

A REVIEW OF THE CAUSES OF STERILITY.

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THE subject of sterility is one of great importance, since the happiness of married life not infrequently depends upon having children. It has also an important bearing upon the perpetuation of names and families, the permanence of dynasties, governments, etc.

It is stated that sterility is rapidly increasing in all highly civilized countries and that in Great Britain alone there are more than five hundred thousand married women who are childless.

Sterility in the human race compared with its occurrence in the lower animals is of the greatest frequency; indeed, few instances of absolute sterility appear to have been observed in the animal kingdom. The significance of human fertility, from the standpoint of both the individual and the race, surrounds the subject with keen interest and demands its occasional revival and discussion.

In this contribution the writer will make no attempt to introduce any strictly original ideas, but will review available literature, excerpting and epitomizing interesting data here and there, as the occasion seems to demand, with thanks to the various authors and publishers.

In some countries the sterile woman is a despised and unfortunate creature and is submitted to various indignities because of her barrenness. With some races or people the barren female may be returned to her parents and the purchase price demanded; or it may be she is allowed to supply a sister to her husband for procuring offspring.

Religious superstition has regarded barrenness within the *vinculum matrimonii* as a punishment inflicted upon the female by an irate Deity, or has even declared her possessed of the Devil, which entailed many forms of mistreatment and sometimes inhuman punishment.

Most writers agree that of the causes of sterility the most

frequent is some abnormal conformation of the female genitalia dependent perhaps upon numerous pathological conditions. First, the channel must be unobstructed for the passage of the ovum downward through the *ductus Fallopii* to the uterus, where it may encounter the sperm cell in its downward course; second, the vagina and cervix uteri must be patulous so the sperm cell may ascend and come in contact with and impregnate the ovum. In this connection a query of some importance suggests itself, viz., whether impregnation takes place within the cavity of the uterus proper or in the Fallopian tube (for my own part I believe that normal impregnation always takes place in the uterine cavity, that when it occurs elsewhere it is abnormal and accidental.

In enumerating the causes of sterility, then, with especial reference to the female, it is better to begin where normal fecundation should occur. Nearly all deformities or abnormalities of the uterus may, and doubtless often do, lead to absolute sterility, and such deformities may be either congenital or acquired. Of the congenital we have total absence of the organ, which occurs not infrequently, also a condition of infantile development, either of which precludes fecundation. Again, the uterus may be apparently normal in size and position but bifurcated, with either a single or double cervix, with diminutive orifices, the passage or passages being so tortuous that the vitality of the sperm cell is insufficient to gain entrance and thus encounter the ovum.

Of the acquired cases displacements are the most common; they may be anteflexions or retroflexions, anteversions or retroversions, with various modifications of either, producing cervical stenosis, either partial or complete. Women with enlarged uteri are usually sterile, probably because of pressure upon the cervix and consequent obliteration of its lumen, thus obstructing the ascent of the sperm cell. The same is true of prolapsus uteri.

Diseases, such as endometritis, metritis, menorrhagia, metrorrhagia, gonorrhea, leucorrhea, septic conditions, etc., are given as causes of sterility though when these conditions have been relieved by appropriate treatment conception sometimes takes place. Pregnancy has been known to occur in the presence of a septic endometritis, profuse leucorrhea and other uterine diseases, though it must be admitted this is the excep-

rather than the rule. Tumors of the uterus, of all kinds, may also induce sterility, yet pregnancy has resulted despite some of these complications. Conception occasionally occurs in the presence of large, multiple uterine myomata, with aggravated displacement of the uterus and interference with the cervical structures, strange as it may seem, but such cases are usually terminated by early abortion.

Abnormalities of the cervix may cause sterility by preventing entrance of the sperm cell to the cavity of the uterus, for instance, marked elongation, obstruction by tenacious mucus, cervicitis, etc. Mechanical obstruction of the cervix from pressure of uterine displacement and tumors has already been mentioned.

The ovaries may be congenitally absent; may be prolapsed, displaced or mechanically separated from the fimbriated extremity of the tubes, so that the ovum cannot be grasped and carried to the uterus. Oöporitis, cystic, cancerous, inflammatory and degenerative diseases of the ovaries, may interfere with the production of ovules and thus contribute to sterility. Ovulation may be normally accomplished, yet, because of conditions already described, the ova never reach the uterus to receive the sperm cells.

Several conditions in and about the vagina may induce sterility and these likewise may be congenital or acquired— atresia, partial or complete, or an imperforate hymen, for instance. Again, the vagina may be abnormally short, may be obstructed by labial hypertrophies or tumors and thus produce sterility by preventing proper consummation of the sexual function; or an abnormally long or large vagina may lead to the same result because the sperm cells are deposited at such distance from the os uteri that they fail to gain entrance to the uterine cavity. Perineal lacerations and deformities resulting therefrom may be such as to change the axis of the vagina. Tumors, cystic or solid, within the vagina, enlargement of the vaginal veins or glandular structures may cause deformity of the canal. Varicosities in this situation while not common are occasionally seen. Glandular enlargements, usually as secondary manifestations of well-known primary causes, are not infrequent.

Prevention of conception and destruction of intrauterine life are practices which prevail in all countries to greater or

less extent, and in all grades of society. Many women who might otherwise be capable of bearing children are sterile because of these practices; they are potentially fertile but practically sterile. Aside from the moral depravity engendered by the practice and perpetuation of habits destructive of the sanctity of married life, a certain physical or physiological degeneration seems to take place which has a tendency to render such women actually incapable of being impregnated. Reasoning *a priori* there is probably an excessive hyperemia of the reproductive organs, the result of the woman's own acts, which makes conception unlikely; moreover, her mental and physical health is undermined and impaired to such an extent that she is no longer capable of becoming a mother. The ultimate results, therefore, of such practices must not be underestimated in considering the question of sterility.

Vaginismus may be so marked as to prevent coitus, and the hypersensitiveness is so intense that the least attempt to introduce the male organ (or even the touch of the finger) induces such violent spasmodic contraction and rigidity of the muscles as to effectually close the vaginal orifice. Vaginitis, either chronic—the result of constitutional conditions; or specific, usually renders a woman sterile; or the character of the vaginal secretions may be so altered as to destroy the vitality of the sperm cells before they can reach the cavity of the uterus to impregnate the ovum.

Excessive venery and masturbation have been given as prominent causes of sterility, and though both are undoubtedly entitled to some consideration, it is probable their importance as causative factors has been largely overestimated, for fresh recruits to the ranks of the *demi monde*, with whom excessive copulation is the rule, usually become pregnant several times before they are rendered sterile from other causes; and girls who have been known to masturbate for an indefinite period have married and given birth to offspring.

In some instances there is a relative sterility, seemingly the result of incompatibility or lack of sexual affinity, e.g., a woman who has been married for several years without becoming pregnant after the death of her husband may marry again and promptly become *enciente*.

Syphilis, tuberculosis, chlorosis, obesity, have been mentioned as causes of sterility, as have also other constitutional

conditions which are so vague and remote as not to merit recognition in treating of the determining causes. It must be recognized, however, that any debilitating disease or one which impoverishes the system and reduces or depletes vital energy has a more or less definite influence as a causative factor.

It has been stated that a certain mutual adaptation of husband and wife seems necessary for conception to occur. This inference is likely made from the observation that conception commonly occurs for the first time several months after marriage. It is more reasonable to suppose that the congestion incident to sexual hyperactivity accompanying the early months of married life may disturb function and interfere with the more frequent occurrence of early impregnation. Again, it is possible that conception occurs early and the gestation is interrupted by subsequent sexual activity.

Woman's best years are between twenty and thirty, therefore very early and very late marriages are prone to be sterile. Statistically it seems satisfactorily proven that in marriages entered into before the twentieth year fecundation is retarded, comparatively six months. Fright, fear and other preoccupied mental conditions, are probably impediments to conception, and are allied in their local effect to frigidity, dyspareunia, adiposity, general debility, alcoholism, and similar untoward influences.

Diseases of children, especially the exanthemata, are said to give rise to destructive changes of the sexual organs, entailing ultimate sterility. Infectious and debilitating diseases during adolescence of the female often retard menstruation and not unlikely exert a retarding effect upon the growth and maturation of the genital organs.

Of all the diseases of either sex to which sterility is attributable, gonorrhea is undoubtedly entitled to the first place. In 1872 Noeggerath stated that gonorrhea in the male was practically incurable; that it continued in latent form; that the wives of husbands who have had gonorrhea were certain to become infected and that primary or secondary sterility in the female was sure to follow. But the noxiousness of the gonococcus is not confined to the female; it has been proven that the gonorrheal virus is devitalizing to spermatozooids which come in contact with it; they soon lose their power of

motion and die.

Graefe states that in 50 per cent. of cases matrimonial sterility is due to azoöpermia, and Seeligmann declares that the barren marriages under his observation are owing to the male in 75 per cent. of cases. Vedeler examined 310 women married one year or longer without conceiving. The husbands were examined in 50 cases. He concludes that in 70 per cent. of the cases the husband is the cause of the sterility, owing directly to azoöpermia, impotence, etc., or indirectly to his infection of the wife with gonorrhea, leaving the female at fault, in his estimation, in only 30 per cent. of cases.

In some countries, according to statistics, if a woman remains childless for a certain period the fact is regarded as sufficient ground for legal separation, provided the husband so desires, no matter what may be the cause of sterility. In view of the opinions of Vedeler and others this seems manifestly unfair and unjust to the female, as she may be without fault.

One-child sterility exists in one out of thirteen marriages. The average time from marriage to the birth of the first child is seventeen months, and between the birth of children nineteen months, and women on an average bear children from twenty-five to thirty-eight years of age—less than fifteen years. As one in thirteen women bears the first child after having been married three years no woman should be considered sterile until the fourth year of married life.

The so-called spasmodic dysmenorrhea may cause sterility, since of 332 women absolutely sterile 139 suffered from this trouble. Obesity, confinement, sedentary habits, changes in climate, and interbreeding are causes of absolute and relative sterility.

As woman ascends in the scale of education and refinement, child-bearing becomes more difficult; she is more sensitive to pain, and bears children with greater cranial development; her mode of dress distorts or displaces her thoracic, abdominal, and pelvic viscera, and so weakens the abdominal muscles that the auxilliary forces in parturition are very much impaired.

Women in so-called refined, religious, and cultivated society, being controlled by desire for social pleasure, and for position and wealth for their children, practise prevention of

impregnation more than women in the obscure walks of life. Their daughters are taught nothing about anatomy or the physiology of their generative organs, but are trained to abhor offspring, and are told how to avoid becoming pregnant. The higher education or brain-cramming of girls nowadays, with the absence of exercise and other hygienic measures, and the reading of sensational or love novels, destroy their power to bear well developed and healthy children, or to supply them with enough nutritious milk for the natural period.

The biblical story of how Hannah prayed for a son, with the result that her "womb was opened" (?) and she gave birth to a male child, is a familiar one. In the present generation it is safe to say that the majority of married females earnestly pray that they be *not* impregnated, that their wombs be *not* opened, and many of them use every known means to prevent conception.—And this fact, I am led to believe, constitutes an important factor in the production of permanent sterility.

The moral philosopher can scarcely distinguish between the sin of preventing conception and that of producing abortion; and there is probably nothing about which the moral nature of woman is so depraved as that which concerns her duty in child-bearing. She is often a respectable member of society and of church, and will reason intelligently upon other subjects, but is deaf to all other arguments upon this. Sacred history is replete with proof that the evil practice of preventing conception and of causing abortion has been condemned from the earliest history of the world, and the Old and New Testaments are full of evidence of the will of the Creator upon this subject, and the punishment of its violation.

As the ratio of relative sterility and of abortion is less in women who marry several years after puberty, we should advise against too early marriages. Fecundity and fertility are greater in women who have completed their physical and mental development, and as adolescence usually continues until about the age of twenty years, it is best to defer marriage until after that time.

It is said that in the British peerage there is one sterile woman in six and a half marriages, while there is but one sterile woman in ten marriages in the agricultural and seafaring people. In 100 marriages in the British peerage 414 children were born, while in 100 marriages not heiresses there

born 624 children.

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If this statement be true, which we may have every reason to believe, it has a most significant bearing upon the question of sterility and the induction of abortion or the prevention of conception in the higher grades of civilization.

Examination of current medical literature reveals practically nothing new in reference to the treatment of sterility due either to the male or female. A recent text book states that sterility due to the male may be manifest by (1) aspermia; (2) oligospermia; and (3) azoospermia, but, so far as the writer can see, suggests nothing new as regards treatment.

The treatment of sterility in the female depends, of course, upon the cause and no further reference need be made here. A brief recital of one case, which occurred in Kentucky may not be uninteresting: A woman, about 22 years of age, had been married about one and a half years; sexual intercourse had never been satisfactorily accomplished because of an intense and persistent vaginismus which resulted upon the slightest manipulation of the external genitalia.

The woman was repeatedly anesthetized and treated by the introduction of glass bougies, gradually dilating the canal in the hope that the extreme hypersensitiveness of the parts would be thereby overcome and later forcible dilatation of the vaginal inlet was practiced under chloroform, all with negative results; vaginismus persisted despite all treatment. As a *dernier ressort* she was anesthetized, at the suggestion of the family physician, and the husband allowed to have sexual intercourse with her while under the influence of chloroform, with the hope that pregnancy would result and that the birth of a child would afford relief to the distressing vaginismus. She became *enciente* and was delivered at term of a living child, but the muscular spasms continued up to the time of delivery absolutely preventing the usual digital examination to determine the presentation at the onset of labor. The subsequent history of the case is unknown, but nothing was heard from the patient thereafter and it is to be presumed that the result was as hoped for.

The method pursued in the management of this case is unique so far as the observation of the writer is concerned. Where absolute sterility and inability to perform the procreative act results from such obstinate and intractable vaginismus

the means employed in this case, while hardly to be recommended as a general rule, may be deemed not only justifiable but wise and proper, and may also be productive of the desired results.

PUBLICATIONS FROM WHICH EXCERPTS WERE TAKEN IN PREPARATION OF THE ABOVE.

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