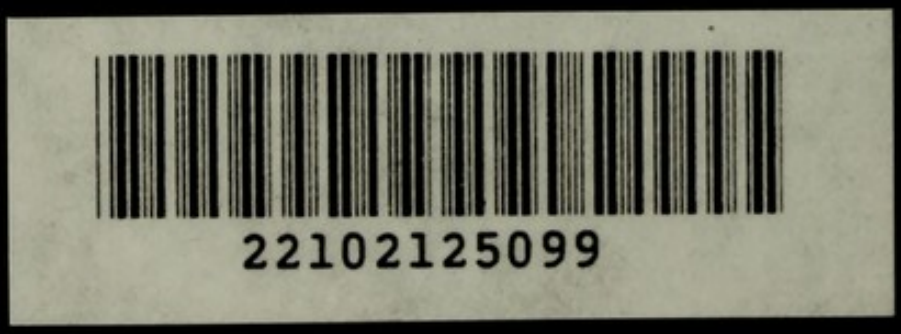
Sterility in men and allied functional disorders / by F.W. Stokes.

STERILITY IN MEN

F. W. STOKES



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STERILITY IN MEN

AND

ALLIED FUNCTIONAL DISORDERS

BY

F. W. STOKES

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PREFACE

The subjects treated in the following pages are conditions concerning which the medical student is taught but little or nothing. My object in writing this manual has been to place before the junior practitioner of medicine the present state of knowledge on these subjects, and for that purpose I have availed myself largely of the writings of Ultzmann, Gross, Black, Gouley, Richard, and others. The treatment of some of these conditions by the deep urethral irrigator is, I believe, original, and I have found this method of considerable utility in impotence and sterility.

F. W. STOKES.

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Charing Cross.
LONDON.

CONTENTS.

CHAPTER I.

THE MECHANISM OF ERECTION AND IMPREGNATION.

In order to properly understand the various derangements which, on the part of the male, may interfere with the due performance of the sexual act, it will be necessary in the first instance to describe briefly the physiology and mechanism of that function.

Sexual intercourse, coition or coitus, has for its object the perpetuation of species, in other words, it is the reception by the female of the embraces of the male *for the purposes of impregnation.*

That this is the fundamental, the moral, and the physiological aim and purpose of the act cannot be denied, but that impregnation always follows upon coition is not a fact; the mechanism by which the female germ or

ovum is fertilised by the male cell or spermatozoon is so extremely delicate, and so likely to be put out of order by apparently slight and almost unnoticeable irregularities of the genital system or general bodily health, that non-fertilisation is more the rule than the exception. And it is perhaps as well that such is the case, for were every sexual act to be followed by impregnation, and consequently by the birth of at least one individual, the race would multiply in such numbers that the battle of the survival of the fittest would soon develop into a cannibalistic *mêlée*. No, such is not the case, and invariably the female must admit several approaches of the male until such occasion when, all the circumstances being favourable, the crowning point is reached and impregnation takes place: what those circumstances are, I shall endeavour to describe.

The function of the male is to deposit healthy semen in the vagina or sheath of the female, to successfully perform this, erection and intromission of the male organ are requisite.

The mechanism of erection is as follows. The penis is a vascular organ consisting almost wholly of spongy and cavernous tissue, that is, a meshwork of intercommunicating spaces into which certain arteries open and from which the blood returns by means of a vein—the dorsal vein of the penis.

The penis, and especially that portion of it known as the glans, is richly supplied with nerves, which nerves are connected with special nervous centres in the lumbo-sacral region of the spinal cord.

Lastly, other nervous centres originating and controlling erection, exist in the brain, and are in direct communication with the spinal centres and with the peripheral nerves distributed to the penis.

Erection is then usually produced by irritation of these peripheral nerves, that is by friction of the penis, the stimulation thus produced is transmitted to the spinal cord, to the nervous centres there situated which preside over the blood vessels, as a result of which, the arterioles of the penis dilate, allowing a greater afflux of blood which distends

and erects the penis. At the same time, this nervous stimulation is also reflected to a certain muscle—the accelerator urinæ—certain fibres of which, passing over the vein which allows of the return of blood from the penis, being caused to contract, compress the vein and prevent the egress of blood. In short, blood is poured into the penis, which thus becomes distended and erect, and, its outflow being prevented, erection is maintained.

The morning erection which most healthy men experience on first awakening is an example of the power of venous compression to cause erection. It is due to the bladder having become distended with urine during the night, and so compressing the plexus of veins situated between the pubes and the bladder, and into which the dorsal vein of the penis opens.

However, not only is turgidity of the organ brought about by venous compression, but active dilatation of the arteries and cavernous spaces of the body of the penis, under the influence of nervous stimulation, is an important factor in the production and maintenance of erection.

Should coition now take place, nervous stimulation produced by friction is continued until the centres in the spinal cord presiding over ejaculation are so stimulated that a discharge of their nervous energy takes place, resulting in a spasmodic contraction of the seminal vesicles, by which semen is forced into the urethra, this is followed by contraction of the urethral and perinæal muscles and, as a result, the semen is ejaculated and deposited in the vagina. If we more minutely analyse the mechanism of ejaculation we find that under the influence of strong sexual excitement the semen, which during the intervals between the acts of coitus has accumulated in the seminal vesicles, is slowly pressed out of those receptacles into the prostatic urethra. Here, while erection is maintained, it accumulates, being prevented from flowing onwards by the normal tonic contraction of the muscular fibres surrounding the membranous urethra—the *constrictor urethræ*, and its regurgitation into the bladder is prevented by the swelling of the small tubercle situated on the floor of the prostatic urethra and

known as the *crest of the urethra* or *veru montanum*. Under the influence of sexual excitement this portion of the prostatic urethra becomes more and more distended by the semen continuously poured into it, until at last, being incapable of further distension, the orgasm occurs, the constrictor urethræ relaxes, nervous impulses are reflected from the spinal cord to the urethral and perinæal muscles which by their spasmodic contraction shoot out in jets the accumulated semen.

Though I have fully described the mechanism of ejaculation as above, that being the theory now usually accepted, I cannot say that for my own part I entirely agree with it. I cannot see how but a small portion of prostatic urethra can become sufficiently dilated to contain the large amount of semen often emitted during an orgasm. Possibly, in these cases, where half an ounce or more is ejaculated, the fluid comes from the other urethral glands—Cowper's and mucous glands, as well as from the prostate and seminal vesicles. I have little doubt, however, that this part of the prostatic urethra is one of,

if not the most, important seats of sexual pleasure, and I shall show further on that inflammatory conditions localised here are excessively prone to originate impotence and other sexual disorders.

From the above it will be gathered that erection may not only be caused by irritation of the penis itself but also by direct stimulation of the spinal centres, as is the case at times in injuries or diseases of the spine, and, also, by stimulation of the cerebral centres, this being probably the most frequent initiatory cause of erection. Thus, sexual desires, the sight and thought of certain women, reading or hearing licentious stories, erotic pictures, the *odeur féminine,* may all cause erection in this way.

Lastly we must mention the fact that besides irritation of the skin of the penis, the usual originating cause of erection, stimulation of other structures in the immediate neighbourhood may, by nervous reflex action, produce the same effect. For example, the prostate gland is richly supplied with nerves, and irritation of it, or of the portion of the urethra running

through it, will cause sexual excitement and erection, as is often seen in inflammation, calculi, and tumours of this structure. Catarrh of the bladder, testicular affections, worms, constipation, and any source of rectal irritation, may act in the same way.

On the other hand, there are certain centres in the brain—inhibitory centres, whose function is to inhibit or hold in check the mechanism of erection. When these cerebral centres are stimulated, as by mental perturbation, fear, timidity, shame, disgust, or preoccupation, impulses are sent down the cord to the penis, through certain nerves—inhibitory nerves, and these nervous impulses cause contraction instead of dilatation of the cavernous tissue of the penis, and also prevent contraction of the muscles compressing the veins of the penis, so preventing distension and erection of that organ. The importance of this inhibitory mechanism will be more clearly understood when we come to describe a special form of impotence—psychical impotence.

But erection, intromission, and ejaculation, are not alone requisite for fertility. These

three functions may be performed satisfactorily, and yet sterility, dependant upon the male, result: should this then occur, the fault is due to the vital fluid, the semen, or to the spermatozoa.

If a drop of semen be examined under the microscope it will be seen to consist of myriads of small bodies shaped something like tadpoles, with flat pear-shaped heads and long filamentous tails. These small bodies or spermatozoa are formed from the cells of the testicles, and their function is to work their way along the female genital passages until they meet the female ovum or egg, which one of them then penetrates and fertilises, so giving origin to the perfect impregnated cell or embryo. If the semen examined be recently discharged, that is if the spermatozoa be healthy and living, these little bodies will be seen to be in an active state of movement; by the rapid movement of their tails they wriggle hither and thither like so many small fishes, and it is by means of this motive power that they make their way from the vagina where they are deposited by the male into

the womb, to the spot where they meet the female cell. The active motility of the spermatozoa is then an essential element in the production of impregnation, and want of this power of movement, either inherited or produced by abnormal conditions of the genital tracts, male or female, may become an important element in the causation of sterility. Only one spermatozoon fertilises the ovum, and as the latter is usually single, it may be asked why so many spermatozoa are formed, and deposited in the vagina, when one only is required to mate with the ripe ovum. But the distance from the spot where the spermatozoa are placed to that where they meet the ovum is, in comparison with the size of these bodies, relatively great, and, not only is the journey long, but the obstacles encountered on the way many and difficult to surmount; the result is that many perish on the way, and it is only the quickest and strongest one which reaches the ovum in time to impregnate it: of the others, many never reach the goal at all, and the rest arrive only too late, the ovum being already fertilised.

The characteristics of the father are stamped, as it were, on his produce the spermatozoa; the latter may already be looked upon as his children, children who inherit not only the physical but the moral and psychical peculiarities of their parent.

Not only is their behaviour regulated by the general health and constitutional condition of the father, but his condition as regards health and happiness *at the time of emission* is transmitted to them, and his moral and physical state at that moment, or a tendency to that state, is inherited by his offspring should impregnation then occur. This statement may seem a little obscure, but when the reader is told that which is a conclusively proved fact, that children begotten by fathers who are in a state of alcoholic intoxication at the time of the sexual act, inherit from that father a more or less irresistible tendency to drunkenness, he will see what is meant, and understand that the health and happiness of a future generation are dependent upon the care and thoughtfulness with which the sexual act is consummated. The same also

applies to the female, her germ cell or ovum may inherit her moral and physical peculiarities, whether they be constitutional or acquired.

Again, the vitality of the spermatozoa depends upon the time which has been given to their development.

Formed from the cells of the testicles, whence they pass to the seminal vesicles, their residence in the latter for a certain time is requisite for their due elaboration. The practical deduction from this physiological fact is that a proper period of abstinence—two or more weeks—should precede that act of congress which it is hoped will be fertile. As a parallel to this, we know that a period of four weeks is taken by the female to develop her germ cell or ovum, a woman not always being equally in a favourable condition as regards impregnation, but only once a lunar month, that is, at or near the menstrual period, when a ripe ovum is set free from the ovary.

CHAPTER II.

SPERMATORRHŒA.

The study of the history of this disease is one of the most curious in the annals of medical literature; its very existence has been denied on the one hand, while on the other, its reception among the list of diseases to which the male organs of generation are liable having been conceded, its extreme rarity and difficulty of cure have been insisted on. Others, and particularly the French school of surgeons, are of opinion that the disease is of far greater frequency than is usually thought, and many of them—Lallemand and his followers—have asserted that its cure is one of the easiest and most certain in the domain of therapeutics.

Unfortunately, the pertinacity with which

quacks and charlatans have arrogated to themselves the treatment or so-called treatment of this disease, and the scandalous extortion and rascality with which the very name of the disease has been associated for so many years, have deterred most medical men from that proper study and treatment due to this as to all other maladies to which the human body is subject.

There can be little doubt in the mind of anyone who has studied the history of this disease, that medical men owe to themselves in a large measure the enormous amount of quackery which has fattened on spermatorrhœa and diseases allied to it, for so many years. Formerly few surgeons gave any attention at all to the disease, and even when they admitted its existence, which was seldom, their treatment of it was invariably perfunctory and often absolutely inefficient. The patient was usually told that he was nervous, hypochondriacal, fanciful, that his so-called disease existed only in his imagination, and that he would soon get well if he would only cease thinking of his imaginary sexual disorder.

Who can wonder that those suffering from a real disease, one of the most insidious and debilitating in the whole range of nosology, should so readily fall into the clutches of quacks, after having failed to obtain that relief and careful treatment by the medical fraternity which they so properly expected.

Happily we have passed through that reign of ignorance and indifference, and to-day the existence of such a disease as spermatorrhœa is admitted, and the rules for its treatment and cure well understood by the profession.

Still, it seems to me that at the present time the heads of our profession, our lecturers, professors, and consulting surgeons, do not sufficiently often bring before their pupils, and do not sufficiently describe and explain the symptoms and treatment of this disorder. Thirty to fifty years ago a fillip was given to the study of spermatorrhœa by the publication of Lallemand's work on involuntary seminal losses and his method of treatment by cauterization, and by the publication of books on the same subject by Acton, Dawson,

Courtenay, Pickford, and others, but latterly very little has been said or written on the subject, particularly in England. The scare-crow of quackery seems even at the present day to deter surgeons from approaching it, and it threatens to again sink into that obscurity from which it was rescued by Lallemand. During my student days I scarcely ever heard the word, certainly I never at that period heard a lecturer mention it, nor was I directed by anyone of my professors to the study of the subject. How many men in general medical practice have ever seen a case of spermatorrhœa? Ver few: and it will be argued from this tha the disease must therefore be very rare. As a matter of fact nothing could be more erroneous, such cases, though not common mark you, are much more numerous than is usually thought, every medical man must see several in the course of a year, but *they are not always recognised.* For myself, looking back on the time when I was in general practice, I can bring to my recol-lection the history of many patients whom

I then looked upon as men who were simply unduly and absurdly over-anxious concerning their sexual system, and whom I now fully believe to have been sufferers from spermatorrhœa. A closer study of sexual disorders has since convinced me of the frequency of this disease, and experience has shown me those measures which hold out the most hope of successfully treating it.

PATHOLOGY.

In the first place we must differentiate between false and true spermatorrhœa. The former consists of a more or less constant discharge of secretion from the urethra, such secretion not containing spermatozoa. This is a condition far more frequent than true spermatorrhœa, and the discharge may be derived from the mucous lining of the urethra, from Cowper's glands, or from the prostate (prostatorrhœa). This discharge resembles that of true spermatorrhœa, and like the latter, it issues from the urethra at similar times, i. e., involuntarily, or at the termination of making water, or on

going to stool. The symptoms, also, produced by it resemble those in true spermatorrhœa, and it is only by demonstrating the absence of spermatozoa in the urine and discharge by means of a microscopical examination that we can satisfy ourselves and our patient that we have to deal with the commoner, less serious, and easier cured disease.

True spermatorrhœa then, consists of an involuntary discharge of seminal fluid, unaccompanied with erotic sensations, such discharge occurring spasmodically as the result of reflex stimulation, or else imperceptibly flowing from the urethra more or less constantly, or in the urine.

We thus see that there are two varieties of the disorder, spasmodic spermatorrhœa and atonic spermatorrhœa, the first often being the precursor of the other.

SPASMODIC SPERMATORRHŒA.

We described under the head of mechanism of erection how there were special centres in the spinal cord controlling erection and

emission, and how these centres were stimulated to action by nervous impulses from higher centres in the brain, or, reflexly, by impulses transmitted from the genital organs.

It will easily be seen that the rapidity and perfection of erection and emission will depend upon the well-being and power of response to stimulation of these spinal centres, governed by the cerebral ones.

Thus, if they be preternaturally sensitive, and are not sufficiently controlled by the higher centres, a stimulus which in health would have little or no effect upon them, may, in this abnormal condition, be sufficient to set them in action. This is what we have in the first stage of true spermatorrhœa, or in spasmodic spermatorrhœa. There is undue sensitiveness of the spinal centres (hyperæsthesia) with, or without, deficient cerebral control; as a result of this, the least stimulus, friction of the penis against the trousers, jolting in riding in a train or omnibus, an amorous thought, the sight of a pretty woman, etc., may be sufficient to stimulate these centres and so cause erection and ejaculation. The

erection centre is, as we have seen, the one most sensitive to nervous impressions, and, therefore, erection precedes emission; this centre is also the one to be first exhausted as the result of excessive and oft repeated stimulation, so we see in a more advanced stage of the disorder under consideration the least stimulus directed to the sexual system causing emission of semen unaccompanied by erection—the sufferer then being in a condition of impotence, but not necessarily sterile.

Lastly, when the disease is still further advanced, both centres become exhausted, neither erection nor emission can take place, and sterility and impotence result. But, disorders of the nervous mechanism are not the sole causes of spermatorrhœa, structural alterations in the seminal vesicles, their ducts, and that portion of the urethra—the prostatic urethra—into which these ducts open, may equally be results or causes of the disease, in this way; as a result of masturbation or excessive coitus, a condition of chronic congestion of the prostatic urethra is produced,

this chronic congestion produces an excessive irritability of the nerve filaments supplied to the part, with a result that they respond to any trifling stimulation, producing a sexual orgasm and a discharge of semen.

If the function of any organ be stimulated too frequently, that is beyond the limits of health, disease, inflammation, of that organ is the necessary sequel; so it is with the sexual system, undue excitement results in irritability of the testicles, enlargement of the prostate, chronic catarrh and hyperæsthesia of the prostatic urethra, inflammation of the seminal vesicles and relaxation and atony of their ducts. Consequent upon the dilatation of the seminal ducts, instead of their mouths being closed as is always the case in health, (except when they are opened to allow the emission of semen into the urethra as the result of sexual stimulation) they remain open, thus preventing the natural collection of seminal fluid in the vesicles, and allowing its escape into the urethra, whence it is discharged irregularly, at stool, or in the urine.

In brief then, we have two conditions upon

which spermatorrhœa depends, nervous irritability or deficient nervous control, and structural alterations in the seminal vesicles and their connections, especially a dilated and relaxed condition of the seminal ducts.

Causes. The causes of spermatorrhœa will be any disorders or constitutional peculiarities which induce either of the pathological conditions mentioned above; and, naturally, those causes will be most potent which tend to produce both.

Sexual excitement, too prolonged and too often repeated, is of all causes the most important, and, since the opportunities for its practice are greatest, masturbation is by far the most frequent form under which this excessive sexual stimulation is brought about.

It scarcely falls into my province to describe masturbation, the causes leading to it, under what forms it is practised, etc., those points I have gone into more fully in one of my previous works.

Masturbation and excessive intercourse produce spinal irritation and chronic congestion of the generative organs, conditions which

we have already seen are those pathological states characteristic of spermatorrhœa.

Preternatural excitation causes increased determination of blood, active congestion, increased secretion, and nervous irritability. If the abnormal condition is kept up, loss of tone, passive congestion, exhaustion and atrophy follow. This is just what we see produced by excessive sexual irritation: at first there is an increased formation of semen, and augmented sensitiveness of the sexual apparatus, leading to a passive discharge of watery semen, unaccompanied by pleasurable or other sensation, as the muscular, nervous and vascular tissues become exhausted.

It is not alone by mechanical irritation of the parts, that this state may be caused, there being a form of mental perversion, termed *moral onanism*, equally effective. Here the mind is allowed to dwell almost constantly on the relations of the sexes, the sufferer is always thinking of erotic situations, feminine charms, and reading salacious stories. At night his dreams are a reflex of the thoughts during the day, nocturnal emissions follow,

and then the whole train of symptoms leading to continued spermatorrhœa.

Promiscuous intercourse, in contra-distinction to fidelity to one woman, has been spoken of as particularly liable to lead to spermatorrhœa and sterility, although the repetition of the act may not be more frequent; and the fact that prostitutes are invariably barren has been cited as an argument in favour of this.

It is, however, a statement with which I do not agree, for the latter evidence is scarcely to the point, as the want of fertility among loose women is most commonly due to chronic inflammatory conditions of the uterus or its appendages, resulting from previous venereal disease or excessive sexual irritation, and often the barrenness is only apparent, as such women become pregnant occasionally, but abort early, as the result of the irregular life led by them, or caused by undue sexual excitement.

Again, Hunter and Deslandes have asserted that intercourse with prostitutes and passive females is less harmful than when the act is accompanied with excessive ardour and pas-

sion, and we should judge that if a man loved a woman sufficiently to keep faithful to her, the sexual act under those conditions would be attended with more passion than in the other case.

We have seen that sexual congress is accompanied with a certain amount of nervous excitement terminating with the reception of a shock, or explosion of nerve force, at the attainment of the orgasm. It is this nervous excitement which, if frequently repeated, is so dangerous to the system, far more so than the loss of semen, of which the occasional emission is a physiological process and in no ways harmful. From this point of view masturbation might be considered less likely to damage the constitution than promiscuous sexual intercourse, but, when we take into account the early period of life at which it is indulged in, the frequency with which it is repeated, and the moral debasement accompanying it, we see that a combination of conditions renders it one of the most dangerous and ruinous of diseases.

I trust also, from what I have just said

concerning promiscuous intercourse, that no one will be so foolish as to think that I intended extolling that form of sexual gratification at the expense of marital continence. I was speaking of it solely in respect to the causation of spermatorrhœa. The other evils associated with it, the risks of contracting venereal disease, the ruin of mind, body, and social position, and the many other dangers inherent to it, are I think sufficiently well known.

But onanism and fornication are not the only varieties of sexual depravity causing spermatorrhœa. I have known several cases caused by *excessive marital indulgence*. It is too often the case that a young couple, newly married, think that the bond which they have entered into is a licence for unbridled lubricity, and thus sow the seeds of future constitutional diseases by their too free indulgence in the joys of wedlock. In these cases it is invariably the husband who is the greater culprit, and ultimately the greater sufferer.

On the other hand, *ungratified sexual desire*,

the frequent stimulation of the generative organs without the satisfaction of the appetite created, is undoubtedly causative of those pathological conditions, the precursors of spermatorrhœa.

It is not always that the predisposing cause is acquired, in many cases there exists an *inherited* instability of the sexual apparatus, an abnormal susceptibility of the spinal and cerebral genital centres, rendering them less resistent to reflex stimulation; then, if in addition we get some local irritation, acquired seminal incontinence is the result.

The nervous centres functionating micturition are allied to, and in proximity to, those regulating the organs of generation, and we frequently see disorders of the one set of organs—the genital—associated with disorders of the other set—the urinary.

"Stammering bladder," i. e., inability to start making water at a given moment, is often a symptom accompanying spermatorrhœa, and sexual incompetency in adult life is often preceded by nocturnal eneuresis or "bed-wetting" in childhood.

Loss of nerve control leading to spermatorrhœa is occasionally seen during the convalescent stage of some illnesses, typhoid, typhus, small pox; but here the importance of the symptom is slight, and the gradual return to normal health and strength soon effects a cure.

When occurring, however, as an accompanying symptom in the progress of severe nervous diseases, locomotor ataxia, paraplegia, progressive muscular atrophy, it is of very serious import.

A too sedentary occupation and close application to literary pursuits may predispose to it, but are more likely to cause frigidity and temporary impotence.

Lastly, as general causes it is necessary to mention excessive smoking, chronic alcoholism, and opium eating, but whether they alone are capable of originating spermatorrhœa is doubtful, there being in most cases some accompanying local irritation of the sexual organs, or of the nerves in connection with them.

Local Causes. Here we have to consider

those conditions which, given an abnormal susceptibility of the neuro-generative system, are sufficiently irritative to produce reflex stimulation of that portion of the system governing seminal emission. As a result of local irritation the formation of semen is stimulated, and there is a passive discharge of this fluid from the vesicles, induced by loss of tone, relaxation, and dilatation of their ducts.

Chief among these causes is gonorrhœa, acting much in the same way as masturbation and too frequent sexual stimulation. It is well known that the inflammation produced by the gonorrhœal poison starting at the external opening of the urethra—the meatus—spreads during the course of the disease further and further backwards. Should it not be checked and cured as it should be during the time it is limited to the penile portion of the urethra, it will extend to that portion of the urethra passing through the prostate gland, i. e., the prostatic urethra. Should it reach this region its cure becomes a matter of considerable difficulty, at least

by the ordinary means of treatment, for medicines will have but little action on the chronic urethral catarrh, or gleet, which is set up; injections, as commonly used, will not reach the seat of the disease, as I have shown in my pamphlet on the Treatment of Chronic Urethral and Prostatic Diseases by Irrigation; and it is only by direct local treatment that we can hope to effectually act on the diseased part. It follows from this, that once gonorrhœal inflammation has become localised in the prostatic urethra, in a large majority of cases it fixes itself there; a chronic catarrhal condition of the urethral mucous membrane due to continual inflammatory irritation, which catarrhal inflammation spreads to those ducts opening into this portion of the urethra—the prostatic ducts, is set up, and leads to those pathological changes which we have already described as being causative of spermatorrhœa. To put it briefly, gonorrhœa may, particularly if neglected, cause spermatorrhœa by producing chronic irritation of the prostatic urethra, and dilatation of the seminal ducts. Many cases of so-called gleet, following

gonorrhœa, are really due to spermatorrhœa.

Stricture of the urethra, either produced by gonorrhœa or by masturbation, or congenital, when it is most commonly situated at the meatus, occasionally causes spermatorrhœa.

Phimosis may be the exciting cause, a tight foreskin not only mechanically irritating the glans, but, by retaining secretion which may decompose, also by keeping the surface of the glans in a moist condition, causing it to be preternaturally sensitive.

But the irritation may not be situated in the genital organs themselves, it may be reflected from the bladder or rectum, or may originate in the brain itself. Piles, chronic constipation, worms, fissure, fistula and pruritus, may each and severally be originating causes.

Lastly, injuries to the brain, particularly to the cerebellum, by disease or accident, may give rise to impotence and spermatorrhœa.

SYMPTOMS.

NOTHING can be more characteristic than the general appearance of a sufferer from spermatorrhœa, or, of the culprit or the victim as the case may be, of excessive seminal loss; the practised eye of the surgeon can read the history in the patient's face, and the medical man diagnose spermatorrhœa or masturbation before a question has been asked.

The pale or pimply countenance, the lack-lustre eye with dark lines underneath, the shifty glance, the restless attitude, the stammering conversation, in short, the evident loss of manliness and of self-confidence are unmistakable.

We may divide the prominent symptoms into constitutional—those affecting the general health, and local—or those relative to the sexual organs.

Chief among the former is general loss of tone: as a result of the drain upon the system or the repeated nervous stimulation to which it is submitted, the tone of the whole bodily structures is lowered, effecting the vascular, the digestive, the respiratory, and the

nervous systems. Anæmia or bloodlessness, and its numerous symptoms, result and complicate the picture. Irritability, followed by exhaustion, of the brain and spinal cord, leading to paralysis of their functions, is a necessary result of the same repeated stimulation. Backache and spinal weakness, causing muscular tremor and giddiness, are common symptoms. The patient complains of soon becoming tired, inability to walk any distance, breathlessness on exertion, palpitation, and hot and cold flushes. The appetite is usually good, but the food taken is imperfectly digested, giving rise to flatulence, stomach pain, constipation and piles, in short, all the troublesome symptoms of indigestion.

When the disease has become established, affections of the special senses occur, dimness of sight, floating specks before the eyes, and partial blindness. The pupils are generally dilated, and the eyes sunken and surrounded by dark lines. After a sudden movement, as on quickly arising from a stooping position, partial but momentary blindness may be experienced.

The hearing becomes imperfect, and buzzing or singing sounds are complained of. Complete deafness has been said to result, but its occurrence must be very rare. I have noticed that patients subject to spermatorrhœa or given to practise onanism frequently, complain of a dryness in the throat, and the voice loses its power and becomes husky or squeaking.

The mental peculiarities induced by this disease are fully as important as the physical ones. The patient becomes timid, shy, apprehensive, self-conscious, but not self-confident. He shuns society, is bashful, yet peevish and irritable. He is quickly excited, but reaction takes place just as quickly and he soon becomes depressed. Self-contemplation is his ordinary state, and he broods, morning, noon and night, over his miserable condition. His memory becomes defective, and he is unable to apply himself to his ordinary occupation with the requisite amount of mental concentration. The patient's friends, ignorant of any cause for his distress, instead of sympathising with him and giving him that condolence

which he knows he has a right to, look upon him as a foolish hypochondriac, and endeavour to laugh him out of his trouble: one might as well try to laugh a man out of the tooth-ache.

As the disease advances the sufferer acquires an excessive dread of female society, thinking that the cause of his trouble is in some way connected with them, he first fears them and shuns their company, and ultimately grows to hate them.

This feeling towards women is partly due to the fact that in the first or irritable stage of the disease, the sight of attractive women may cause sexual excitement and seminal loss; but later on, in the atonic stage, it is really caused by a feeling of shame or a conscious knowledge of loss of potency.

Local symptoms. The symptoms we now have to consider, those associated with the sexual system, being both effective and causative, are of more import than those just enumerated, and they vary according to the extent to which the disease has advanced.

Nocturnal emissions are the first of these

symptoms. I have shown in a former work that nocturnal emissions are not necessarily harmful, and that in continent men their occasional occurrence is a purely natural phenomenon. It is only when their frequency becomes relatively great, and when they are followed by severe nervous depression, that we have to consider them pathological. Such a degree of frequency and harmful after-effects are caused by the two chief abnormal conditions which we have seen give rise to spermatorrhœa, morbid irritation of the sexual organs and loss of nerve control. Here, when there is more than one emission occurring in a night, or the same repeated three or four times a week, we have what we may term the first stage of spermatorrhœa, in which the constitutional troubles are not so great nor the difficulty of effecting a cure, as is the case in the later stages.

As the disease progresses, the emissions become more frequent, they occur without the concurrence of pleasurable dreams and even without erection. There is a condition of abnormal susceptibility of the sexual system

which induces a discharge of semen as a result of the most trivial stimulation, and, should coitus be attempted, ejaculation takes place too quickly, even possibly before intromission of the male organ.

This condition leads by imperceptible steps to the second stage, in which the chief symptom is *diurnal pollutions*, or the involuntary production of the ejaculatory act during the waking hours by stimulation of the sexual system, either by slight mechanical irritation of the penis or its neighbouring parts, or by mental impressions from the brain. Here the constitutional effects are greater because of the constant disturbance to which the nervous system is exposed.

Lastly, if the course of the disease be unchecked, we reach the third stage, to which some authors alone apply the word spermatorrhœa, while others term it *spermorrhagîa*.

There is now complete atony of the sexual nervous system, the semen continually oozes from the seminal ducts and is either discharged constantly from the meatus as a sort of gleet, or else is expelled only when the patient

goes to stool, or in the urine, particularly in that portion last expelled from the bladder.

In describing the pathology of this affection, we have shown that in advanced cases a dilated and relaxed condition of the seminal ducts results, consequently they are unable to retain the semen in the vesiculæ seminales when the intra-abdominal pressure upon the latter is in any way increased; thus it is that the semen is particularly emitted during straining at stool, and at the termination of urination, when the last drops of urine are expelled by a spasmodic contraction of the bladder and urethral muscles. In still more advanced cases there is complete atony of the seminal ducts and the semen flows away continuously.

An examination of the sexual organs will disclose the following peculiarities: the testicles and the penis are in early cases usually enlarged and tender to the touch, in more advanced cases they become lax, wasted, insensitive, and cold. Varicocele is a frequent concurrent symptom. On pressing the organ a little bead of gummy-looking secretion appears at the meatus, which when

examined under the microscope may or may not contain spermatozoa. I say that this secretion may or may not contain spermatozoa, because in extreme cases the testicles may become exhausted and semen cease to be formed.

Again, it undoubtedly occasionally happens that a patient may have all the constitutional symptoms of spermatorrhœa and yet not be losing nor have lost any excessive seminal secretion. These cases would come under that class of nervous diseases to which our predecessors were in the habit of referring all cases of spermatorrhœa, i. e. hypochondriasis.

Of course all gleety discharges do not contain semen, yet, when long continued, many sufferers are prone to think such is the case, and to attribute the nervous depression from which they suffer to this imaginary constant loss of semen. A microscopic examination of the discharge will soon clear up any doubt, and should be practised in every case of gleet, as without its aid it is a matter of impossibility to state whence the dis-

charge comes, and to cure it by local treatment applied to the seat of the mischief.

Even when semen is found in the gleety secretion which appears at the meatus or in the urine, the surgeon must not make the mistake that the patient invariably does, that is, to jump to the conclusion that all the obvious symptoms of nerve depression from which the patient suffers are due to the actual loss of semen. We have already shown that such is not the case, but that the symptoms are due to nervous exhaustion following undue nervous stimulation.

It is still a popular belief, and was so formerly in the medical profession, that semen after its elaboration was gradually reabsorbed into the system, and, by its revivifying action gave tone, energy, strength and virility, while its non-absorption caused effeminacy, nervous debility, impotence and, in short, all the symptoms we have classed under the head of spermatorrhœa.

The most extravagant descriptions of the effect produced by this seminal reabsorption were formerly given.

Thus, take the following from Dawson's Essay on Spermatorrhœa, "In health a portion is reabsorbed and taken back into the blood, which imparts that sprightliness and intelligence, that power of voice, that energy of muscle, that manliness of countenance, and that dignity of manner, and bestows that arduous vigour, and that noble daring which brave and intelligent men possess."

This theory of reabsorption is, however, quite fallacious, semen is never found in the blood, there are no absorbents in connection with the seminal vesicles and their ducts, and there is no reabsorption of any corresponding secretion known to occur in the female.

Pickford rightly says:—"The semen once deposited in the vesiculæ seminales is destined for evacuation, and nothing can be more fallacious than to suppose that the reabsorption of the semen into the organism can do any good or produce any increase of bodily health and spirits."

It is not then due to the loss of semen that our patients owe their troubles, but to preternatural nervous excitement. It might

however be objected to this that in certain cases no nervous excitement whatever takes place, the answer to this would of course be that such excitement did formerly take place but does not do so now on account of the exhaustion of the nervous system induced.

Another proof that this class of symptoms is the result of excessive nerve irritation followed by nervous exhaustion, lies in the fact that the same symptoms occur in women who give themselves up to injurious and to frequently repeated sexual intercourse, such intercourse being accompanied with a high degree of passion; while, as is well known, if there be little or no nervous erethism accompanying the act, excessive coition has but little harmful effect on the health of women.

But, even if the loss of seminal fluid were injurious, the amount of such loss in cases of spermatorrhœa cannot but be very slight, the actual quantity passed in the urine or at stool if collected would be found to bear but a small proportion to the amount of one healthy emission under ordinary circumstances.

In all cases a bougie or sound should be

passed down the urethra, and we shall find in quite ninety cases in the hundred that there is great sensitiveness in the prostatic region: the front portion of the canal may contain one or more strictures, but it is in this prostatic region that the greatest difficulty and pain in passing the instrument are experienced. This is even a more important sign than the seminal discharge, as we have already seen that the latter may be absent, while this is almost invariably present; moreover, it enables us to localise the seat of the disease.

Irritability of the bladder, particularly of the neck of that organ, and increased frequency in making water, are concurrent symptoms.

If a rectal examination be made, besides the changes in this region already mentioned, we may find the seminal vesicles enlarged, tense and bulging, or, almost unrecognisable from atrophic changes.

The prostate is commonly enlarged, tender to the touch, indurated, or softened in places from inflammatory action.

DIAGNOSIS.

A careful consideration of the group of symptoms described, the history of masturbation or excessive sexual indulgence or irritation, the external examination of the organs, the passage of a large metal sound, and a digital examination of the rectum, will give us fair presumptive evidence of the presence or not of this disease.

But it is only by a *microscopical* examination of the urethral discharge and of the urine, that absolute certainty can be established.

Normal urine never contains spermatorrhœa, except just after an emission or after sexual congress, when the urine first passed afterwards may wash out a drop or two of semen which has remained in the urethral passage.

With this reservation then, should we repeatedly find but even a few spermatozoa in the urine of our patient we may state positively that that patient is a sufferer from spermatorrhœa.

TREATMENT.

The history of spermatorrhœa is the history of its treatment. Until an effective method of treatment was discovered, the very existence of such a disease was denied: after the discovery of the efficacy of topical treatment applied to the prostatic urethra and the ducts opening into it, the importance and the relative frequency of that morbid condition of the sexual system characterised by seminal loss became acknowledged.

Nocturnal emissions being the precursors, or the first stage, of this disorder, it is necessary to consider the means effective in checking their undue frequency.

The mistake is commonly made of imagining that they are due to sexual debility, and that for their treatment stimulation of the sexual apparatus is required. Nothing could be more fallacious: to give sexual stimulants—phosphorus, strychnia, damiana, etc., is a suicidal policy. The already irritable condition of the nervous system governing erection and ejaculation is increased, as if an over-tired and sensitive horse

were spurred and whipped on to greater exertion, and with the same result, that a breakdown must eventually occur.

Just as in the more advanced stages of spermatorrhœa, seminal emissions have as their cause either some local irritation, or an irritability of the sexual nervous system so great as to be unable to resist the stimulation produced by that local irritation, or, possibly, both of these causes.

We have then to discover any condition likely to cause irritation of the genital organs and endeavour to remove it, and then to diminish the irritability of the sexual nervous system: how these desiderata are affected will be considered further on.

In addition, various general hygienic measures must be carried out. All stimulants including tea, coffee and tobacco, must be given up. Late suppers must be avoided, and the patient should retire early to bed, sleeping on a hard mattress, and covered lightly with sufficient but not too heavy clothes. He should make a practice of emptying his bladder before retiring, and, should

he awaken in the night or early morning, he must make a habit of getting out of bed then and making water.

He should also avoid sleeping on his back, and for this purpose a towel worn round the waist with a knot on the spine may serve as a preventive.

If, as is often the case, emissions take place during the last hours of sleep, a habit of early-rising must be observed.

As in this stage erection usually precedes emission, various ingenious contrivances have been invented with the view of waking the sufferer as soon as erection occurs, and before the advent of ejaculation. India-rubber rings with spikes on their inner surface which irritate the penis when it becomes erect, electric alarm clocks set into action by the same effect, and such like contrivances, have been devised to wake the patient and so enable him to get out of bed and reduce the erection by the application of cold water, so preventing an emission.

Such applications, although occasionally useful, must not be looked upon as in any

degree curative, they are merely aids to prevention, and other means more effectual must be resorted to at the same time. Passing over this the first stage of spermatorrhœa, which I have described more fully in my book on Genito-Urinary Diseases, we come to the second and third stages of the disorder, diurnal emissions and the constant passage of semen from the urethra or in the urine—spermorrhagia.

These two stages I shall take together, but shall describe the means effective according as to whether they act by giving stability or tone to the generative and nervous system, or by acting locally on diseased portions of the sexual organs, and under each head, I shall consider first drugs, then general hygienic measures, and lastly mechanical or operative treatment.

DRUGS DIMINISHING ABNORMAL SUSCEPTIBILITY OR SENSITIVENESS OF THE CEREBRO-SPINAL GENERATIVE NERVOUS SYSTEM, AND ENABLING IT TO OFFER AN EFFECTIVE RESISTANCE TO COMPARATIVELY SLIGHT STIMULATION.

Belladonna, or its alkaloid *atropina*, is

absolutely the most powerful auxiliary we possess in checking sexual irritability. It is best administered in the form of a pill, containing one-hundredth to one-fiftieth of a grain. If nocturnal emission is the sole symptom, it should be taken at night, but in diurnal pollutions, and in spermorrhagia, it may be taken three times a day. The administration of the drug should be carefully watched, and should only be taken by the patient while under medical supervision.

Its effect in many cases is simply marvellous, it not only checks the frequency of the emissions but relieves the accompanying nervous irritability or depression, and enables the patient to sleep well and untroubled by erotic dreams.

Opium, another powerful sedative, is sometimes useful, given in small doses and combined with atropina: but it does at times act as a sexual excitant, and its tendency to constipate and cause dyspepsia renders it objectionable.

Bromide of Potassium is, after atropina, the most useful drug at our disposal. It not

only reduces cerebro-spinal irritability, but acts locally on the urinary passages, diminishing their sensitiveness and alkalinising the urine, rendering it less irritable. It should be given in somewhat large dozes, thirty to forty grains three times a day, in some bitter infusion. If much depression result from its administration, quinine or other tonic may be combined with it.

Hyoscyamus has much the same action as atropia, it is, however, a less powerful general sedative, but it possesses in a high degree the property of relieving irritability of the urinary organs. In combination with atropia it is very effective.

Camphor is a useful adjuvant to the above; it first stimulates, then depresses, the sexual organs. It relieves prostration resulting from sexual excesses, at the same time possessing slight power of causing excitement of the generative apparatus. It is best given in the form of a pill containing two or more grains, combined with atropia or hyoscyamus.

Lupulin, in five grain doses, is a useful

auxiliary, not only by acting as an anaphrodisiac, relieving sexual irritability, but also by its stomachic, tonic, laxative, and diuretic properties.

DRUGS WHICH STIMULATE THE SEXUAL APPARATUS.

When we reach the third stage of spermatorrhœa, that is when the symptoms depend upon atony of the cerebro-spinal nervous system, medicines which act as stimulants or excitors of this group of nerve structures—*aphrodisiacs*, are indicated.

But it is to be observed that not only is this form of spermatorrhœa rare, but such cases must be carefully enquired into first, lest we make the mistake of stimulating structures which require only a due amount of rest to enable them to satisfactorily perform their functions. All these drugs are harmful whenever there are symptoms of spinal irritation. Chief among this class of drugs is *Phosphorus*. It should be administered in one-hundredth to one-fiftieth of a grain doses, made up into a pill with yellow wax.

Phosphorus is one of the most powerful nervine tonics we possess. It gives tone to the nerve tissues and powerfully stimulates the sexual organs.

Nux Vomica, or its alkaloid *strychnina*, is a better general tonic, and acts more powerfully on the spinal cord. It is also valuable in those cases where there is constipation due to intestinal atony.

Damiana, the most popular and the least efficacious of any of these drugs, has done more harm in these cases than any other medicament. It has been thought to be a panacea in all cases of sexual debility, and is usually given without any reference whatever to the determining cause of the disease. In cases of sexual exhaustion it is occasionally useful combined with other tonics. As with strychnina, it should not be ordered when there is spinal irritability.

Tincture of the perchloride of iron, the favourite quack remedy, is particularly useful where there is much anæmia, but its tendency to cause dyspepsia and constipation render its satisfactory administration a matter of some difficulty.

GENERAL MEASURES GIVING TONE TO THE NERVOUS SYSTEM.

Hygienic measures which strengthen each and all the various bodily organs, which promote a healthful action of the bowels, the urinary organs and the skin, must brace up the nervous system and enable it to oppose an effective resistance to abnormal stimulation. It is unnecessary to describe at length what these measures should be, they are practically the same as those to be carried out in all conditions of chronic debility whatever the cause. Moderate diet easily digested, abstinence from all forms of stimulants, sufficient exercise, cheerful occupation, the observance of regular hours, avoidance of all forms of sexual irritation physical or moral, cold bathing, etc., etc.

LOCAL TREATMENT.

The surgeon seldom sees the patient at the commencement or in an early stage of the disease, the usual experience is that he (the patient) has either dosed himself, or been dosed by chemists or quacks, with each of the above-

mentioned drugs in succession, which drugs, owing to the unskilful manner in which they have been prescribed, have produced possibly more harm than good. Our patient then appears before us anathematising drugs, and clamouring to be treated by local, or what he may term operative, measures.

But the non-success hitherto experienced may not be due to the inefficacy of the medicines taken, but to the mode in which they have been taken, and to their non-adaptability to that particular phase of the disease. Therefore it is necessary in every case to discover what progress the disease has made, and to give a careful trial to the proper administration of remedies adapted to the particular stage reached, before proceeding to operative interference. When we have done so, and but little benefit has been derived, or if a certain amount of improvement has been produced but not sufficient to effect a cure, other methods of treatment must be resorted to.

In the first place any local cause of irritation must be discovered and removed. Stricture at the meatus or in the urethra,

must be dilated or divided; phimosis must be cured by circumcision; a varicocele or a hernia must be supported by a bandage or truss; herpes and eczema of the penis or scrotum should be enquired into and, if present, removed; constipation, anal fissure, piles, worms and other sources of rectal irritation should be submitted to operative treatment.

Lastly we come te the most important and the most frequent abnormal condition present in these cases, chronic irritability of the prostatic urethra and relaxation or dilatation of the seminal ducts, the treatment and removal of which offer the most favourable chance of effecting a permanent cure.

The Metal Sound. An ordinary solid metal sound, as large as the meatus will allow, is passed down the urethra as far as the bladder and allowed to remain for a few minutes. The instrument should be passed alternate days, and the length of time it is retained gradually increased from two minutes up to thirty. In slight cases, when advanced structured changes have not occurred, and in conjunction with general treatment, the good

results derived from this method are very marked, and when practised for three or four weeks a cure is often effected, the involuntary emissions becoming fewer, the loss of semen stopped, and the hypersensitiveness of the prostatic urethra abolished.

The good results are brought about by mechanical action, by pressure upon the sensitive tissue, and indirectly by the coldness of the metal, which acts as a local tonic and astringent.

Should, however, this method be not sufficiently powerful, we must proceed to the direct application of medicinal substances to the prostatic urethra. Various ingenious contrivances have been invented for this purpose, but I shall content myself with describing those which in my own practice I have found most useful, and am in the habit of employing.

One of the best and simplest is *Dick's Catheter Syringe.* This is a silver catheter closed at its posterior extremity, but pierced within two inches of this extremity by a number of fine apertures. A stilet, at the end of which is a spiral of wire enclosing a sponge passes down the interior of the catheter.

The sponge is soaked in the solution we wish to use and placed in the catheter, the catheter is then passed into the urethra until the apertures are in relation with the prostatic urethra, the stilet is then forcibly pressed down the catheter, and the sponge being thus compressed the solution is forced out of the apertures. By this manipulation about half a drachm of the liquid is deposited in the prostatic urethra. The solution I have derived most benefit from by the aid of this instrument is one of nitrate of silver, beginning with two grains to the ounce and gradually increasing up to twenty grains to the ounce. The application should be made twice a week, and four to six are usually sufficient to effect a cure.

Lallemand's porte caustique was devised for applying solid nitrate of silver to the prostatic urethra. When first introduced it was by many believed to be an infallible means of cure for all cases of spermatorrhœa, and extravagant statements as to its usefulness were promulgated. But, as is usually the case with vaunted specifics, a reaction in opinion soon set in, and the instrument

became as heartily abused as it was previously lauded. After falling into disrepute it next threatened to fall into oblivion, but a later and less biased consideration of the instrument, and its adaption to suitable cases, have served to establish the correctness of its inventor's belief in its usefulness. It is unnecessary to describe the instrument fully, sufficient be it to say that solid nitrate of silver fused into a small cup is passed down a silver tube from which it is made to protrude in any desired situation, and so brought in contact with the urethral surface implicated. The caustic is lightly brushed over the mucous membrane, is then withdrawn into the tube, and the instrument removed. A good deal of inflammatory reaction follows, a purulent discharge is set up for a few days, hæmorrhage and occasionally retention of urine may occur: these accidents are, however, rare, and with proper care there is but little danger in practising this mode of cauterization. The chief disadvantage in the use of this instrument is the uncertainty as to the surface cauterized being that which is diseased,

moreover it can but act on the superficial part of the mucous membrane, and the grooves and follicles remain untouched. At the same time I must bear witness that I have occasionally found it successful after many previous methods of treatment had failed to effect a cure.

To overcome the objections just stated, I have designed a special instrument—the *backward current male urethral irrigator* for the treatment of chronic disorders of the prostatic urethra. This instrument I have fully described in my pamphlet on Chronic Diseases of the Urethra and Prostate, to which I must refer the reader.

As stated therein, the advantages of this method of injection are: —

1. The whole length of the urethra is acted upon by the solution, so there is no question of missing the actual seat of disease, as may occur in using the ordinary injection, or the *porte caustique.*
2. Dangerous distention of the urethra is prevented by the grooves on the outside of the instrument allowing of the ready exit of the solution.

3. A large quantity of the solution can be used at one sitting, and, therefore, the diseased surface is played on by the injection for some considerable time, so allowing the first portion of the fluid to wash away any accumulated discharge on the surface, and the latter portion to act upon the cleansed raw surface.
4. A weak injection only being used, there is no fear of injuring the healthy mucous membrane.
5. Lastly; the therapeutic advantages of *cold* as a local tonic and astringent may be utilised by this instrument, as plain water of the temperature indicated may be used in any quantity.

The chief objection to the use of this instrument is that a large surface of the urethral mucous membrane is acted upon, consequently we are unable to use a concentrated solution of any drug, lest, while treating the diseased tissue, we injure the healthy.

To obviate this, and to act upon a small portion only of the urethra by a strong caus-

tic solution, I have had made for me by Messrs. Evans and Wormall of Blackfriars, an instrument which I call the *cauterizor*.

This is a silver catheter of No. 10 calibre in the shaft and at the posterior extremity, but tapering in the bend to No. 5. The posterior end is closed, but at the angle, where the bent portion is contracted, there are three small apertures at each extremity of the contracted portion. The length of the instrument is so regulated, that when it is passed down the urethra and the bulbous extremity is just at the neck of the bladder, the contracted portion of the instrument is in the prostatic urethra.

A small glass syringe charged with the solution is then fitted on to the outer end of the tube, and a small quantity of liquid, 10 to 30 minims, is forced down into the urethra. If there is no difficulty in passing the instrument, it is better to fix the syringe, charged with the requisite amount of solution, first, thus preventing the injection of air into the pipe.

The fluid ejected comes in contact with the prostatic urethra only, being prevented

passing either backwards or forwards by the bulgings in the shaft of the instrument. After the injection, the instrument should be allowed to remain in position for a minute or so, so as not to displace the fluid by its withdrawal before the latter has exercised its full effect upon the mucous membrane.

By this instrument a small quantity of a strong solution of nitrate of silver can be applied just to the prostatic urethra, correcting hyperæsthesia of that region, checking chronic inflammation, and closing relaxed and dilated seminal ducts.

The good effects produced by this method are in suitable cases very marked, and, I am inclined to think, that, with care, the dangers are infinitesimal. The treatment by other local applications, and by electricity, are described under the head of Impotence, to which chapter the reader is referred.

CHAPTER III.

IMPOTENCE.

IMPOTENCE, sexual incapacity, or the inability to effect sexual intercourse, must be clearly differentiated from sterility, or the incapacity for begetting off-spring. Though both conditions may be present at the same time, either may exist without the other. Thus, a man may be physically impotent, i. e., intromission may be prevented by disease or deformity of the penis, yet he may be capable of ejaculating healthy fertilising semen; on the other hand, a man who has suffered from bilateral gonorrhœal epididymitis may, consequently, have the tubes which allow of the passage of the spermatozoa from the testicles to the seminal vesicles obliterated, as a result of which the semen is destitute

of its fertilising elements, the spermatozoa, and the man be consequently sterile, yet, at the same time he may be capable of erection and intromission, in fact be able to perform the physiological act with satisfaction.

I have not been able to obtain any reliable statistics as to the frequency of impotence, but there is no doubt that it is, in one form or another, an exceedingly common disease, one which causes much unhappiness, particularly in married life, and subjects its victims to considerable mental and moral depression. This is more particularly the case in that persons so afflicted are often those who in earlier life have practised masturbation, and they look upon their present condition as a punishment for the sins of their youth. These patients require much forbearance during treatment, particularly as they are decided that their malady is a sort of curse on them, and consequently quite incurable, an opinion, it is almost unnecessary to say, that is quite erroneous.

In addition to its frequency, impotence is of considerable medical importance in itself, as a causative factor in regard to nervous-

ness, imbecility and paralytic dementia, and so needs careful study.

A certain degree of sexual weakness is not necessarily a disease, calling for treatment. Men differ much as regards their capacity in this respect, both one from another and in themselves at various periods of life. The generative function is dormant until the age of puberty, but, unlike women, in men it is still existent up to advanced age, even until 70 or 80 years, though of course in gradually diminishing power, and it is probable that old men become impotent rather from disease than from age.

During adult life a healthy man is usually able to consummate the act whenever called upon to do so, almost irrespective of time, place, or person. Later in life, and in men less vigorous, a certain favourability of circumstances is necessary. The former period is a dangerous one for a man who, rejoicing in the power which he possesses, gives his passion unbridled rein, and, by abuse, sows the seeds of future sexual miseries.

How frequently a healthy man, of 25 to

45 years of age, may practise the act, is an exceedingly difficult question to answer. If compelled to give a definite answer, I should say that a man in good health might do so twice a week between the ages of 25 and 30, once a week between 30 and 40, and once a fortnight after that age.

But this is not a dogmatic rule: we must consider in each case the general health of the applicant, and especially the after effect produced by the act. If each act be followed by a feeling of well-being, lightness, and good spirits, if he can honestly say that he feels better for it the next day, that man is certainly not performing it too frequently; but, should he afterwards feel low, miserable, depressed, giddy, have backache, or a feeling of weariness after exertion, he should take warning from these symptoms that the practice is harmful to him, and should be indulged in at longer intervals.

Acton advised that a married man should have connection twice in one night at long intervals, rather than single emissions at shorter ones, as by these means the seminal vesicles

are more completely emptied, and the sexual desire does not return again so quickly.

I have never been able to understand the merit of this proceeding, as a second forced connection is far more likely to act injuriously on the genito-spinal nervous system, and the subsequent reaction to be severe and markedly depressant.

Men who are able to indulge in coitus only at long intervals, but do so then completely and satisfactorily, should in no ways consider themselves impotent, but should submit to their peculiarity; any whipping up of their somewhat lethargic passion by the so-called aphrodisiacs is calculated to do them more harm than good. The same advice applies to those cases where the man is able to succeed only with a certain woman—his wife, with whom mutual affection, custom, adaptability and accommodation conspire to give him assistance and pleasure. Happy the wife whose husband is so constituted, and happy the husband too!

These conditions then are physiological rather than pathological, and need, as a rule, no treatment.

Yet it sometimes happens that a man finding himself on a certain occasion unable to fulfil his duty, at once jumps to the conclusion that he has become impotent, and is so engrossed with this idea that his very nervousness acts as a deterrent in all subsequent attempts. In these cases it becomes a matter of urgent necessity to produce an unexpected erection, and so demonstrate to the patient that his powers are merely dormant and not actually destroyed. Aphrodisiacs and electricity, practised under the surgeon's direction, will produce this desideratum, and effectually put a stop to the condition of sexual hypochondriasis, into which the sufferer threatens to fall.

As regards the prognosis in cases of impotence, there are three data of great importance; firstly—*erection*. If this occurs at any time, although possibly not at the time desired, the chances of effecting a cure are most favourable. Erection on first waking in the morning is an almost constant physiological event in adult life, and, when it is usual, a man's capability for sexual intercourse is

never seriously impaired, and one of the first questions I usually ask patients who imagine they suffer from impotence is—"Do you ever get morning erections?" and I base my prognosis very much on the result of their answers.

Secondly, *the presence or absence of sexual desire.* Although erection may not have occurred for some time, yet in nervous cases and those not over 45 years of age, the presence of this desire is a good augury as to the ultimate success of treatment.

Thirdly, *age.* Although I have previously stated that men may remain sexually potent until an advanced age, still this function gradually lessens in activity from the age of 45 onwards, the functional ability of the testicles diminishes, and the nerves regulating the production of erection are less responsive to stimulation as that age is exceeded.

This is more particularly the case in conditions of sexual neurasthenia, and it may be laid down as a rule, to which like all rules there are exceptions, that the prognosis is less favourable in proportion to the advanced age of the patient.

Impotence may be partial or total: erection may occur naturally, but passes away too quickly, possibly before ingress into the vagina, the rapid flaccidity of the penis being usually preceded by premature emission of semen.

This *premature emission* is an important and exceedingly common symptom, and I shall consider it more fully in subsequent pages.

Partial erection may be possible, but there may exist an absolute incapacity for ejaculation; but the former condition of premature ejaculation is more common. In these degrees or stages of the malady, sexual desire is still existent, and, so long as it is, our chances of effecting a cure are most favourable, but when it also has disappeared, as well as the capacity for erection and ejaculation—*total impotence*—we must look upon the case as more or less hopeless. Briefly then, we may say that, *ceteris paribus*, so long as sexual desire exists, it is usually possible by appropriate treatment to effect a cure.

SYMPTOMS.

With the exception of impotence due to physical causes, spermatorrhœa, in one or other of its forms, usually precedes or accompanies this disease, and the reader will find most of the symptoms present in cases of impotence described under that head.

The usual history of these cases is as follows:

The patient has practised masturbation or some other form of sexual excess in his youth, or has suffered from incontinence of urine, epilepsy, or nocturnal emissions, or has had one or two prolonged attacks of gonorrhœa. He finds his powers of sustaining connection failing him, although his desire is strong, erection is feeble, or of short duration, and ejaculation occurs almost as soon as erection occurs, and often before intromission can be effected.

In cases more advanced, emission takes place on the slightest stimulation, a licentious thought, the sight of a pretty woman, friction of the organ against the trowsers, riding over a

rough road, &c., these are cases of impotence accompanied by the second degree of spermatorrhœa—diurnal emissions.

There is often a constant discharge of sticky fluid from the meatus.

The patient is nervous, depressed, irritable, short-tempered, melancholy, unable to concentrate his attention on his business or any temporary occupation.

The appearance of the genital organs may be normal, or the penis shrunken, the skin of it and the scrotum unnaturally cold and wrinkled, and the testicles may be atrophied.

On passing a metal sound down the urethra, hyperæsthesia of the prostatic portion is complained of in most cases, the patient occasionally suffering great distress when the instrument reaches this situation. The instrument is often obstructed by an organic stricture.

There is irritability of the neck of the bladder, and a desire to make water frequently.

The constant loss of nerve power weakens the whole system, and particularly the digestive organs; the appetite may be excessive or capri-

cious, the food is imperfectly digested and the patient suffers from flatulence, gastric pain, distension, colic, and diarrhœa or constipation.

In investigating the causes of impotence we find that all the cases come under one or other of the following groups: Atonic Impotence, Psychical Impotence, Organic Impotence, and, Symptomatic or Paralytic Impotence.

ATONIC IMPOTENCE.

This is by far the most common form under which cases of impotence are made known to us.

The impotence is not complete, connection can be practised occasionally at long intervals, but usually emission occurs too speedily, and erection and ejaculation may be almost simultaneous, and followed by flaccidity of the penis before it can be introduced into the vagina. In mild cases a second attempt at connection is more successful, but when the disease has become inveterate coitus becomes quite impossible, as ejaculation occurs at once at each attempt.

These patients are usually men of adult age who have practised masturbation for some time, or have indulged in sexual intercourse with too great ardour and frequency, as results of which there set in chronic hyperæsthesia of the prostatic urethra and preternatural excitability of the spinal genital centre, the resultant condition of the sexual system being one of weakness with abnormal irritability.

In all these cases the passage of a sound will demonstrate the extreme sensitiveness of the prostatic portion of the urethra, the patient complaining acutely when the instrument reaches that situation. A stricture is often discovered at the same time. Other causes besides directly sexual ones may also bring about this condition; thus, gonorrhœa, particularly a neglected gonorrhœa, by extension of inflammation to the prostatic urethra and its localisation there: varicocele; and an elongated and adherent foreskin—phimosis, may also originate it.

Besides the important symptom of ejaculation before penetration, other subjective symptoms are usually present in these cases.

Back-ache is often complained of, and is intensified by exercise, stooping, and after coition. Mental debility, depression, pain at the back of the head, general muscular weakness, and dyspeptic troubles usually complicate the case.

Prognosis. Taking into consideration the suggestive points I have already spoken of, we may say that these cases are favourable and yield fairly easily to treatment. The constant sexual excitant—the abnormal condition of the prostatic urethra—must be removed by general and local treatment, when, after a brief period of *rest*, the generative powers soon regain their strength.

Treatment. This, the commonest form of impotence, is the one most erroneously treated. There is apparent loss of sexual power, and the conclusion is at once jumped to that stimulation of the lagging function is all that is required. For this purpose phosphorus, damiana, and strychnina are each in turn administered to the sufferer, but with the worst possible result, as by these means further excitation is added to what is practically a

condition of exhaustion brought about by an already too constant stimulation. What is really wanted is to lessen the reflex excitability of the genito-spinal nerves, to give them rest, and to remove any existing abnormal condition which is keeping up undue stimulation of those nerves. Internal medication is undoubtedly useful in these cases, but sedatives, rather than stimulants, are required.

One of the most potent remedies in these cases is *bromide of potassium:* this I am in the habit of ordering in twenty grain doses, to begin with, three times a day. If this dose is well borne it may be gradually increased up to forty or sixty grains thrice daily. The patient must be kept under observation during its administration, and the drug stopped, or the dose reduced, if there be any signs of bromism, ache, great depression, muscular weakness, giddiness, conjunctivitis or cardiac distress. These undesirable symptoms may be, to a great extent, prevented by combining the drug with small doses of arsenic, or, still better, by combining it with some diuretic, nitrate or bitartrate of potash, as suggested by Gross.

Atropine, in solution, one sixtieth of a grain at bed-time, reduces the reflex excitability of the cord and is especially useful where there are nocturnal emissions, spermatorrhœa, and premature ejaculation. It must however be given with great watchfulness and stopped as soon as its physiological effect becomes apparent, of which the chief signs are dryness of the mouth and throat, and dilatation of the pupil.

Camphor is a useful auxiliary in these cases, and can be combined with either of the preceding drugs.

Bathing, either hot or cold, of the genitals, perinæum, loins and back, is particularly useful. Whether hot or cold water should be used is a matter of experience, I have generally found the best results from ordering hot bathing at night, and cold in the morning.

The digestive organs are invariably at fault in these cases and need very careful regulating before much improvement in the general condition can be expected. Any constant source of irritation about the rec-

tum or anus will keep up the sexual trouble, particularly will constipation do this: this condition must be prevented or removed by mild *aperients*, of which the compound liquorice powder, the liquid extract of cascara sagrada, and small doses of aloin are the best. *Enemata* of cold water I have found of much service in several cases, constipation being checked by their use, and prostatic irritability removed.

The food should be light and unstimulating, easily digestible, wines, spirits, malt liquors and coffee being particularly avoided.

Tobacco is invariably harmful in this condition, and many cases of impotence are due alone to the abuse of that drug.

The same rules as to sleeping on a hard mattress, waking early, &c., as described under spermatorrhœa, must be closely followed.

But these general, hygienic, dietetic and medicinal methods of treatment unfortunately stop short of effecting a cure in many cases; much assistance can be derived from their careful practice, but *local treatment of the pros-*

tatic urethra is sooner or later called for in the majority.

Chief among the means to effect this is the daily passage of a large cold solid *metal sound* which is allowed to remain in the urethra at first for a minute or two, this period of time being gradually increased up to ten or fifteen minutes. I have described this method of treatment and also *irrigation* and *cauterization* more fully in the chapter on spermatorrhœa, to which I must refer the reader, for though these methods are even more useful in the latter disease, yet their value in impotence cannot be over-estimated.

The *cold sound* or *psychrophor* of Winternitz is a catheter closed at the distal end, and containing a double channel which allows water to flow continuously along its interior and back again, its anterior extremity having two tubes attached to it for this purpose, the upper tube being in connection with a large vessel containing water at the desired temperature, and the lower tube allowing the out-returning water to flow into a recep-

tacle placed on the floor for that purpose.

By this instrument the therapeutic action of cold—tonic and astringent—can be usefully applied to the prostatic urethra, to which at the same time mechanical pressure is added. The sound is passed down to the bladder, then, by syphon action, water is made to flow through it. It is best to use water at the temperature of the room at first—about 65° F., and this may be gradually cooled down to 50° F.

I find that in practice the irrigator tube is just as effective as the psychrophor, and with it, as with the latter, warm water can be used in place of cold, this being a most effectual method of stimulating erection.

Electricity is a valuable aid to the cure of impotence, but it must be applied skilfully and in a form adapted to the particular form under treatment. Electric belts and electric suspenders so-called, are worse than useless in this disease. Galvanism or the constant current generated by a fifteen-celled battery is most beneficial. The positive pole is placed over the lumbar spine, and the negative pole gently stroked over the perinæum, testicles,

cord and penis. The sittings should be on alternate days and their duration from two to five minutes. After a few weeks the general tone of the sexual system is increased, the erections become more powerful and ejaculation less hurried.

Where there is prostatorrhœa or spermatorrhœa accompanying impotence, the negative electrode may be passed down the urethra to the prostate, and a weak current (three or four cells) passed to it from the positive pole placed on the perinæum, back, or groin.

In more advanced cases of impotence where there is a condition of paralysis of the nerves and muscles, Faradization or the induced interrupted current is more valuable, and may be applied in either of the two ways mentioned above. Ultzmann says faradization is particularly useful in cases where, on ejaculation, the semen is not discharged in jets, but dribbles sluggishly from the urethra. For this purpose one pole, in the form of a metallic, rectal electrode, should be pushed into the rectum, and the other pole placed on the raphe of the perinæum.

Treatment of premature ejaculation. This being the commonest and most troublesome symptom complained of in cases of sexual weakness, a few words concerning the best treatment of it cannot be out of place.

Two conditions may give rise to it, and the special method of treatment best adapted to its cure will depend upon which of these conditions exists. The usual one is undue sensitiveness of the prostatic urethra and the nerves in connection with it. This premature emission, when arising from this cause may, if unchecked, be looked upon as the first stage of impotence.

I have already described the mechanism of ejaculation, and how the least sexual excitement may cause premature emission if there be abnormal excitability of the prostatic urethra: all we have to do then in these cases is to remove this excessive sensitiveness of the part and make it less responsive to stimuli. This is best effected by the passage of sounds, by the psychrophor or by irrigation.

But, occasionally, in more serious cases, hyperæsthesia is not the sole pathological

factor, but, from continual sexual excitement, a relaxed and dilated condition of the seminal ducts, which open into the prostatic urethra, has resulted.

Here the least excitement, not necessarily sexual, causes the discharge of the contents of the seminal vesicles, in other words the condition becomes merged into that of spermatorrhœa. In these cases closure of the mouths of the seminal ducts is required, for which purpose the application of caustics or astringents is necessary. This may be effected by the cauterizor, but, I venture to think more effectually by the irrigator, which may be made to combine the usefulness of the former instrument along with that of the cold sound or psychrophor; in other words, an astringent can be applied by it directly to the prostatic urethra, and, as a large quantity of the solution can be used at one sitting, its temperature can be regulated and the tonic and astringent action of cold made use of.

Treatment of deficient ejaculatory power. It happens that in many cases of generative incapacity greater prominence is given to this

symptom than to any other. The patient states that erection is perfect and emission occurs after a proper interval, but, that the semen is not ejaculated with sufficient power, but merely oozes out of the meatus instead of being expelled with force and in successive jets.

If there is much disproportion in the relative sizes of the male and female organs, if the wife's vagina is somewhat capacious, or if contraction follows quickly upon ejaculation, the semen being deposited merely at the entrance into the vagina instead of being thrown into the upper part of that cavity, i. e., on or near the neck of the womb, it readily escapes, and the migration of spermatozoa into the uterus, the necessary preliminary to impregnation, is prevented.

I have met with several cases of supposed sterility in women really due to this cause, another proof that wives occasionally have to bear the opprobrium attached to childless marriages, when the cause thereof lies with the husband.

The treatment depends upon the cause. If the force of ejaculation is powerful but the

semen is prevented issuing by some mechanical obstruction, a stricture, phimosis, contracted meatus, a short frænum which on the occurrence of erection bends the penis downwards, the removal of anyone of these impediments by operative means results in the cure of the disease. More often no structural peculiarity of this description is to be found, but, there exists a feeble or atonic condition of the muscle concerned in the mechanism of ejaculation—the *musculus bulbo-cavernosus*, as a result of which, on the occurrence of an orgasm, the semen flows passively out of the urethra instead of being discharged *per saltus*. Here, those measures which give tone to the neuro-muscular structure of the generative apparatus will, with perseverance, effect a cure. Irrigation is a powerful auxiliary; the psychrophor alone will often remove the atonic debility of the ejaculatory muscles; lastly, faradization of these muscles, one pole being placed in the rectum and one on the perineum, practised daily for a week or so will cure the most obstinate case.

PSYCHICAL IMPOTENCE.

In describing the mechanism of erection we saw that there existed in the brain certain nerve centres which by their action can inhibit or prevent erection: it is due to the stimulation of these centres that this form of impotence is due.

Psychical impotence is commonest in young nervous men who have masturbated, or have suffered from gonorrhœa, or in elderly men who, being under a promise to marry, are doubtful and fearful as to their capability to perform their marital duties.

By want of confidence, dread of failure, fear, timidity, shame, disgust, and other mental conditions, the inhibitory nerves are stimulated and erection fails. Over-excitement on the wedding night will produce the same effect, and the temporary failure so overwhelms the patient that he is apt to become convinced that he is permanently impotent, and this erroneous conviction acts as a deterrent on subsequent occasions.

Similarly, a sudden shock, the loss of a dear friend, financial embarrassment, may act in the same way and render a man temporarily impotent.

Many men are so highly strung that complete confidence, and a ready willingness and even assistance on the part of the female, are necessary before they can consummate the act, and Ultzmann says that he has been acquainted with several cases in which the husband has been unable to do this until after several years of married life, when a gradual growing confidence has enabled this to be brought about.

A too powerful affection for the woman may have the same effect, but failure is more often due to a feeling of repugnance, indifference, or dread of surprise.

This form of impotence is only temporary, and in the majority of cases is purely imaginary; at the same time, the treatment of it, although favourable on the whole and invariably ultimately successful, is tedious and occasionally difficult.

Gonorrhœa is often a cause of this malady,

particularly an attack irregularly treated and of long duration, the specific inflammation spreading backwards to the prostatic urethra where it so acts on the surrounding tissues as to paralyze the nerves which carry stimulatory impulses from that part to the nerve centres presiding over erection.

Although we have said that this disease is in the majority of cases purely mental or imaginary, still we often find that besides the psychical impotence there also exists some objective lesion on which, as it were, it is based. Thus, there may be a stricture, phimosis, a gleety discharge, nocturnal emissions or spermatorrhœa. The most important complication is chronic catarrh and hyperæsthesia of the prostatic urethra, as this condition, if not cured, may lead on to atonic impotence and eventually to entire loss of sexual and generative power.

Treatment. Where there is some complicating lesion—stricture, a tight foreskin, prostatorrhœa, variocele, gleet, or spermatorrhœa, this should be first removed, whether the impotence be connected with or dependent upon it, or not.

Cases entirely imaginary or mental are somewhat difficult to treat. If we can gain the confidence of the patient it is a step towards enabling him to gain confidence in himself. These sufferers are usually nervous and despondent, and tonics, cold bathing, change of scene or travelling are of great value. All attempts at sexual intercourse must be rigorously abstained from, until such time as permission is given by the medical adviser. If matrimony be contemplated, it should be permitted, providing mutual love be present on both sides, and the patient not otherwise incapacitated. The would-be husband should be informed that he may possibly fail to satisfactorily perform his duty on the wedding night, and even for some little time after, but, if he at other times has an erection, in the night and particularly on first awakening in the morning, he should not be discouraged, for his capability will return to him as he gains confidence in himself. Should he fail at the first attempt, it is well to abstain for awhile before making a second.

These patients often assert that they are

quite unable to obtain any erection whatever, an idea which if really imaginary can be dispelled by the aid of electricity, or by the use of the psychrophor through which warm water is made to flow. By one or other of these means an unexpected erection can be produced, and the possibility of its re-occurrence gives the patient hope and confidence, and helps more towards a cure than any amount of persuasion or assertion.

Lastly, in all these cases there is a certain amount of atony of the nervous system which must be removed by the means already described, by metal sounds, by the psychrophor, by irrigation or by cauterization. Galvanism, or faradization, of the prostatic urethra, of the lower portion of the spine, of the testicles, cords, and penis may bring back health and strength to the generative nerves and muscles, possibly suffering from the effects of prolonged disease.

PARALYTIC OR SYMPTOMATIC IMPOTENCE.

In this form impotence is due to some intercurrent disease, or is produced by pro-

longed indulgence in some narcotic, or exposure to the effects of some deleterious drug. Diabetes often makes its presence known by the onset of sexual debility. Bright's disease of the kidneys is occasionally causative of impotence. The most important diseases, however, giving rise to it, are functional and organic diseases of the brain and spinal cord. Locomotor ataxia, myelitis, spinal irritation, inflammation and tumours of the brain; also, injuries to the brain and spinal cord by falls, blows, concussions, wounds, by their paralysing influence on the nerve centres presiding over erection, may cause impotence. Here there is very little hope of a cure being effected.

The chief drugs which may give rise to this condition are either narcotics or metallic poisons. In the first group are opium, cannabis indica, chloral, bromide of potash and alcohol: in the second, zinc, lead, antimony, and arsenic. The fumes of sulphide of carbon, and the prolonged use of the iodides, are also said to produce sexual incapacity.

The prognosis in cases of impotence due to the administration of these drugs is on

the whole favourable, as sexual power usually returns after a time when the absorption o the injurious substance is prevented.

These cases differ from those forms of impotence already considered in that complete erection seldom occurs, and, if it ever should, ejaculation is almost impossible, occurring very late, or the semen not being discharged from the urethra with force but merely oozing out of the meatus. The skin of the penis and scrotum is shrunken and cold, and its sensitiveness is very much decreased. The same loss of sensitiveness is also noticed in the urethra, and a full-sized bougie can be passed down to the bladder without encountering any obstruction or causing any pain.

The third degree of spermatorrhœa sometimes complicates this form of impotence.

Little need be said as regards treatment; the causative disease must be cured if possible, and the absorption of any drug or poison thought to be giving rise to the mischief stopped; afterwards, tonics, and the stimulation of the sexual neuro-muscular system by irrigation or electricity, will usually effect a cure.

ORGANIC OR PHYSICAL IMPOTENCE.

In this form of impotence complete intercourse is prevented by malformation, mutilation, non-development, or disease of the penis, the accessory generative organs or of some structure in the immediate vicinity of a healthy penis.

Impotence due to organic causes is on the whole less accessible to treatment than the other forms, and, although sexual desire may be powerful and ejaculation possible and normal, it is the impossibility of the insertion of the male organ owing to organic causes that characterizes this variety of impotence.

Absence of the penis itself due to its removal by injury or by disease, or to its non-development, is of course a complete bar to potency; but, short of this, the smallness of the organ may cause impotence, though it usually increases in size after a year or so of married life.

Abnormal growth, elephantiasis of the penis,

may prevent intromission, a condition the cure of which is next to impossible.

I have recently had under my care a case of impotence due to an *abnormally short frænum*, by which the penis was bent downwards on erection, so rendering penetration impossible. Division of the frænum effected a complete cure.

The penis may also be, congenitally, united by its under surface to the scrotum by which it is bound down as it were, and erection so prevented.

Here also, a carefully performed operation will liberate the penis and cure the impotence.

Injury or disease, localised in some portion of the penis may cause distorted erection and render penetration difficult. Extension of *gonorrhœal inflammation* or wounds or injuries of the tissue of one corpus cavernosum may give rise to induration of that part and so cause the penis to be twisted towards it on erection, the indurated part being incapable of dilatation and so bending the rest of the penis over it, as a bow is bent by the string. A curious condition occa-

sionally met with in men over fifty years, is the appearance of *indurated lumps* or *calcified plates* in the substance of the corpora cavernosa. As a rule they are in or near the middle line, and so distort the penis upwards on the occurrence of erection.

The chief causes of these indurations are syphilis, gout, gonorrhœa, and injury, but it is not always possible to trace any antecedent causative factor. If there be a syphilitic history, iodide of potash in large doses internally, and painting the part with iodine or rubbing in mercurial ointment, is the best treatment. Gout should be combated by colchicum, alkalies, and hepatic stimulants, but the prognosis in these cases is usually unfavourable. Partial or complete calcification of the septum between the corpora cavernosa may cause curvation of the penis, removal of the plate by a median dorsal incision and careful dissection, is indicated.

Congenital shortness of the corpus spongiosum is a rare deformity, it causes downward curvation of the penis and is usually accompanied with hypospadias.

Removal of a wedge of tissue from the upper surface of the penis and the resulting cicatrix antagonise the action of the too short corpus spongiosum and remove the distortion on erection.

A tortuous and varicose condition of the dorsal vein of the penis is said to occasionally cause inefficient erections, but I have never yet met with a case.

Extreme degrees of hypospadias and epispadias may offer physical obstruction to erection or penetration.

Next to the penis itself, non-development, mal-position, disease and injuries of *the testicles* are the chief causes of organic impotence. Both testicles may be absent—anorchidism, a condition entailing both sterility and impotence, though if they are merely retained in the abdomen or groins—cryptorchidism—impotence is not a necessary concomitant, though such sufferers are usually sterile.

Loss of both testicles, by injury or disease, is followed after a certain interval by sterility and impotence. It should be noticed that the effect of these diseases or injuries depends

upon whether both testicles are implicated or only one, if the latter only, loss of sexual power does not necessarily follow.

Syphilitic disease of the testicles may cause impotence, but prolonged treatment by mercury and iodine will often restore their normal function to those organs.

Tuberculosis and *cancerous affections* may cause impotence, and are less amenable to treatment.

Lastly the presence of some abnormality in the immediate neighbourhood of the penis may offer a physical obstruction to penetration and so cause impotence, in this way *general obesity* with a pendulous abdomen, acts, and only by reducing the corpulence can we hope to effect a cure.

Scrotal tumours, hydrocele, and large herniæ, may act in the same way, and removal or reduction of the tumour will be the line of treatment indicated.

CHAPTER IV.

STERILITY.

By sterility in men is meant the incapacity to beget offspring, or, the loss of the power of procreation.

The importance and frequency of this condition are only now beginning to be properly recognized, it having been the rule, in all cases of infertility in marriage, to attribute the cause thereof to the wife alone, and in hundreds of instances the wife has been blamed, treated, and even operated upon, for barrenness due in reality to the sterility of the husband.

Ability to perform the act of coitus, the ejaculation of semen, and its deposition in the vagina, are not the sole requisites for the impregnation of the wife, though a husband who performs these functions successfully,

cannot think himself unjust if he forms the opinion that some fault in the wife is the cause of their childless marriage. Yet such may not be the case, for though erection, intromission, and ejaculation may be normal, and though sexual intercourse may be practised with ability and ardour, yet *the semen may be destitute of living spermatozoa* and the man consequently sterile.

It will be seen from this that sterility does not necessarily entail impotence, but impotence is usually said to cause sterility, and, at first sight this seems a necessary result; however, this is not strictly accurate, since the fecundity of a man depends entirely upon the possession of healthy fertile semen, irrespective of erection and intromission. As proofs of this, impotent men have been known to become fathers, they having produced an emission of semen and deposited it upon the female parts, although erection has not been complete, and intromission has not occurred at all; the motile vitality of the semen having been sufficient to carry it from the external into the internal organs of generation of the

female, so producing impregnation. In the same way, coitus practised *in vestibulo*, with the view of preventing pregnancy, fails, and for the same reason. Lastly may be mentioned the well-known fact that women in labour are occasionally found with perfect untorn hymenes, who are in short, as regards external appearances, still virgins.

It is then the quality of a man's semen which regulates his power for procreation, and sterility alone depends upon the character and behaviour of that fluid. Semen is far from being a simple fluid secreted by the testicles, but is a mixture of that secretion with the various products of the vasa deferentia, the seminal vesicles, the prostate, Cowper's glands, and the mucous glands of the urethra. It is a thick whitish opalescent alkaline fluid, which stiffens linen on which after drying it leaves a grayish white stain with a narrow light brown border. The odour of seminal fluid is peculiar, resembling somewhat that of an egg in the first stage of decomposition, or the raspings of horn or bone.

The characteristic physical properties, col-

our, smell, &c., are not derived from the testicular portion of the fluid, but from the prostate and the urethral glands, consequently it follows that semen may be ejaculated which though normal to all appearance is yet destitute of its most important constituent—the spermatozoa.

Gross says that while in the vasa deferentia and epididymis the spermatozoa are motionless, owing to the density of the medium in which they are contained, and it is only when that medium is diluted by the fluid in the seminal vesicles, that they become active and motile. This fluid secreted by the seminal vesicles is odourless, colourless, thick, neutral and does not coagulate, and it, along with the testicular secretion, does not acquire the common properties of semen as emitted until mixed with the other secretions.

When ejaculated, semen soon coagulates when exposed to the air, but it becomes fluid again after ten to twenty minutes. If it be collected in a test tube and allowed to stand for awhile it will be seen to separate into two layers of almost equal volume, the

lower one being thick and white and consisting almost wholly of spermatozoa, while the upper one, or liquor seminis, is thin, watery and transparent, containing merely salts and a few epithelial cells.

I have mentioned elsewhere the physical characters of the spermatozoa as disclosed by the microscope, it remains but to mention that if the microscope slide with the semen upon it be examined after an interval of a day or so, long transparent crystals of a rhombic form will be found to have formed on the slide. They are believed to be derived from the seminal vesicles (Ultzmann), and their rate of formation to be in inverse ratio to the fertilising capacity of the mixed seminal fluid, so that in semen destitute of living spermatozoa they make their appearance very early, in a few minutes, while in fertile semen they do not appear until after the lapse of several days. Their formation in semen lacking spermatozoa proves that they must be derived from other organs than the testicles, and their rapid formation in such azoöspermatous fluid is due to the fact that crys-

tallisation can take place much quicker in a fluid medium which is at rest than it can in one which is kept in continual agitation by the rapid motion of living spermatozoa.

By the aid of the microscope we also find that, besides spermatozoa, seminal fluid contains a number of small granules, and large round cells—spermatic cells—from which the spermatozoa are developed. If the semen is healthy, has been recently discharged, and has been kept in a dark and warm place, the spermatozoa will retain their vitality and their motility for two or even three days, but, after this time, or if they are exposed to injurious influences, they become motionless, and their tails become bent, rolled, or twisted, instead of being straight or gently curved.

Among these injurious influences which restrain the active movement of the cells and tend to cause their death are a too thick or a too concentrated condition of the semen itself, or contact with water, cold, urine, unduly acid vaginal secretions, and solutions of metallic salts. The movements of the spermatozoa may however be revived by the

application of solutions of salt, weak alkalies, sugar, albumen, and urea, providing they have not been exposed too long to the above mentioned injurious surroundings.

It follows from the above that conception may take place several days after connection, the spermatozoa being kept alive for so long in the warm moist alkaline secretion of the uterus ; and, that in certain conditions of sterility, fertility may be assisted by the injection of a warm alkaline solution immediately after coitus.

The presence of pus is exceedingly inimical to the spermatozoa, and the mixture of that discharge with the semen, whether it be derived from the male or from the female passages, is a frequent cause of infecundity.

Except during the time antecedent to puberty, and, of course, presuming there to be a normal condition of health, semen is constantly being secreted, though the actual amount formed in a given time is small, unless the sexual organs are excited in any way, when its formation is rapid.

The average quantity ejaculated after a moderately long interval of sexual rest—a

week or more—is two to four drachms, and this semen is particularly rich in the fertilising elements—the spermatozoa. If the sexual act be repeated frequently at short intervals, the semen discharged becomes less in quantity, thinner and more watery, and the relative number of spermatozoa becomes gradually smaller and smaller, until the ejaculated fluid contains no fully formed spermatic elements.

Unlike women, men usually retain their procreative capacity to an advanced age, and there are several instances recorded (Casper) of men becoming fathers after reaching seventy, eighty, and even ninety years of age. Usually the sexual desire and the power of erection—potency, fails before this, so that, as we have mentioned elsewhere, men become sterile from impotence or disease, rather than from old age.

CAUSES.

STERILITY DUE TO ABSENCE OR ABNORMALITY OF THE SEMEN.

In these cases either semen is not formed at all, or, if it be, it is destitute of sperma-

tozoa, or, if spermatozoa are present in it, they are deficient in number, or lacking fertilising power. This condition may be congenital or acquired, permanent or temporary.

Congenital absence of both testicles is a complete bar to fecundity, and is, of course, irremediable. Sexual desire and the power of erection are wanting, so that this condition also entails impotence. If only one testicle be absent the man may be sexually potent and capable of begetting children.

But the testicles may not be really absent but only retained in the abdomen—*cryptorchidism*, concerning the consequent sterility of which condition considerable difference of opinion exists. There is usually no question of impotence in these cases, as venereal desire and erection are normal, but certainly the majority are sterile, due to the absence of spermatozoa from their semen. Before therefore an opinion can be expressed, it is necessary to make a microscopic examination of the semen.

Congenital absence of the epididymes and

vasa deferentia. This is a rare condition, and necessarily causes sterility, the absence of these tubes preventing the migration of the testicular secretion to the vesiculæ seminales and to the urethra, consequently any fluid ejaculated in coitus is lacking spermatozoa.

Diseases of the testicles. Cancer and tuberculosis of the testicles so disorganises the structure and function of these glands as to effectually check the formation of their peculiar secretion. Pressure, as by a hernia, hydrocele, or varicocele, may cause atrophy of these organs, and consequently sterility. Idiopathic atrophy of the testicles, i. e., not secondary to any other disease, is an occasional cause of sterility. *Syphilis* may be a cause, but, as a rule, its action is only temporary, and sterility due to it gives way, as does the constitutional disease, to specific treatment.

Gonorrhœa is I believe the most frequent cause of sterility in men, its action in this respect being brought about in more than one way. Should the attack be accompanied with, or followed by, inflammation of

the epididymis, or what is commonly termed "swollen testicle," permanent blocking of that canal by induration, subsequent to inflammation, may follow, resulting in the retention of the testicular fluid and the absence of spermatozoa from the semen. That this will be the case if both epididymes be affected is easily understood, but, such is the sympathy existing between the testicles, it is believed that disease of, or injury to, one testicle or epididymis will abolish the function of the opposite gland and so cause sterility.

Another way in which gonorrhœa may cause sterility is by extension of the specific inflammation backwards to the prostatic urethra, and to the ducts opening into it, where it becomes localised. This localised inflammation produces a chronic catarrh of the mucous membrane, and the formation and discharge of muco-pus which is highly destructive to the vitality of the spermatozoa, and when mixed with the semen effectually sterilizes it.

It commonly happens that men suffering from an old-standing and apparently unim-

portant gleet which has followed a former attack of gonorrhœa, consult us as to the advisability of marriage, their only reason in asking the question—a very proper one—being the dread of the possibility of their disease being contagious. The non-infectiousness of the discharge can be decided only after a careful examination, but usually is, affirmatively; though there is always an element of doubt in every case. But it is an important matter to warn these candidates for matrimony that the question of contagiousness is not the only one to be considered, but that so long as they have this discharge they will probably remain childless, and that it is a matter of duty, for these two reasons, to stop the discharge, to obtain a cure, before entering into the bonds of wedlock.

The efferent ducts of the testicles may be obstructed by other diseases, as by *tuberculous deposits*, and by *syphilitic*, *sarcomatous* and *cancerous disease* of the epididymis or vas deferens. *Chronic inflammation*, and *suppuration of the prostate*, may lead to occlusion of the ejaculatory ducts.

Without there being any obvious structural disease of the generative organs, *the semen may be abnormal,* either as regards quantity or quality.

Azoöspermia, or the absence of spermatozoa from the ejaculated fluid, may be acquired, as by some of the previously mentioned diseases of the testicles, or, it may be a congenital idiopathic affection. The latter is not a very uncommon affection, and, as coition can be completely performed, and as the ejaculated fluid appears similar to normal semen, only a microscopic examination can demonstrate the cause of the sterility.

There may not be a total absence of spermatozoa from the semen, but their number may be diminished.

Oligozoöspermia, or a marked diminution of the number of spermatozoa, is a natural condition in elderly men. One of the chief causes of this condition during adult life is *sexual excess,* or the resulting *nervous exhaustion* so certain to follow venereal excess, masturbation, or repeated sexual excitement without gratification—moral onanism.

If the semen of a healthy adult man, who has remained continent for some weeks or months, be examined by the microscope, almost innumerable zoösperms will be seen actively moving about in the field of vision, whereas, soon after two or three connections the spermatozoa will be found to be much less numerous, and after frequently repeated intercourse there may be none at all in the ejaculated fluid, which is thin and watery: after a brief period of sexual continence, the spermatozoa will be found to have returned to their normal number. It follows from this that the spermatozoa are not immediately formed fully developed, but that a certain period of rest is requisite for their maturation, and that, *ceteris paribus*, the fertility of semen is proportionate to the time which has been devoted to its elaboration.

Oligozoöspermia does not necessarily cause sterility, but the chances of impregnation are more favourable the nearer the relative number of spermatozoa approaches the normal.

If the spermatozoa are motionless, they are either dead and consequently incapable

of fertilisation, or they may be prevented moving by the abnormal density of the semen, when the addition of a little tepid water will reawake them to activity.

In speaking of gonorrhœa we have mentioned that a gleety or purulent discharge is causative of sterility. Pus is inimical to the life of spermatozoa, and, mixed with healthy semen, renders it infertile; in this way sterility in men is commonly caused by a neglected gonorrhœa, epididymitis, or prostatitis.

Sexual excesses and masturbation may act in the same way, by producing chronic muco-purulent catarrh of the prostatic urethra—prostatorrhœa.

Long indulgence in *the opium or morphia habit* is productive of azoöspermatism, but only so long as the system is saturated with the drug, the spermatozoa making their reappearance in the semen in increasing numbers as the drug becomes eliminated from the body and the habit broken.

The DIAGNOSIS of sterility due to absence of spermatozoa, or to abnormal semen, can only be decided by frequent chemical and

microscopical examinations of that fluid; we have seen that it may vary in health within certain limits at different times, so that its variation from the normal to such a degree as to entail sterility can only be positively asserted after repeated examinations. So, thin, watery semen, which when allowed to stand for a while deposits little or no sediment, such sediment containing few or no spermatozoa; semen which at each examination is found to contain motionless and dead spermatozoa; and, semen mixed with pus, are all incapable of fertilisation. As already mentioned, the early appearance of spermatic crystals occurs in semen which contains no spermatozoa, and which is consequently infertile.

PROGNOSIS. When the sterility is due to congenital absence of both testicles, or of their efferent ducts, it is obviously absolute and incurable. Cryptorchids, or men whose testicles are retained in the abdomen, or in the inguinal canal, are usually infertile, though they may be potent, still there are several cases on record of cryptorchids who have become fathers.

Structural disease of these glands and of the epididymes, as by tubercle, cancer and sarcoma, produces permanent sterility. Non-development of the testes is not a permanent cause, as it may pass away under sexual excitement, and the function of these glands be roused into action. Atrophy of the testicles dependent upon central nervous disease entails absolute sterility, but that due to pressure of neighbouring structures is unfavourable only in so far as the causative trouble is irremediable, and in proportion to the degree to which the wasting of the organs has proceeded previous to treatment.

In all these affections of the testicles and epididymes the prognosis is naturally more favourable when the structures on one side only are involved.

The removeability of sterility due to bilateral induration of the epididymes is dependent on the cause, that due to gonorrhœa being particularly unfavourable, as also is cancerous and tuberculous blocking of the ducts; syphilitic affection of the same structures is more amenable to treatment. Simple

inflammation of the epididymes, and sterility due to masturbation, sexual excesses, nervous exhaustion, and morphia poisoning, are more remediable, and careful and prolonged treatment is usually followed by success.

TREATMENT. This is so clearly indicated in what has been already written, being dependent upon the removal of the originating cause, that I shall say but little under this head. Congenital absence of testes or epididymes is of course incurable. Blocking of the epididymes by inflammatory deposits may be removed in many cases by the internal administration of iodide of potassium, and by the local application of iodine or mercurial ointment. Where the functions of the testicles have been in abeyance for some time, those glands may be stimulated to renewed activity by faradization applied directly to them. Sterility due to sexual excesses and to masturbation will usually, in men under sixty years of age, disappear after an interval of physiological rest, accompanied with tonics and electricity.

Where there is unnatural excitement of the

sexual system, indicated by nocturnal emissions or by spermatorrhœa, irrigation practised twice or thrice a week for about a month, will usually effect a cure.

Gleet, or prostatorrhœa, due to chronic inflammation of the prostate or of the prostatic urethra, often accompanies or causes sterility, especially those forms due to masturbation, sexual excess, or gonorrhœa; the purulent matter discharged effectually kills the spermatozoa, and must be got rid of before there can be any chance of promoting fertility.

Irrigation is a potent remedial agent in these cases; should it not succeed, cauterization must be resorted to.

STERILITY DUE TO NON-EJACULATION OF SEMEN.

Here coitus is otherwise normally performed but is not terminated by the usual emission of semen.

This condition of *aspermia* may be congenital or acquired, permanent or temporary. We may divide the causes of this disorder into two groups, firstly, those due to struc-

tural abnormalities of the urino-genital organs, by which the semen is diverted from its ordinary channel, or its ejaculation is prevented by some obstruction or stricture; secondly, those due to disorders or diseases of that part of the nervous system governing the sexual function, as a result of which the nervous mechanism productive of ejaculation cannot be set in action.

Structural or organic causes. Congenital absence or occlusion of the ejaculatory ducts is a rare condition, but has been assigned as a cause of sterility in men who have never had a normal ejaculation of semen, and in whom there has been no stricture. A commoner condition is that due to injury or disease of these structures, thus,—gonorrhœal inflammation of the prostate, abscess and tubercular disease of the prostate or seminal vesicles, may occlude or obliterate these ducts.

Wounds of this region, accidental or surgical, may be productive of the same condition. Lastly, these ducts may be obstructed by the blocking in them of calculi, or con-

cretions consisting of inspissated mucus, epithelial cells and spermatozoa.

The semen may be deviated from its proper course by the communication of the seminal vesicles or their ducts with neighbouring cavities; thus, fistulous passages between those structures and the rectum, opened up by disease or wounds, may cause the semen on ejaculation to be discharged into the rectum. Contractions of the urethra, anterior to the prostate, may prevent the emission of semen, one of the commonest causes of organic sterility under this head being *stricture of the urethra.* During sexual congress the caput gallinaginis, or mucous crest on the floor of the prostatic urethra posterior to where the ducts of the seminal vesicles open, swells up sufficiently to prevent the regurgitation of semen into the bladder when ejaculation occurs. If then there is a stricture in the urethra anterior to the prostate, the semen is dammed in the intervening portion of the urethra between these two contractions.

Patients suffering from this form of sterility complain that when they have connection

they experience a feeling of painful distension of the urethra when an orgasm is produced, and that no semen is emitted from the meatus. When the sexual erethism has passed off and relaxation of the penis occurs, the semen either regurgitates into the bladder, or, the stricture becoming more patent as the penis becomes soft and flaccid, it oozes slowly from the meatus.

Nodular growths in the structure of the penis may compress the urethra, and a long and tight foreskin—phimosis, or one bent over the meatus by a short frænum, may obstruct the emission of semen.

Treatment. Congenital occlusion of the ejaculatory ducts, advanced suppuration and tuberculosis of the prostate are irremediable causes of sterility.

When the inflammation is of gonorrhœal origin the cure is not so hopeless, local treatment of the prostatic urethra often being successful. Concretions blocking up the ducts may be extruded or crushed by manipulation with the finger in the rectum and a large metal sound passed down the urethra. Fis-

tulous communication with other cavities may be closed by surgical means. But the most curable of these cases are those due to obstruction anterior to the prostate, particularly those due to stricture of the urethra, sterility depending solely on that condition being fairly easily cured by dilatation, distension, or incision of the stricture.

Circumcision will be indicated in phimosis, and snipping through the frænum in those cases due to preternatural shortness of that structure.

Nodular indurations are considered under impotence: their treatment is far from being satisfactory.

NON-EJACULATION OF SEMEN DUE TO NERVOUS INFLUENCE.

Although various sub-divisions of this cause of sterility have been enumerated by some authors, we can refer almost every case to one of two groups, either to nervous atony of the spinal ejaculatory nerve centres, as a result of which no amount of stimulation

will provoke them to discharge their nerve energy; or, these same centres are prevented acting by the restraining or inhibitory action of the higher cerebral nerve centres.

To take the first cause, or, *atony of the genito-spinal nerve centres.* This is a condition closely allied to spermatorrhœa, the patient bears the characteristic appearance of a masturbator or one given to sexual excesses, there is marked nervous depression, especially of the spinal system, pain in the back, inability to walk or stand long, and an occasional feeling of giddiness or instability are usually complained of. When coitus is attempted erection and intromission may be normal, but no amount of friction will produce an ejaculation, and the sufferer has to cease from sheer exhaustion. This condition may be brought about by continued prostatic catarrh, commonly the result of gonorrhœa, the constant inflammatory condition of the prostatic urethra keeping up a continual irritant action on the spinal nerve centres which ultimately become exhausted and incapable of responding to ordinary stimulation.

The second cause, *psychical* or *inhibitory aspermatism*, is often but a temporary condition, the mind being occupied with some thought inimical to the successful performance of the sexual act at the particular time and with the particular woman, exercises a controlling and restraining action on the spinal centres governing ejaculation, consequently coitus, however long continued, is not terminated in the usual way with an emission. The psychical moods provocative of this state are dread of surprise, fear of consequences, the thought that one may not be able to satisfactorily perform the sexual function, disgust with the woman, loss of passion or too great a degree of the same; in short, the same states which when more pronounced produce impotence.

That there is no real loss of sexual power in these cases is proved by the fact that emissions occur under certain conditions as to time, place, and person, as also may they during sleep, during which time the activity of the brain is in abeyance.

Treatment. Atonic aspermatism due to

sexual excesses or masturbation is somewhat difficult to cure, particularly when it has been of long duration and in men advanced in years; still, by judicious treatment, rest, and time, much is to be hoped for.

Abstinence from all sexual excitement must be practised for a considerable time, then, when the spinal nerve centres have had a chance of recuperating their exhausted energy, strength and the capability to respond to stimulation may be given to them by a judicious course of tonic medicines, combined with proper hygiene, massage, and electricity. Where the nervous exhaustion is dependent upon hyperæsthesia of the prostatic urethra, irrigation or cauterization will usually effect a cure.

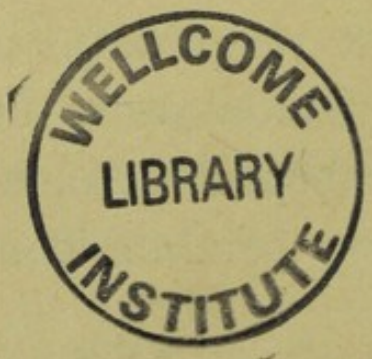
Psychical aspermatism is more easily cured, being, as a rule but temporary, medicines exerting a sedative action upon the brain, bromide of potash, morphia or alcohol, may ward off the inhibitory cerebral control.

STERILITY DUE TO MIS-EMISSION.

Ejaculation may terminate sexual congress,

but, owing to some organic malformation or deviation of the penis, the ejaculated semen cannot be deposited sufficiently within the vagina to effect impregnation. Thus, owing to the urethra opening near the base of the penis instead of at the end, either on the upper or lower surface (epispadias or hypospadias), the semēn is discharged outside the vagina. The same results may be produced by injury or inflammatory processes having opened the urethra, resulting in the formation of fistulous passages through which urine and semen are discharged.

Shortness of the frænum producing deviation of the meatus I have already mentioned. All these conditions when not of severe degree are remediable by surgical treatment.



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