THE GULSTONIAN LECTURES,

ON

THE STERILITY OF WOMEN.

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LECTURE III, PART I.—ITS PREVENTION AND CURE.

MR. PRESIDENT, VICE-PRESIDENT, AND GENTLEMEN.—As in past ages, so also in modern, sterility has been an object of great interest, of study, and of experiment. The acquisition of wealth has at all times stimulated the agriculturist, the gardener, and the breeder; and the desire of offspring has no less stimulated men and women. At no time has the subject had more importance than at present; for the growth of science and the love of daring speculation bring now on the field a class of men of trained intellect, who invade it, not to make money or secure offspring, but in search of knowledge. It is to such men that Nature opens her secrets, and the divulging of truth through them is the just pride of philosophy.

A true theory of sterility, even though it be lamentably incomplete, is of very great importance in medical practice. Thousands of women are seeking what they call cure, and their advisers should surely take care to know what they can offer in return for the confidence placed in them. According as medical men have their course illuminated by knowledge, so will they be wise in advising; and if increase of knowledge, acting directly or by dispelling illusions, destroys faith in remedies, it may yet, in this negative way, add to the usefulness of the adviser. It has been said by Brodie of John Hunter, that, by teaching us when we are not to interfere with the ordinary course of events, he has contributed more towards the advancement of the healing art than all the inventors of remedies who had gone before him.

The course and the details of the argument in these lectures point to a law or laws of sterility not yet clearly formulated; and it is to be expected that progress will be obtained from inquiries such as have been here described, as well as from investigations of the intimate state of the reproductive organs, including those parts of the nervous system which govern them or are governed by them.

Deficient reproductive energy, or want of sexual vigour, is a theory too vague to be satisfactory. It is only a general idea which loosely binds together, meantime at least, the items of knowledge we have acquired as to sterility. Of course, it is a general idea to whose entertainment no known fact is hostile. But it is flimsy, like a ghost, and a fact might find it difficult to prove its steel; for, like a ghost, it might be cut by a sword without being destroyed or even damaged in the eyes of those who see it. Deficient reproductive energy is held to be proved by all the conditions which produce or which attend sterility in plants, animals, and man. In woman, it is shown by absolute sterility, by relative sterility, by excessive production, and by imperfect production, which may be abortion, or miscarriage, or morbid pregnancy, or children diseased or difficult to rear, or destined to peculiar diseases during extra-uterine life. Deficient reproductive energy cannot be regarded as a substantive disease with specific characters, course, and remedies. It is a constitutional condition, which, according to its cause, may affect a population or affect certain classes. Cold or heat may render a whole population sterile. Underfeeding or overfeeding, or premature or postmature marriage, may cause sterility in certain classes within a population. Sterility, the result of deficient reproductive energy, is an imperfection which does not show itself by measurable tangible qualities, such as a dwarf exhibits, but by absence of function, or a stunted or otherwise imperfect performance of function.

• The consideration of the great causes of sterility, exhibited as they are in their results in populations and in classes of women, makes it almost certain that local causes, whether acting as impediments to conception or as unfavourable to pregnancy and to intra-uterine life, have very little scope for operation. These local causes have a clinical interest as affecting individuals; for they have not been supposed, far less shown, to have any connection, or even

accidental association, with the great causes whose scope is wide and certain. In the production of cancer of the womb there may be great operating causes, such as age and multiparity, and there may be minor local causes, such as the so-called ulceration of the cervix uteri and its injudicious treatment; and these minor causes, although doing little harm to a population or a class of women, may be of the highest practical importance to individuals.

In women, the chief and best demonstrated sources of, or attendants on, sterility are juvenility or prematurity, elderliness or postmaturity, dysmenorrhoea, and disorder of sexual appetite and pleasure. Of these, the influence of age has been most fully shown, and it is that which is most under control with a view to prevention.

As in cases of constitutional diseases or of epidemic fevers, so here, the good done by prevention immeasurably exceeds, or may immeasurably exceed, any possible good by cure; and this, whether the good done is to a population, or class, or to an individual. The superiority of prevention is partly because the good is to a population or class, not to mere individuals. Prevention is to be, in part, effected by avoidance of unions of immature women or of elderly women: in other words, by securing that women are married at the age of nubility, or best age of marriage, with a view to fertility and the rearing of healthy children, and the safety of the mothers; and this age is fairly well ascertained to be, for a population or mass of women, not under twenty and not above twenty-five.

In the breeding of domestic animals and of animals in confinement, man can interfere easily and without restraint, except from his own interests, but it is otherwise in woman. She enjoys liberty within wide limits, and she is more or less subject to the restraint of social, moral, and religious law or custom. These restraints diminish the power of the medical adviser to guide; and, in general, he can do most good by diffusing knowledge as to the prognostics from marriage entered into under various conditions.

At present, the law of England legitimises marriage at a very early, a too early, age; and it, wisely no doubt, does not interfere with late marriages. "Without the sanction," says Major Graham, "of the laws of physiology, or of common sense, a girl may—but in the present day rarely does—marry at the age of twelve, a boy at the age of fourteen, under the existing laws of England; but the consent of parents and guardians is required in certain cases where either party has not attained the age of twenty-one; and the proportional number of either boys or girls who marry under the age of twenty is happily small.....The age," he adds, "of marriage cannot be directly fixed by laws; but legislation, by prescribing the minimum age of marriage, and the age of majority, does exercise a considerable influence on good numbers of the people directly, and on all indirectly. It becomes the custom or the fashion not to marry below the age of majority. Thus, in England, about 9,000 young persons of the age of twenty and under twenty-one married in the year 1851; while about 139,000 married in the four years after they were of age, as it is called, or in the years of age twenty-one to twenty-five. The age of majority is twenty-five years in France; and the age of twenty-five divided the minors from the majores in Roman law. The advanced age of majority, or of what becomes practically the lowest age of marriage, retards marriage indefinitely in many cases, and will probably be found, on investigation, to account, at least partially, for the comparatively small number of children to a marriage in France. By raising or depressing the age of majority, the Legislature, then, has the power to exercise considerable control over the population." These remarks of Major Graham are valuable in themselves, and indicate the view taken by a politician. The law of majority has, no doubt, great influence, and by it the State can modify the age at marriage to some extent; but the laws of love, of self-interest, and of social convenience are much more powerful.

The sterility of near relations, of interbreeding, or of breeding in and in, as it is often called, is generally recognised, though far from well proved in man, and forms what seems a contradiction in terms, an inherited sterility. It is believed to be shown not only by absolute sterility and its accompaniments, but also by the production of idiots and ill-formed children. Restraint by knowledge of these risks of intermarriage is no doubt a powerful preventive of sterility, but not so potent as it ought to be.

There is, as already pointed out, a sterility dependent on some inscrutable incompatibility of the parties, as in Augustus and Livia, Napoleon and Josephine. Cases like the following are not very rare, and I have actually observed them. A man marries successively three childless widows, and has children by each of them. A woman is married successively, and within child-bearing limits, to three

men, and has children by only one of them. Such cases, if very rare, might carry little weight, but they are so common as to have occurred within the knowledge of most observant people. Sterility of this kind we cannot foresee and prevent; and religion, morals, and law continue to interdict the cure that might result from a change of husband. Unfortunately, however, among large classes—chiefly, I am told, in Wales and some parts of Scotland—custom permits, and local morals do not interdict, a practice which produces many illustrations of this mutual incompatibility. The practice is called bundling, or keeping company, and consists in parents permitting daughters to cohabit with an eligible man on the understanding that, if pregnancy ensues, the legal marriage tie is made. A woman proving sterile may be deserted by her follower, and gets another with whom the result is different.

In ancient times, much was known and taught regarding the avoidance of sterility, and most of it was in accord with what is still taught, but little was done with a view to the cure. The physiology of reproduction was little advanced, and its primary or elementary conditions were quite unknown. When certain winds were believed to cause sterility, and fecundation was supposed to be effected by an aura seminalis, we could not look for rationality in practice. Accordingly, such cures of sterility as were then practised appear to us ridiculous or fantastic.

In modern times, the physiology of reproduction is comparatively far advanced, and the necessity of the physical conjunction of the male and female elements is especially recognised. But it may be doubted whether the cures of sterility are much more rational than those of the ancients, for the laws of sterility have been investigated with no great amount of success; and especially do we remain uncertain as to the physiology of the conveyance of the spermatozoa to the Fallopian tubes.

During the last thirty years gynaecology has made great and rapid strides of substantial progress, and naturally sterility, as part of it, has swollen in bulk; but the growth of it has not been satisfactory, for it has not a sure foundation. While our general knowledge of sterility in woman has made little advance, and especially that part of it which might be turned to practical account, the curing of sterility has reached great dimensions. As in other departments of therapeutics, there has been a great failure of logic; the *post hoc* and the *propter hoc* have been confused—a coincidence has been regarded as a consequence. The credulity of patients and of doctors has been a basis for useless and often injurious practice.

It is scarcely an exaggeration to say that, in recent practical works on sterility, there is exhibited entire ignorance or entire neglect of the laws of fertility. Every woman from fifteen to forty-five is regarded as likely to breed. If she be sterile, a cure is at once set agoing; and, if a child be not born, the failure is not debited to the nature of the case, but to the want of ingenuity in the doctor. A reputation for curing sterility is spoken of as if it were founded on substantial claims. The prevalent methods of curing sterility are founded on an implied theory that it in most cases arises from impediments in the way of the spermatozoa reaching the ovum. Without sufficient evidence, strictures are assumed to exist, versions and flexions of the womb are held so to distort the interior passage as to prevent progress of the spermatozoa, cervical catarrh is believed to stop them by mechanical obstruction or by chemically poisoning them; and for these real or imagined evils, sterile women are made the subject of treatment. It is the theory of mechanical obstruction that, by its simplicity and directness, has possessed the profession and the public; and accordingly many operations and modifications of operations, and very many instruments, have been devised to do away with the obstruction. The theory has had real rational support in the fact that dysmenorrhœa of a spasmodic kind does, as already shown, frequently accompany the sterility, and in the supposition that the same obstruction which causes sterility by impeding the entrance of semen, causes also dysmenorrhœa by impeding the exit of menstrual blood, or *vice versa*. It has had still more satisfactory support in the observation that the cure of the dysmenorrhœa does occasionally bring with it cure of the sterility.

The very zeal with which the mechanical theory of sterility has been fostered, and its treatment in many ways pursued, has led to its present decadence, and there is now increased attention paid to other departments of fertility than conception. Especially and justly, the difficulties of naturally starting and healthily continuing pregnancy are brought prominently into view. The mechanical obstruction theory has begun to shrivel, because of the impression produced by the enormous, though inexact, proportion of the failures of the attempts to cure founded on it. Even the igno-

rant sterile women could see that, if this theory of causation were true, there was an easy and plain theory of cure; and they could also see that the failure of the so-called cure was prejudicial to, if not destructive of, the theory. The importance of the difficulties of pregnancy now brought into prominence will, on account of its great reconditeness, be received with no enthusiasm, such as welcomed the obstruction theory; and the physicians who entertain it can offer no such brilliant prospects of cure to their confiding patients. It is, however, a decided step of progress in a subject of great practical importance.

It is in Germany that this department of sterility has been chiefly studied, and Grünewaldt of St. Petersburg is its best exponent. Recognising the importance of this work, I take the liberty of using it to show the great incompleteness of even the most advanced accounts of the subject. For Grünewaldt, sterility is truly never a disease, but a symptom of a disease. Nature has, he says, set no limits to female breeding other than the natural changes in the sexual organs that are observed in the senile state. Sterility is one of the most frequently occurring disturbances of function caused by diseases of the female sexual organs. In these views, and in his whole work, it is implied that sterility depends on disease of the sexual organs, including chiefly endometritis, mesometritis, perimetritis, and parametritis. The difficulties of conception, he says, have only a slight importance, compared with the disorders of the more important vital processes of pregnancy, and these disorders affect chiefly the tissues of the uterus.

It would involve an useless recapitulation of the substance of these lectures, were I to set about showing how partial and imperfect is that theory of sterility which makes it depend on local disorder or disease, whether the disease impede conception, or interfere with the progress of pregnancy. Taken together, the obstruction theory and the theory of Grünewaldt do but cover a small part of sterility, which may be described as the part affecting scattered and sparse individuals, giving thus its importance to these individuals, and to their advisers.

The obstruction theory and the theory of Grünewaldt make no room for that kind of prevention which we have described as of paramount importance. On the other hand, they open up great, indeed almost unlimited, fields, for the activity of curers. But the failure of curers is so notorious, and the curing of sterility has so bad an odour in the nostrils of many, probably of the majority, of the best in the profession, that it is worth while to ask the question, Is sterility curable?

Before this question there comes another which is of great importance, Should sterility be cured, as it is called? That, in the interest of the community, it should be prevented, I have no doubt; but, in this department of the subject, statesmen and economists have taken much interest, and I shall not meddle in it. I am of opinion, also, that it should, if possible, be cured. Yet a good argument may be made out for not curing it, in many cases at least; for the laws of sterility show that if it be, what is called, cured, there is a risk of some of its alternatives or attendants—morbid pregnancy, abortion, miscarriage, weakly children, excessive family, death of the mother, and others. But the practitioner hopes, by appropriate cures, to conduct his patient and her offspring in safety through these perils; and we do not, meantime, feel disposed to cavil with this, perhaps, over-estimated view of his rational expectations.

It will be admitted that reputation, even with well-informed medical men, is not sufficient to prove the reality of a so-called cure, and we are constantly meeting with instances of exaggerated credulity in reported cures of young women married between twenty and twenty-five, and who had not lived three years in the married state, for it is common for such ardent young women to thus prematurely regard themselves as doomed to persistent sterility, and seek advice with a view to averting their dreaded fate. But there can, I think, be no doubt that sterility is often cured; and such cases as the following do all but absolutely prove that cure is possible, and the sufficiency of the proof will not be controverted by anyone if it is added that such cases, though rare, are sufficiently numerous to prevent by their number, apart from their circumstances, the confusion of a coincidence with a consequence.

A. B., married at twenty years of age, menstruated regularly since thirteen, had dysmenorrhœa most of her life, but not very severe; had never been pregnant. She had had no uterine treatment until the cervix was canalised by bougies in the usual way, twenty-two years after marriage. No known change was made in her conjugal or other habits. She became pregnant at once after the treatment, and had a living healthy child at forty-

two years of age. Now, five years after the birth, pregnancy has not recurred.

C. D., married at nineteen years of age, began to menstruate at thirteen, and was regular, with pain for a short time on the first day. After fifteen years of married life, she had had no pregnancy. She had had much uterine treatment. The cervix was canalised by bougies, and for the first time, according to her. No change was made in her conjugal or other habits. On resumption of cohabitation, two months after the treatment, she became pregnant, and had a healthy child at thirty-five years of age. Since this birth three years have elapsed, and she has been twice pregnant.

It is, however, desirable to go further than merely prove that cure is possible, that a cure has been effected; and I believe the most important means of curing sterility or relative sterility is improvement of the general health. In the case of plants, the value of digging about and dunging is well known, and so is the value of proper exposure to the sun, and so is the value, and, indeed, the necessity, of good air, not the air of large cities; and the use of these, when previously withheld, is certainly curative of sterility in many kinds. The cure is sometimes, as in apple or pear trees removed from the shady side of a wall to a better exposure, accompanied by other changes in leafage and in growth of wood, which make better general health evident to the eye. But the cure may have no accompaniment of other signs of better general health, for some London trees which are sterile have a fine outward show of healthy vigour, and it can scarcely be doubted that return to a purer atmosphere would restore their fertility, though it could do little to improve their appearance. In the case of animals, a similar influence of general health may be noted. The starving of fowls diminishes or even arrests their fertility. We cannot doubt that the agouti, released from confinement and restored to its natural habitat, would produce healthy offspring instead of dead and ill-formed, and that, similarly treated, the lioness would have cubs without cleft palate.

In the case of woman, the restoration to, or improvement of general health involves such a variety of considerations as renders it very difficult of treatment, and the whole matter comes as much under the care of the general physician as of the gynaecologist. But it may be mentioned that special means have been recommended, and are much used, such as the waters and baths of Germany. These are of different kinds; and the Schwalbach, Spa, Franzensbad, Ems, and Marienbad have great reputation. That they are often of some kind of service, I have no doubt; just as, I dare say horse-riding, said to be recommended by Boerhaave against abortion, may also be sometimes valuable as a remedy of that tendency.

It may well be objected, that general health is too vague a term, and that it would be better to profess ignorance than to ascribe to it such important and definite a result as sterility; and it will be justly asserted that the great mass of sterile women have the appearance of good health. The difficulty of the subject is well expressed by Darwin in a passage I have quoted treating of the causes of sterility in animals. After all, I think it best, in the present imperfect state of our knowledge, to group a large number of injurious ill-defined influences under the head of general health, and to consider its improvement a means of cure. Although an animal sterile under confinement appears healthy, one cannot positively object to the statement that sterility is evidence that it is actually unhealthy, and the cure by restoration of freedom seems to confirm the view. Whatever may be the objections to the term "general health," every one will recognise the importance of investigating the subject with a view to increasing our power over it; for it carries with it a strong influence, not only towards the cure of simple sterility, but also towards the safety of the mother, the avoidance of morbid pregnancy, of miscarriage, of dead, ill-formed, and unhealthy children, and of excessive families.

Overfeeding and the production of fat are often spoken of as if they were identical; but this is plainly not the case, for many excessive feeders are not fat. What is the influence on sterility of overfeeding, or feeding by particular foods without fattening, I do not know; but there are analogies which dispose the mind to suspect that influence may thus be exerted. Plants are habitually spoken of by gardeners as overfed by rich soils and manures, but they do not become fat. Mr. Thomson, recently showing me his tomato plants, pointed out some, set among strong manure, growing luxuriantly in wood and leaves, but producing little fruit; others, which had been similarly placed, he had restored to due fruit-bearing, with diminished production of branches and leaves, by diminishing the contact of their pots with the rich manure. The growth of stems and leaves some may regard as the equivalent of fat in animals; but, in that

case, stoppage of growth would be equivalent to resorption of fat, which would be driving analogy too far.

Although the injurious influence of fatness in women on fertility is universally admitted, it has not been altogether proved. But universal consent is strong evidence, and it is corroborated by all we know of the power of this same condition in the lower animals. Generally, young women before commencing to breed are fat, or at least plump. When they bear children, they lose in weight by diminution of fat; again, as they cease to bear children, to resume the fat condition, the fat being now, however, differently disposed of in the body. The fat of the immature and of the post mature is, within moderate limits, an indication of health. The fat of sterility is not an indication of health, but is, so far as I know, itself healthy, and indicates no active or positive disease. To obesity I only make allusion. I have known grossly fat women bear children; but facts about obesity are too few to justify its separation from the common exaggerated fatness of sterility here referred to.

Spencer makes a distinction between normal plethora and abnormal plethora as indicated by fat, and connects sterility only with the latter. I quote his ingenious remarks, not so much for the sake of giving his description of a distinction, the force of which I cannot see, as for the sake of stating his general argument regarding overfeeding or plethora as indicated by fatness. Medicine recognises no normal plethora. For physicians, plethora is always an abnormal condition, whether accompanied by much deposit of fat or not. "Many facts," says Spencer, "may be brought to prove that fatness is not accompanied by fertility, but by barrenness; and the inference drawn is that high feeding is unfavourable to genesis.....There is a distinction between what may be called normal plethora and an abnormal plethora, liable to be confounded with it. The one is a mark of constitutional wealth; and this is the plethora which we have found to be associated with unusual fecundity. Abnormal plethora, which, as truly alleged, is accompanied by infecundity, is a superfluity of force evolving materials joined with either a positive or a relative deficiency of tissue-forming materials; the increased bulk indicating this state being really the bulk of so much inert or dead matter. Note, first, a few of the facts which show us that obesity implies physiological impoverishment.....Neither in brutes nor men does it ordinarily occur either in youth or in that early maturity during which the vigour is the greatest and the digestion the best; it does not habitually accompany the highest power of taking up nutritive materials. When fatness arises in the prime of life, whether from peculiarity of food or other circumstances, it is not the sign of an increased total vitality.....Of like meaning is the fact that women who have had several children, and animals after they have gone on bearing young for some time, frequently become fat and lose their fecundity as they do this. In such cases, the fatness is not to be taken as the cause of the infecundity; but the constitutional exhaustion which the previous production of offspring has left shows itself at once in the failing fecundity and the commencing fatness."

The fatness of sterility is not apparently a matter of high or of low general health, and seems to be of a different origin from that fatness which comes on men and women at the great climacteric, and on the latter whether they have borne children or not. Whatever may be its natural history, it is known to be in some degree under the control of the physician. Not by medicine, but by diet and exercise, he can restrain its production or cause its removal. For success in removing fat, the co-operation of the patient is necessary, for on her part there is required change of habits and restraint of appetite. Little can be said regarding the cure of sterility by reduction of fat, but experience has furnished no reason to doubt the favourable influence generally expected from it.

RESORCINE AS A LOCAL APPLICATION TO CHANCRES.—In the January number of the *Annales de Gynécologie* MM. Leblond and Fissiaux report six cases of soft chancre in women treated by the application of resorcin in powder or solution. The formula of the solution recommended is five grammes (75 grains) of resorcin to 20 grammes (5 oz.) of distilled water. The average duration of the six cases under this treatment was twenty-three days, whilst in five cases treated with iodoform the average duration was thirty-eight days. Resorcin is said to cause but slight pain, which usually disappears rapidly. The entire absence of odour gives this drug a great advantage over iodoform, to which indeed the authors consider it in all respects superior as a dressing for soft sores.

MEDICAL MAGISTRATE.—Mr. David Thomas, M.R.C.S. Eng., of Llandovery, has been placed on the commission of the peace for the county of Carmarthen.