would indicate a preponderance of value in the latter. Five years of factory work may, and frequently do, render a girl of twenty-one nearly or quite a physical wreck, so far as normal function is concerned. She may live thirty or forty years, she may even continue as a wage-earner, but at what a cost!"

In similar vein Florence Kelley writes in her "Modern Industry": [77]

[77] Kelley, Florence. "Modern Industry in Relation to the Family, Health, Education, Morality," p. 14. N. Y., Longmans Green, 1914.

"As marriages fail to occur, and families fail to be founded, because of fear of poverty, so, also, in many families children are not born, or come into life cruelly handicapped, because of the effects of industry upon the health of the mothers while, as young girls and young women, they worked for wages. Sterility among working-class wives, caused by protracted standing while at work in their girlhood, is a source of apprehension among physicians whose practice brings wage-earning women patients under observation."

Yet industrial conditions make it imperative for women in many occupations to stand at their work. Writing of women workers in the glass industry, a United States report [78] says: "The constant standing is due to the fact that . . . a person works more rapidly standing than sitting. Foremen therefore prohibit women the use of seats for even part of the time and pieceworkers, for the sake of greater earnings, tend to shun seats even when provided." Surveying the work of women in the Pittsburgh district, Elizabeth B. Butler reports: [79] "Employees

[78] U. S. Dept. of Labor, Bureau of Labor Statistics. Summary of the report on conditions of women and children wage-earners in the United States: Women in industry, No. 5, 1916, p. 152. Washington, Govt. Printing Office, 1916.

[79] Butler, Elizabeth Beardsley. "Women and the Trades," p. 358. N. Y. Charities Pub. Committee, 1909. (Russell Sage Foundation Publication: Pittsburg Survey.)

are expected to stand continuously in most departments of cracker factories, laundries, dyeing and cleaning establishments, metal works, lamp and glass factories, mirror, broom, cork, paper-box, soap and trunk factories, in some press rooms, and in mercantile houses."

It is not surprising that students of preventive medicine and hygiene have become alarmed. Professor Milton J. Rosenau of Harvard University, a leader in this field, has expressed his opinion of the situation as follows: [80]

"Women are physiologically not capable of doing the same work as men, especially during the period of maternity. Further, several days each month women are more or less incapacitated for most kinds of work on account of menstruation. . . . The effect of overwork upon fecundity and upon infant mortality is impressive. Broggi states that of 172,365 Italian women between the ages of fifteen and fifty-four years who were employed in industrial occupations the average child-bearing coefficient was only about one-third of the general fertility of Italian women. . . . Saleswomen should be provided with seats in shops so as to avoid the ill effects of prolonged standing, they should have one or two days each month for rest during the men-

[80] Rosenau, Milton J. "Preventive Medicine and Hygiene," pp. 1043-44. Ed. 3. N. Y., Appleton, 1917.

strual period, and should be protected against undue strain and fatigue. While women's work may be regulated in the industries and the hours of employment may be limited by law, there can be no law to regulate women's work in the household which is 'never done.' Men have still to learn the lesson that nervous breakdown and the results of fatigue are as harmful in women who overwork in the home as in those who work in shops and factories. The long hours and confining work of house servants sometimes lead to anemia and other troubles. Cooks are exposed to the effects of excessive heat and to sudden changes of temperature. Domestic 'servants' as a class supply a large contingent of patients in hospitals and outclinics. The long hours and insufficient sleeping accommodations, as well as the nature of the work, lead to ill health which may in part account for the disinclination of women to accept this kind of service."

Nor is Rosenau alone in the demand for liberal rest periods for working women.[81] No one can accuse the father of Scientific Management of sentimentality. Yet Taylor,[82] who may be considered an applied psychologist, in an investigation of maxi-

[81] Rest periods for all women, non-working as well as working, have been advocated by G. S. Hall and others but the demand is based on an exaggerated notion of the effects of menstruation. Where there is opportunity for exercise and strain is not imposed, there is no reason why women should not maintain normal activity during periods.

[82] Taylor, Frederick Winslow. "Principles of Scientific Management," p. 96. N. Y., Harper, 1915.

mum efficiency conditions for girls inspecting bicycle balls, a very painstaking and fatiguing occupation, recommended "four recreation periods properly distributed through the day, which made overworking impossible for a healthy girl. . . . All young women should be given two consecutive days of rest (with pay) each month, to be taken whenever they may choose." Josephine Goldmark, who has made exhaustive studies of the effect of work on both men and women, thinks that [83] the three big factors contributing to the high sickness rate of women in industry are also the ones that affect most the reproductive system. They are "excessive speed and complexity, prolonged standing, and the *absence of a monthly day of rest*" (my italics).

The Canadian Government investigating fatiguability of girls operating telephone switchboards recommended a six-hour day and thought that "rests or relief periods of not less than 20 minutes after each two hours of work were essential to preserve operators from exhaustion." [84] The United States

[83] Goldmark, Josephine. "Fatigue and Efficiency, a Study in Industry," p. 40. 2 v. in 1. N. Y. Charities Pub. Committee, 1912. (Russell Sage Foundation Publication.)

[84] Goldmark, Josephine. "Study of Fatigue and Its Application to Industrial Workers." (International Congress of Hygiene and Demography. Proceedings, 1912, v. 3, pp. 517-26.)

Department of Labor [85] reports that among laundry workers 21.7% of those whose health had been impaired by their work suffered from pelvic trouble, 54% of these were married, 46% unmarried, and all of them, 100%, stood at their work. The same authority has shown that the death-rate among female operatives in cotton mills is more than twice as high as for females outside the mill.

"The natural congestion of the pelvic organs during menstruation," writes Dr. George M. Price,[86] medical sanitary inspector of the New York City Health Department, "is augmented and favored by work on sewing-machines and other industrial occupations necessitating the constant use of the lower part of the body. Work during these periods tends to induce chronic congestion of the uterus and appendages, and dysmenorrhea and flexion of the uterus are well-known affections of working girls." The whole subject has been ably summarized at a recent International Congress of Hygiene and Demography by Dr. Friederich Zahn,

[85] U. S. Dept. of Labor, Bureau of Labor Statistics. Summary of the report on conditions of women and children wage-earners in the United States: Women in industry, No. 5, 1916, pp. 332-33. Washington, Govt. Printing Office, 1916.

[86] Price, George M. "Hygiene of Occupation." ("Reference Handbook of the Medical Sciences," v. 6, p. 321. Rev. ed. N. Y., William Wood, 1903.)

chief of the Royal Bavarian state statistical office in Munich, as follows:[87]

"Woman's physique is more susceptible than that of the male to the injurious influences of industrial labor. The woman's system is taxed with sickness even more than it is at present through the ravages of anemia and chlorosis which are so widespread. The kind of labor which young girls have to perform in various establishments—work that is mostly one-sided, mechanical, irritating to the nerves on account of the continuous strain on attention—is rarely favorable to physical and mental development. On the whole, there is great danger that women are being given work which is not suited to their physique, and that even in industrial work otherwise suitable they themselves do not give thought enough to their health and to possible motherhood. It is for these reasons that premature births, miscarriages, barrenness, and permanent sickness occur so frequently among working women."

This body of evidence points always in one direction: It shows everywhere that the functional periodicity of woman is attended with physiological changes, which require the utmost care for the maintenance of health; *i. e.*, the observance of certain hygienic conditions, the proper wearing of

[87] Zahn, Friederich. "Woman in Industrial Life of the Principal Civilized Nations—a Social, Demographic, Hygienic Study," p. 328. (International Cong. of Hygiene and Demography, v. 6, 1912, pp. 321-42.)

clothing, and constant exercise. It shows further that negligence of these conditions means congestion and pain; and that the abnormal strain put upon women in industry,[88] the necessity for standing, or sitting in one position, the incessant grind and monotony to which they are subjected, makes pain, nervous derangement, anæmia and barrenness unavoidable.

XII

The Feminists who have unreservedly advocated the economic independence of woman have perhaps been women whose experiences at the hands of men have been more unfortunate than their manhandling by the machinery of production. They are women with soft bodies and tenderer souls. To them, man has been the tyrant, the oppressor, and his whip—economic power—has lashed women through the ages into subjection. The monomania of these Feminists has been, therefore, the disarming of the tyrant. They have forgotten that the

[88] For a very exhaustive treatment of strain in the industrial life of women, see:

Goldmark, Josephine. "Fatigue and Efficiency, a Study in Industry; Containing also the Substance of Four Briefs in Defense of Women's Labor Laws." 2 v. in 1. N. Y. Charities Publ. Com., 1912. (Russell Sage Foundation Publication.)

tyranny is twofold; that just as the woman is economically dependent on the man, so he is economically dependent on an unfeeling social system; and that as soon as he is removed, the full shock of the blows his body has heretofore absorbed in the economic struggle will now fall upon her body with the same merciless effect.

The truth is gradually dawning on the leaders of the woman movement and their uncompromising attitude is being modified. "The life-blood of women," writes Mrs. Gallichan,[89] "that should be given to the race, is being stitched into our ready-made clothes; is washed and ironed into our linen; wrought into the laces and embroideries, the feathers and flowers, the sham furs with which we other women bedeck ourselves; it is poured into our adulterated foods; it is pasted on our matches and pin-boxes; stuffed into our furniture and mattresses; and spent on the toys we buy our children. The china that we use for our foods and tins in which we cook them are damned with the lead-poison that we offer to women as a reward of labor. . . . The economic stress which forces women into unlimited competition with men is, I am certain, harm-

[89] Gallichan, Catherine Gasquoine Hartley. "Truth about Woman," pp. 281-2 and 289. London, E. Nash, 1913.

ful. *Women do not do this because they like it, but because they are driven to it.*" W. L. George [90] has gone even further and suggests that women be relieved of labor entirely. "I want woman in the ultimate state," he writes, "to be considered as something more than a producer of commodities, to be justified in her consumption of the food she does not tear from the soil by the fact that as woman she is the temple of the race. As a temple she is entitled to her worshipers and as a temple she must be decorated; she must be physically splendid so that the race may be splendid; she must be freed from toil. . . . Mother and artist, that is what I want woman ultimately to be, no more, and that is very much."

Ellen Key has braved the attacks of the continental Feminists by steadfastly insisting that woman's salvation is not to be found in industry. Although she admits the necessity for economic independence, she sees clearly the health-crippling consequences of factory work and counsels a career centering around the home and the child. Her ideas have, however, met with violent opposition, a noted American Fem-

[90] George, W. L. "Woman and To-morrow," pp. 153-54. London, Herbert Jenkins, Ltd., 1913.

inist [91] having called her "impractical" and a "wise fool." And with some reason. For the vast body of women are in industry not because they want to be, nor because they desire economic independence, but because they have to be. Any talk of choice is then waste of time. Even if women prefer home and motherhood, there is no immediate method at hand for making such a career available to them. Ellen Key proposes Socialism as the solution of the problem, but that is another matter.

Feminists as a general rule, however, have not budged from their original position on economic independence. Many realize acutely the deplorable waste of life that follows from woman's wholesale entry into industry. But if industry is crippling women, they ask, is it necessary to abandon the fight? One might examine the health statistics of workingmen and develop a formidable array of evidence showing the wide prevalence of ill-health among them, they argue, but this would hardly furnish grounds for demanding the withdrawal of men from the laboring field! The trouble is not, Feminists conclude, with the men or with the women;

[91] Anthony, Katharine. "Feminism in Germany and Scandinavia," pp. 312-14. N. Y., Henry Holt, 1915.

the source of disturbance lies in the industrial system.

Thus the woman problem becomes identical with the labor problem. "The woman movement," writes J. Jessie Taft in a philosophical study at Chicago University,[92] "viewed not as an isolated phenomenon but as an integral part of the vaster social evolution, is seen to be only the woman's side of what from the man's angle is called the labor movement." Edward Carpenter, with keen insight into both the labor and the woman problems, thinks that[93] "not until our whole commercial system, with its barter and sale of human labor and human love for gain, is done away, and not till a whole new code of ideals and customs of life has come in, will women really be free. They must remember that their cause is also the cause of the oppressed laborer over the whole earth, and the laborer has to remember that his cause is theirs." May Sinclair, writing of the solidarity of woman, says:[94] "There is only one other factor that can

[92] Taft, Julia Jessie. "Woman Movement from the Point of View of Social Consciousness," p. 53. Chicago, Univ. of Chicago Press, 1916. (Philosophic study No. 6.)

[93] Carpenter, Edward. "Love's Coming of Age," p. 60. N. Y., Mitchell Kennerley, 1911.

[94] Sinclair, May. "Feminism," p. 34. London, Women Writers' Suffrage League, 1912.

be compared with it for importance and that is the Solidarity of the Working-Man. And these two solidarities are one."

Feminism has then preëminently as its first task the solution of its labor problem. The Woman Movement differs, however, from the older labor movement in the same way as the sexes themselves differ from one another; *i. e.,* in the matter of procreation. Women must now in common with men produce; but they must also reproduce. The recently acquired industrial function of woman must be borne in addition to the burden of her inherited maternal function. Women have to solve not only the problem of Woman and Labor but also the problem of Woman and Motherhood (which includes Love and Marriage) and, removing the least common divisor of these two, the question of *Labor and Motherhood* remains as the meat and the heart of the modern Woman Movement.

CHAPTER III

Sociological Foundations; Labor and Motherhood

"To reconcile maternal activity with the new possibilities of self-development open to women is *par excellence* the woman's problem of the future. It is not one which can be solved by 'equality of opportunity,' but solely by the recognition of maternity as an essentially social activity, by the institution of some form of national insurance for motherhood, and by the correlated restriction and regulation of woman's labor."

KARL PEARSON.[1]

I

THERE is no better proof of the paramount position of the Labor and Motherhood problem in the Feminist movement than a brief glance at the factions that have formed within it. The modern labor movement with its open and closed shop, its craft and industrial unionism, its demarcation of classes into bourgeoisie and proletariat, with its reform element and its socialist, single-tax, socialist-labor, syndicalist and anarchist groups, offers sufficient bewilderment to the worker who chooses and the scholar who studies; but consider a situation which has to deal in addition to all of this with the child and the mother, with legitimacy and marriage,

[1] Pearson, Karl. "Chances of Death and Other Studies in Evolution," v. 1, pp. 253-54. 2 v. London, E. Arnold, 1897.

with love and the home, with the family and dress reform, with suffrage, education and maternity insurance, with all the phases of Mutterschutz and Mutterschmerz, and you begin to have an inkling of what the modern woman-worker, with only a fraction of the education and the training she ought to have, must assimilate in order to have an intelligent, conscious knowledge of the problems of her sex. Is it surprising that the movement has developed all kinds of combinations? On the Continent Katharine Anthony reports:[2] "There are the socialist-feminists and the bourgeois-feminists; the conservative feminists, the moderate feminists, and the radical feminists; the Christian-feminists and the neutral-feminists; the 'Old Feminists' and the 'Young Feminists'; the suffrage-Feminists and the feminist-feminists." And all of these are trying in different ways to combine a solution of the labor problem with a solution of the problem of motherhood!

II

The prophets of Feminism have not shirked picturing the future. With the enthusiasm that char-

[2] Anthony, Katharine. "Feminism in Germany and Scandinavia," p. 15. N. Y., Henry Holt, 1915.

acterizes the leaders of every new movement, they have plunged into the work-shops where dreams are made and emerged with dazzling Utopias to awaken the drooping minds of their sisters.

You crave the career of home and motherhood? asks Ellen Key.[3] Very well, you shall have it! In the glorious times to come, for you there will be no shirt-waists to sew, no paper flowers to make, no fish or fruits to can, no laundry machines to tend, no stupid letters to typewrite and file; the fulfillment of your love will neither be hastened by the appearance of a suitor loaded with gold, nor delayed by a lover burdened with want; in the wonderful time to come, when souls and senses meet, love will express itself in the Child; and around the Child will be built the temple—the Home. On the home will be lavished every care and attention; it will be spotlessly clean, beautiful beyond imagination; the food will be cooked scientifically, artistically; and by the side of a beautiful dream lake, where the sun shines and the grass is fresh, you will play with your

[3] Key, Ellen. See her:

"Love and Marriage"; tr. from the Swedish by A. G. Chater. With a critical and biographical introduction by H. Ellis. N. Y., Putnam, 1911.

"Renaissance of Motherhood"; tr. from the Swedish by A. E. B. Fries. N. Y., Putnam, 1914.

"Century of the Child." N. Y., Putnam, 1909.

Child—the future Super-Child—you will arrange his blocks and put her dolls to sleep; long hours you will ramble through the woods, studying and teaching the lore of grasses, of trees and of flowers; of the animals that crawl and climb, and of the birds that sing and fly; you will sharpen the senses of your child and stimulate its imagination with the wonders of nature and evolution and reproduction, etc., etc. And in return for your services as mother and teacher the state will guarantee you economic independence.

The picture has proven itself an alluring one to the women of many lands. Ellen Key's popularity is rooted in the irresistible appeal she makes to the mothering and home-making instincts of women. But the dream of Ellen Key was made in her home country, Sweden, where industrial development has not called for a large enlistment of women in the ranks of labor.

In the United States conditions are very different. In the land of delicatessen shops, steam laundries, canned goods, hall bedrooms and restaurants, the appeal had to be made to other factors. And so Charlotte Perkins Gilman[4] has been forced to

[4] Gilman, Charlotte Perkins Stetson. "Women and Economics." Ed. 6. London, Putnam, 1908.

modify the formula. Is it your desire to develop and express your personality? she asks of her American sisters. Listen well, then! In the golden future you will have no dishes to wash, no floors to sweep, no clothes to mend, no babies to clean, no preoccupation with the depressing and monotonous and menial duties of housekeeping. No more will you weep over onions, or sneeze over pepper. The time is coming, and soon, when socialized housekeeping will provide for one big laundry instead of 1000 small ones, one big kitchen instead of 1000 small ones, one big economical wholesale buyer of foodstuffs and household materials instead of 1000 small wasteful retail purchasers; there will be vacuum cleaners instead of brooms, heating systems instead of stoves, and coöperatively employed porters, seamstresses, nurses, governesses and teachers. Liberated thus for the first time from the wastefulness and drudgery of the private household, you will give your hitherto strait-jacketed creative impulses full play. Beside your brothers and fathers and husbands you will study and labor; with them you will destroy and create, organize and coördinate, dream and fight and live. Your children will be reared and trained by specialists and the reward of your labor shall be your economic independence.

The solution of Mrs. Gilman, it is evident, is exactly the converse of that of Ellen Key. Both realize fully that the Woman Problem is preëminently the question of Labor and Motherhood and both have used the same kind of reasoning in reaching their conclusions. The one says, if Labor conflicts with Motherhood, so much the worse for Labor. The other argues, if Motherhood conflicts with Labor, so much the worse for Motherhood; and it remains to be seen which of the two prophets will receive the largest response.

III

Some one has referred to American women as being as cold and hard as ice, and as brilliant, and Mrs. Gilman's reasoning is a good illustration of this quality of mind. To the highly instinctive appeal that vitalizes the call of Ellen Key, she opposes the cold rationalism of her uncompromising intellect. No student of the Woman Movement has equaled her in the relentless analysis of the causes underlying the backwardness of women. It has been her clear eyes that have looked down the short corridor representing the progress of her sex and her firm hands that have unflinchingly dragged

forth the skeletons of the worst offenders hidden there. With a clatter she has thrown them at our feet. There they are—Küche, Kirche, Kinder; and, surmounting the pile, Economic Dependence. The problem is clear and there is but one sane solution, she has argued. The three K's must be wiped out; women must work and make themselves economically independent! Nowhere in her thought is there room for sentimentality. The highly individualistic home does not appeal to her in the least—it is wasteful. The picture of the mother-teacher detains her only long enough to evoke a torrent of disapproval—it is impractical and inefficient. For her the complete submission to the maternal or any other instinct is a sign of weakness; for, in the rational scheme of existence which is to be, women must experience everything that life has to offer, and motherhood is only one of these things.

It is highly questionable whether this or any other philosophy of Feminism which weighs everything on the balance of rationality is the one that will endure. After all, life does not follow the syllogism, and any system such as that of Mrs. Gilman (who may be called the efficiency engineer of Feminism), which measures the idyllic picture of Ellen Key's future woman applying art and science to the home

and the child, by the cold-blooded standards of the twentieth-century business methods and contemptuously dismisses it with the scornful epithet—Inefficient—has failed to reckon with what the Swedish prophetess has justly recognized to be one of the prime movers of all life—Instinct. When the last efficiency engineer is dead, or for the sake of efficiency has been put to some useful work, life will still be following its old instinctive course.

The Gilman school of Feminism which magnifies beyond all proportions the development of the personality and suppresses the maternal and home-making instincts in order to attain its end, must be living, according to the Freudian school, under a strain that will end in hysteria. To be "efficient" requires effort; developing "personality" means avoiding the line of least resistance; being amaternal implies a conflict with instinct. A select few among women will cry out to the vast body of their sisters to embrace these ascetic ideals, but with little success. The society of the future cannot be composed of "efficient" personalities living a cerebral existence—it will be rather a group of ordinary fallible human beings whose personalities are rooted in and have developed from their instincts. The philosophy that makes its appeal to women through the head rather

than through the heart, such as that of Mrs. Gilman, is not destined to receive such a wide response as has already been accorded Ellen Key. Its fundamental difficulty lies in its intellectual detachment and therein lies a danger.

Every movement has its intellectuals who always shut themselves up in their square little closets to solve each problem of life, forgetting that at the same time they are shutting out life. When their period of brain-torture is over and the solution is at hand, they emerge from their seclusion and exultingly present the brilliantly wrought answer to a dazzled audience. The impress of the environment in which the answer was born can, however, invariably be found. It has all the marks that the little closet has: it is regular, it is logical, it is hard and square—and it lacks life.

Now the age-long distrust of the layman for the intellectual is a sound and a just one. It is reflected in the modern employer with horse sense insistently inquiring of his applicants, "How much *experience* have you had?" and it is based on the homely observation that a man sees, as we have said before, mainly what is in front of his nose. The newer educators have learned this lesson. They tell us that a medical student may know his anatomy

by heart but if he has had no experience dissecting corpses, he will be a failure as a surgeon; that a chemical student may know everything from steric hindrance to the phase rule and still, without juggling retorts and condensers and autoclaves in a laboratory, he will fail at a simple synthesis of, let us say, Zumpic Acid; and that a student of philosophy and psychology, in fact an original thinker in these fields, may, without the necessary world-bumps, prove a total failure in his own private life, simply because the one is of the closet and the other is the closet plus life.

In the labor world this problem has received its highest appreciation. The worker who works knows that nobody can realize the bitterness of the life struggle as well as the man who works beside him. Anybody who has dipped at all into the inner circle of trade unions knows how this state of mind has worked out. The grafters in the labor world are invariably the leaders who have been merely leaders and not workers, and in the more radical organizations the non-working leaders have always to guard themselves on this account against the accusation "Intellectual." Karl Marx himself was time after time bitterly attacked as being of this

class, and on the Continent the Syndicalist movement, which shuns political action because of the legislator, *i. e.*, the intellectual with his opportunism, is a living expression of the same distrust.

When we turn to Feminism we find a similar state of affairs. The intellectual group typified by Mrs. Gilman, after long consideration of all the factors contributing to the inferior position of woman, finally concludes that the responsibility for this condition should be laid mainly at the door of her parasitism and her economic dependence. Very well, then, comes the answer, there is but one solution: women must work and make themselves economically independent.

In this invocation to work and economic independence, Mrs. Gilman shows why her solution is preeminently an intellectual product—one of the closest —and wherein it lacks the modifying magical touch of life and the laboratory. Her advocacy of work for women is a call that could come only from a group of brain workers who do not fully realize the disillusionment which comes with daily physical labor in modern highly specialized, deadly monotonous factory work. Walter Lippmann, one of the keenest students of present-day political and

social conditions, has recognized this and observes that:[5]

"The women who argue for the necessity of making one's own living are almost without exception upper class women, either because they have special talents or because they have special opportunities. Some time ago I attended a feminist meeting where a brilliant woman was presented to the audience as an example of how it was possible to earn a living and have twins at the same time. But it happened that the woman was a lecturer who could earn a very comfortable sum by speaking a few hours a week. Another woman at the same meeting was an actress, another had been a minister, another was a popular novelist; the only woman present who was concerned with factory work said not one word about the pleasure of earning your own living.

"Now, only a very small percentage of men or women can enter the professions. For the great mass, economic independence means going to work. And the theorists of feminism have yet to make up their minds whether they can seriously urge women to go into industry as it is to-day or is likely to be in the near future. I, for one, should say that the presence of women in the labor market is an evil to be combated by every means at our command. The army of women in industry to-day is not a blessing but the curse of a badly organized society. Their

[5] Lippmann, Walter. "Drift and Mastery; an Attempt to Diagnose the Current Unrest," pp. 222-23. N. Y., Mitchell Kennerley, 1914.

position there is not the outpost of an advance toward a fuller life but an outrage upon the race, and I believe that the future will regard it as a passing phase of human servitude."

The intellectual woman consistently paints bright pictures of economic independence and as consistently forgets that although for her and her kind work is play, yet for her sisters work is work.

The advocates of economic independence through work are finding that this is far from being the solution of the woman problem. In Germany, according to the Census of 1907, there were some nine and a half million women workers and of these about one-half, four and a half million, were agricultural workers; nevertheless, of this large economically independent group Katharine Anthony reports: [6]

"Feminist and suffragist writers who have studied conditions among the peasant population have pointed out that in this *niveau* the old subjection of women lingers longest and most stubbornly. Even the law which allows the wife to control her own earnings is easily disregarded here."

The vast army of working women is finding that in abandoning the slavery of home and husband they

[6] Anthony, Katharine. "Feminism in Germany and Scandinavia," p. 186. N. Y., Henry Holt, 1915.

are voluntarily subjecting themselves to the more insidious exploitation that the industrial system offers. "The proletarian woman," writes Clara Zetkin,[7] "has achieved her economic independence. But not as a human being, nor as a woman, nor as a wife has she the possibility of realizing her individuality." The formula of economic independence can hardly offer a panacea, for as W. E. Walling[8] says, "What is demanded by the masses of women is not more labor but more life."

Working women are very apt to listen to the cry to labor that their intellectual leaders offer at least with respect, but even their crude common sense will tell them that it is preferable to do the depressing, monotonous and menial work of housekeeping than the sweating, crippling and irritating work in the factory. Mrs. Atherton is one of the few modern women who has felt this. "While it is one of life's misfortunes for a girl to marry simply to escape life's burdens," she writes,[9] "without love and without the desire for children, it is by far the lesser

[7] Zetkin, Clara. "Zur Frage des Frauenwahlrechts," 1907. (Quoted by Katharine Anthony in her "Feminism in Germany and Scandinavia," p. 189. N. Y., Henry Holt, 1915.)

[8] Walling, William English. "Larger Aspects of Socialism," p. 362. N. Y., Macmillan, 1913.

[9] Atherton, Gertrude Franklin. "Living Present," p. 255. N. Y., F. A. Stokes, 1917.

evil to have the consolation of home and children in the general barrenness of life than to slave all day at an uncongenial task and go 'home' to a hall bedroom." "Economic independence" is such an empty phrase to the woman worker that it is very doubtful whether she will respond to its call. Wage-earning women are very apt to play Chesterton's [10] game of "cheat the prophet" with their intellectual mentors. According to the rules of this pleasant pastime: "The players listen very carefully and respectfully to all that the clever men have to say about what is to happen in the next generation. The players then wait until all the clever men are dead, and bury them nicely. They then go and do something else." It may be worth while to consider what this "something else" will be.

IV

If we remember that women are, in common with the rest of us, human, it ought to be true that in common with all humans they are very apt to follow the lines of least resistance. The appeal to women to become martyrs is hardly the one that will stand

[10] Chesterton, (Quoted by Walter Lippmann in his "Preface to Politics," p. 207. N. Y., Mitchell Kennerley, 1914.)

the acid test of experience, mainly because the day of the martyr is past and gone. After all, the modern woman does not think of marriage as being a choice between Küche, Kirche and Kinder, with its economic dependence on the one hand, and a career with its economic independence on the other. To her, as Cicely Hamilton [11] has pointed out, marriage is a trade, and a "career" is most often not a career but just plain work; *i. e.*, again a trade. Now when the working woman is offered the choice of marriage or work, she will absolutely fail to go through any of the antics that her intellectual sisters experience—the question of dependence will not enter her mind in the least—she will consider the question on the same merits as if she were being promoted in the shop from making buttonholes at sixty cents a thousand with lay-offs in the slack season, to the steady job of dusting off the boss's desk at $5.00 a week.

In other words, irrespective of the exhortations of leaders of every kind, women will follow the lines of least resistance. Just so long as industry is more oppressive than marriage, women will be willing to take up marriage as a trade in preference

[11] Hamilton, Cicely Mary, "Marriage as a Trade." N. Y., Moffat Yard, 1909.

to what the factory offers as a trade. And not until conditions and opportunities in the factory are so improved that they are better than those obtaining in the proletarian home can it be safe to predict that women will permanently and voluntarily abandon the one workshop for the other, *i. e.*, the home for the factory.

The secret of the attitude of the proponents of economic independence lies in this simple matter of working conditions and opportunities. The literary and professional women, who are able to work under better conditions and at more stimulating occupations than the home and housekeeping offer, have been the only ones to whom the cry to economic independence has made any appeal. For the vast army of hard-working women marriage (and not economic independence) is and will continue to be for a long time to come the only escape from industrial despotism. For the less oppressed group of semi-skilled women it will mean merely the exchange of one type of monotony for another. For the intellectual woman who is honest with herself, it will offer a field for the development of her personality which no successful "career" can give.

Even marriage as a trade is becoming less and less a possible occupation for the working woman.

In England, for example, it has been estimated that before the war there were 1,180,000 more women than men. This meant that automatically this large body of women were debarred from marriage. It has been pointed out, however, by W. L. George [12] that at the same time there were some 3,470,000 unmarried men of marriageable age, showing that in all some four and a half million women must manage to get along without husbands, probably because these unpaired men were unwilling or unable to support wives. George thinks that the main body are unwilling to marry, for, as he says, "women marry when they can, and men when they must;" but undoubtedly a large part of this group is enjoying single blessedness because economic conditions do not permit them to do otherwise.

V

It is interesting to speculate on how this situation has been affected by the war. The number of women remains practically constant, the number of men has been greatly decreased through death or incapacitation. Moreover, during the war a large

[12] George, W. L. "Woman after the War." (*English Review*, v. 23, Dec., 1916, pp. 516-27.)

body of women have taken up the work of men and will continue at these occupations in competition with men. The meaning of this must be apparent. Not only has the number of surplus women been greatly increased, but the number of economically marriageable men will be decreased. The semi-skilled and unskilled men who have to compete with the women who have taken their jobs will find that they have a hopeless task on their hands. Employers have learned to value the docility, the pliability, and above all the cheapness of their female employees and are loath to part with them. In the working woman, the employer knows he has his last stronghold for fighting organized labor. The notorious difficulty experienced in unionizing women is a sufficiently large advantage for the employer to make it profitable for him to concede even "equal pay for equal work," if he can thereby rid himself of the bugbear of the unionism that his male employees invariably have forced upon him.

Opposed thus by the man that hires and the woman that works, the men replaced by women during the war must be forced down into the unskilled class, where the labor is too heavy to be undertaken by women. Or, should these men be able to reëngage in their original occupations, they

will have to modify their wages to meet the undercutting of the women workers. In either case, the cut in wages will add substantially to the class of men economically unable to support a wife. The consequent increase in men and women unable to marry and the competition among women for men able to support them can only result in:

1. A large increase in illegitimacy.
2. A still larger increase in the number of women who will continue to earn after marriage.

VI

Even before the war the question of population was beginning to take on a serious aspect. The alarming decrease in the birth-rates of many of the European nations had been the subject of inquiry by learned commissions, especially in England and in France.[18] The birth-rate in France had dropped

[18] For a brief, yet thoroughly up-to-date summary, see:
Dublin, Louis I. "Significance of the Declining Birth-rate." (*Science,* March 1, 1918, pp. 201-10.)
Especial mention may be made of the following reports: National birth-rate commission. Declining birth-rate; its causes and effects. London, 1916.
Series of reports on death-rate by Bertillon, Löwenthal, Drouineau, Atthalin, Fevrier and Strauss; and on the birth-rate by Neymarck, March, Bertillon, Rey, Drouineau, Atthalin and Lyon-Caen. Melun, Imprimerie Administrative, Paris.

to such a low point that it was already exceeded by the death-rate. During the years of the war the death-rate has so far exceeded the birth-rate for all the belligerent nations that, with the termination of the war, all the nations involved must turn to the problem of population with new vigor. They must try to find means of bringing the birth-rate above the death-rate, so that the men killed in the years of slaughter will be replaced.

Their first concern must be for the mother—the instrument for re-population. The next decade will see highly organized investigating commissions charged with the task of examining the condition of mothers in industry, of relieving them of tasks that endanger the life of the unborn child, and of providing for the adequate care of the children who are already born. There will be motherhood premiums and maternity insurance. Experts will also investigate conditions necessary to the well-being of the unmarried working-woman, the mother that is to be. Occupations requiring standing will be closed legally to women, as well as those demanding continuous sitting and the use of the feet or lower parts of the body. The question of the effect of work on menstruation, *i. e.,* the effects on the re-

productive organs, will be searched into exhaustively and settled once and for all time. Rest rooms will be required—also rest periods covering a certain number of hours every day. Possibly several rest days during the month will be specified by law. Motherhood, actual and potential, will be protected in every way and the resulting modifications in working conditions will affect deeply the question of women *vs.* men in industry.

That this is far from being imaginary is shown by the steps that have already been taken in the direction indicated during the years of the war. "The French are far too clever to let the women in munition factories injure themselves; they have double, treble, and even quadruple shifts," observes Mrs. Atherton;[14] and the French Academy of Medicine has already had the question of caring for the wage-earning mother under consideration. A recent report[15] issued by this body warns that: "The growing employment of women in factories constitutes a grave danger to the future of the race unless the expectant mothers and mothers who are nursing

[14] Atherton, Gertrude Franklin. "Living Present," p. 246. N. Y., F. A. Stokes, 1917.

[15] Reviewed in the article entitled: "Measures of Protection for Working Mothers in France," in the U. S. Bureau of Labor Statistics. *Monthly Review,* v. 5, 1917, pp. 39-41.

their babies are immediately and sufficiently protected." It is recommended that mothers and expectant mothers be assigned to work requiring only moderate effort which leaves them free of the necessity of standing; that overfatiguing work or work that is actively liable to produce miscarriage be prohibited; that four weeks before and after confinement the mother be relieved of the necessity of work; and that after the child is born, cradles, nurses, time for feeding, crèches for bottle babies and day nurseries for children two, three and four years old be provided by the factories.

In the United States, where the idea of maternity insurance was barely hinted at before the war, the committee on women in industry of the Council of National Defense recently reports as follows: [16]

"Many occupations hitherto regarded in this country as exclusively men's work have been thrown open to women workers by many employers in this emergency. They are in railroad office, shop and track work, in munitions factories, in elevator and messenger service, in farming, in street car operations, in manufacturing establishments filling government contracts. Thousands thus engaged will become mothers. All are potential mothers. The prohibition of the employment of women immedi-

[16] "Maternity Insurance as Help to Nation." *New York Evening Mail,* February 12, 1918.

ately before or after childbirth, in order to protect our human resources, will not serve its full purpose unless accompanied by maternity benefits to tide over the loss of earnings at the time when most needed."

In Germany, Austria-Hungary and Norway before the war, wage-earning women about to become mothers were prohibited from working six weeks and were granted maternity insurance during this period. Even in Russia a four-weeks' maternity vacation was provided by law. England has had a maternity insurance system, since pre-war time, which allowed a lump sum of $7.20 for insured women and $7.20 additional for the wives of men who are insured; and in Italy the law awarded $7.72 as maternity insurance to working women out of a premium shared by the worker, the employer and the state.

The protection of motherhood has been carried to the farthest extreme by Holland, which has laws requiring definite temperature limits in factories, also, in special cases, the quantity of moisture in the air. Women are not permitted to work in places furnishing less than a certain number of light units at a distance of one meter and are barred from factories where artificial light is used between 9 a. m.

and 3 p. m. Night work has been prohibited for women in practically all the nations of Europe (before the war), Holland leading here again with the hours 7 p. m. to 6 a. m. set aside as constituting the night non-working period.[17]

In the United States the celebrated opinion of Justice Brewer[18] in the Oregon 8-hour case has paved the way for the large body of legislation that will undoubtedly be passed after the war for the protection of women in industry:

"That women's physical structure and the performance of the maternal functions place her at a disadvantage in the struggle for subsistence is obvious. This is especially true when the burdens of motherhood are upon her. Even when they are not, by abundant testimony of the medical fraternity, continuance for a long time on her feet at work repeating this from day to day tends to injurious effects upon the body and as healthy mothers are essential to vigorous offspring, the physical well-being of women becomes an object of public interest and care in order to preserve the strength and vigor of the race."

[17] Andrews, Irene Osgood. "Protection and Promotion of the Health of Women Wage-earners," pp. 831-846. (In "Diseases of Occupation and Vocational Hygiene"; edited by George Martin Kober and William C. Hanson. Phila., P. Blakiston, 1916.)

[18] Justice Brewer—Opinion of the Supreme Court of the U. S. in the Case of Muller *vs.* State of Oregon. Feb. 24, 1908.

VII

The granting of the suffrage to women in the United States, in England, and possibly in other European countries will strengthen materially any activity in the direction of ameliorating working conditions for women; and even if a complete survey of the entire industrial field is not made immediately after the war, eventually the political activities of women will force a consideration of rest hours and rest periods for all women, married and unmarried. The employer will then find that although the employing of women has the advantage of cheapness and the maintenance of an open shop, it is in certain other respects very much of a nuisance. This matter of nurses and crèches and cradles and day nurseries and rest hours is the sort of thing he was never bothered with in the palmy days when men did the work. Besides, the trouble will be aggravated in another way. The men who are engaged in unionized trades will agitate and spread propaganda among their working sisters. Women's trade union league representatives, Socialists, and Feminists will camp at his factory gates. His women will be more or less unionized and probably, where they have the support of men,

they will be able to strike successfully. Demands for shorter days, shop control, "equal pay for equal work" and rigid state and federal sanitary regulations will harass him so that he will find that female labor is not as advantageous as it might be.

Even if the employer is not soon disillusioned as to the superior fitness of women for labor (from his point of view), the women themselves will be. Industry, for women, has been heretofore for the most part a temporary matter. The main difficulty with unionizing women has been the consistent attitude they have maintained of thinking that marriage and not the improvement of working conditions through the union is the panacea for their ills. However, under the conditions that will obtain in the immediate future, they will find that, due to the large number of surplus women created by the war and the increase in economically impoverished men, marriage will be difficult, in fact impossible, for many of them; and their consequent involuntary stay in the industrial ranks will force them more and more to accept the trade union idea as the solution of their troubles—but not without some show of bitterness.

For to the large majority of working women, marriage means not only the release from work

that they hate and are thoroughly weary of, but it offers the only medium for the satisfaction of their sex and maternal impulses. Cut off, as many of them will undoubtedly be, from the only legitimate source of expressing their sex and maternal instinct in marriage, a situation which before the war was already bad will be considerably aggravated. The strained condition created by the large surplus of women who are debarred from marriage will not be relieved, as has been suggested in the press, by the legalization of polygamy or by the institution of a pseudo-polygamy. A solution of this sort is too radical for any of the nations that have been at war to entertain. What is far more likely is that, with the large increase in illegitimacy that will result, legislation will be enacted modifying greatly the restrictions against it. In this matter, statesmen will probably follow the lead already taken by Norway, enacting laws which permit the illegitimate child to take the name of its father, to have a right to his support until the child attains majority and to have a share and claim to his property when he dies. Eventually, by making divorce laws more lax, they may even bring about, not legally of course, what practically amounts to the condition that Elsie Clews Parsons has recently advocated—par-

enthood to be considered the social factor subject to regulation by the state and marriage relapsing into a matter of private concern.

If the illegitimacy problem is solved by enacting new legislation or repealing old, the more general problem of the woman debarred entirely from marriage presents a graver aspect. It is this group of women, as we have pointed out, who will be forced to consider seriously the trade union as a means of alleviating their condition; and it will be the members of this group who, forced to maintain an involuntary economic independence and to abandon the career of motherhood, will be the ones who will feel most the necessity of mothering (because they are deprived of it). There comes a time in the life of all individuals, workers and non-workers, when the general failure they have made of life comes upon them with great force. It is then that the necessity for a child becomes most acute. With working women it offers the only divertant from an otherwise intolerable existence. The trade-union women of the future will feel this; they will know only too well the emptiness of the "emancipation" that economic independence brings; and it is to these women that the Woman Movement of the future must look.

VIII

The stay of women in industry cannot remain permanent. There are too many forces opposing it. As Walter Lippmann says: [19]

"The army of women in industry to-day is not a blessing but the curse of a badly organized society. Their position there is not the outpost of an advance toward a fuller life but an outrage upon the race, and I believe that the future will regard it as a passing phase of human servitude."

The employment of women in the monotonous and health-destroying type of factory work for which they are now being so widely used in competition with men is particularly the field from which they must be removed. As they come more and more under the influence of the trade union, women will realize that they are merely diluting the labor market, thereby lowering wages, and diminishing their chances for marriage, which, after all, is their ultimate goal. They are finding that the picture of a socialized home, where all the housework is done while they are at work, is a myth. The wages they are receiving are so wretchedly low, they find, that

[19] Lippmann, Walter. "Drift and Mastery; an Attempt to Diagnose the Current Unrest," p. 223. N. Y., Mitchell Kennerley, 1914.

they must work not only eight, or ten, or twelve hours a day but in addition do their housework as well. A recent report in the *Survey* describes an extreme condition of this kind relating to women in the Chicago packing industry, where it was shown that mothers, particularly on Mondays, Tuesdays and Wednesdays, when washing and ironing had to be done, were able to get only three or four hours' sleep a day.

The attitude of men toward the woman in the factory, it has recently been pointed out, will be a serious problem. Men will find it to their advantage, if they must put up with women's presence in industry, to take them into their unions rather than to compete with them as an unorganized group. The probable future attitude is reflected in a report which states that the Amalgamated Society of Engineers, a very powerful organization in England, has refused to permit women to join its ranks but recommends that the women form a separate organization of their own. During the war the street-car conductors in St. Louis, threatened with the loss of their jobs through replacement by women who were willing to work at low wages, struck for recognition of their union. Having won, they then permitted women to join their union and receive

the union scale of wages. Katharine Anthony [20] points out that in Germany women are welcomed into industry by the Socialists—but largely on "principle." Men's labor unions will have to maintain an attitude of friendliness toward women, but they will vent their antagonism in other ways. Legislation of any kind limiting or restricting in a special way the hours or conditions of employment of women, so as to give the men an advantage, will be favored strongly by them. The male labor unions will develop a hitherto unknown chivalry. They will be the most powerful supporters of any legislation calculated to protect—and to remove—women.

The most potent force, however, in the partial or total withdrawal of woman from industry will be the state. With the acute population problem created by the war still to be solved, the question of protection of motherhood will come to the front as never before. Every factor decreasing the death-rate and increasing the birth-rate will have to be utilized to re-adjust population. In attacking the death-rate, infant mortality, one of its largest contributors, will have to be considered in all its aspects.

[20] Anthony, Katharine. "Feminism in Germany and Scandinavia." N. Y., Henry Holt, 1915.

Investigation will show, as was recently found[21] in Fall River, that: "The cause of the excessive infant mortality . . . may be summed up in a sentence as the mother's ignorance of proper feeding, of proper care, and of the smallest requirements of hygiene. To these all other causes must be recorded as secondary." Measures will be taken in the future to provide mothers with the instruction necessary to the proper care, feeding and hygiene of infants. Examination of the reasons underlying the ignorance of mothers will expose at the root a set of pathological economic conditions which has made the concentration of large numbers of workers and the concentration of a large quantity of ignorance synonymous. The task of the future legislator will be to provide conditions that will make such a state of affairs impossible.

When it is shown to what extent modern factory work affects the general reproductive efficiency of the potential mother, additional protection will have to be extended to this class of working women. As the state assumes more and more the paternalistic attitude, which it is rapidly doing, it will under-

[21] U. S. Department of Labor. Bureau of Labor Statistics. Summary of the report on conditions of women and children wage-earners in the United States: Women in industry, No. 5, 1916, p. 359. Washington, Govt. Printing Office, 1916.

mine and destroy the economic agencies that have made possible the exploitation of motherhood for the purposes of private gain. The time is coming when, as Karl Pearson [22] has prophesied, it will be generally recognized that:

"Woman's child-bearing activity is essentially part of her contribution to social need; that it ought to be acknowledged as such by the state; that society at large ought to insist, exactly as in the case of labor, that the conditions under which it is undertaken shall be as favorable as possible."

IX

The Woman Movement has brought to a focus, as nothing else can, the crudeness of certain of our institutions. Elsie Clews Parsons has admirably pointed out, by sketching in parallel the customs and laws of savage tribes and those of our own civilization, that after all our own institutions are not so very perfect. In order that the narrowing influences that they create should be removed, a complete change in some accepted and stabilized forms will be necessary. We live under the tyranny of sex customs, of caste customs, of the customs

[22] Pearson, Karl. "Chances of Death and Other Studies in Evolution," v. 1, p. 251. 2 v. London, E. Arnold, 1897.

the elders have created for their own protection. Until we are able to throw off the slavery of these vestiges which savage society has fastened upon us, our development will continue to be circumscribed by narrow bounds.

"The basic idea of Feminism," announced Katharine Anthony,[23] "with which every other idea and every material achievement must square itself is the emancipation of woman as a personality." The Woman's Movement, by announcing the broad program of the emancipation of the personality, has shown how thoroughly it understands the philosophic basis of modern civilization. The Woman Movement of the future will not allow itself to be tyrannized by sex, caste, property, elders, or any of the other limiting customs and "mores" upon which our modern basic institutions are built. The women who are creating the main currents in the modern woman's movement have realized that the first steps in the emancipation of woman as a personality, as in the case of her brother, must be on the economic side. With this accomplished, they foresee a partial solution of a good many of the problems of their sex. The problems of love and marriage and

[23] Anthony, Katharine. "Feminism in Germany and in Scandinavia," p. 230. N. Y., Henry Holt, 1915.

motherhood will be to a great extent automatically solved when the state begins to take a more intimate interest in the welfare of the individuals, particularly the working individuals, of which it is composed.

The stay of woman in industry, though it has produced temporarily harmful effects, has been the type of education that women needed most. Confined to the home and home industries, as they had been in the past, the worldly experience that is necessary to an intelligent understanding of life was unknown to them. With their entrance into modern industry, the great forces in our modern complex civilization have become part of their everyday life; and this invaluable education has brought an enlightenment to woman that no end of preaching or exhortation could impress upon her. The disillusionment that labor brings is known to her; and the ideal of an enlightened career of motherhood beckons to her.

There can be no question that in the past women have been denied the education that they should have, both in the spheres of motherhood and homemaking, and in the broader fields which contribute toward producing a more cultivated mate and a

more intelligent companion and teacher for the child. With the new cultural opportunities that will be open to women, the standards of mentality of men will also experience an upward revision. The present almost childlike ignorance of women has made it possible for men with the most fragmentary kind of education to appear to them as paragons of wisdom. Even now the inertia of men is beginning to rebel against the broader education which is reaching women. The man who resents the companionship of the intellectual woman is merely ill at ease because he cannot overawe her as he can her less developed sisters. The antagonism is mainly one of sex superiority. Men, in order to maintain a superior position in the sex relation, will have to prove themselves masters of their women as in the past, and this mastery will not be confined to the physical as it has been but will have to include the mental as well.

The Woman's Movement is a healthy sign of the times. It exemplifies a more general intellectual awakening that is sweeping through that portion of our stagnant and conservative civilization of which women have always been a great majority. Whatever may be the outcome, we may assure our-

selves of a new type of womanhood. The new woman will first of all possess an intellect; she may or may not retain the so-called graces; but she will be a better mate, a more efficient mother, and a true, living, breathing, inspired and aspiring individual.

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