The diagnosis and treatment of sexual disorders in the male and female including sterility and impotence / by Max Hühner.

The DIAGNOSIS *and* TREATMENT *of* SEXUAL DISORDERS *in the* MALE *and* FEMALE *Including* STERILITY *and* IMPOTENCE

BY

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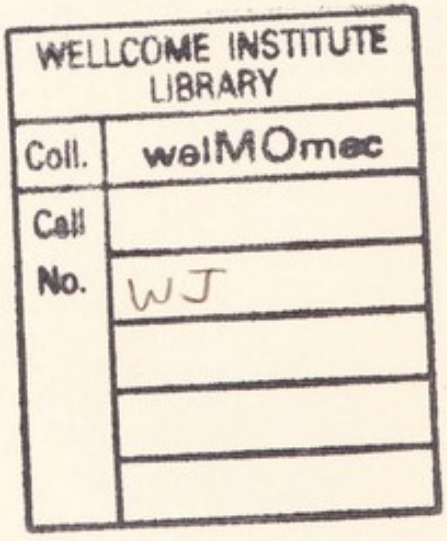

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PREFACE

IT is about twenty years since the first edition of my work "Disorders of the Sexual Function" appeared. So generous was the response of the medical public, that the edition was rapidly exhausted and the book had to be reprinted eleven times between 1917 and 1921. The second revised edition appeared in 1922 and had to be reprinted ten times prior to 1929 when the third edition was published.

In the preface to that book, I called attention to the anomalous position that sexual neuroses occupied in the general field of medical domain. At that time many of these cases presented themselves to the neurological clinic rather than to the genito-urinary clinic. As a matter of fact, many of the books on sex troubles a generation ago, were written by neurologists. The reason for this is quite clear, when we consider that many of the symptoms were of the nature described at the time as "general neurasthenia," in many cases affecting parts of the anatomy entirely remote from the sexual apparatus, so that the patient did not imagine that these symptoms were in any way caused or exaggerated by abnormal pathology in the sexual organs. The anomalous situation consisted in the fact that the neurologist was not in a position to diagnose this sexual pathology, since, to give but a single instance, he was obviously not trained either in differentiating between the feel of an enlarged prostate, due to congestion from masturbation or withdrawal, and the enlargement of a prostate due to adenoma (senile prostate), carcinoma, or tuberculosis. Obviously also, he was not familiar with the general examination of the prostatic urethra with the urethroscope. The genitourinary specialist, on the other hand, did not come in contact with these cases, and it was not unusual to meet genito-urinary specialists of great prominence, who were hardly aware of these conditions. And so it was that, although I had worked for many years in prominent genitourinary clinics, both here and in Europe, it was only after I had associated myself with the *neurological* clinic of the Mt. Sinai Hospital Dispensary that I became acquainted intimately with that class of patients who (as previously mentioned) occupied a position midway between pure neurology and pure genitourinary pathology. For many years in this *neurological* clinic, wherever there was a suspicion of sexual pathology or where no ordinary reason for the neurasthenic symptoms had been discovered, such a patient was referred to

me for investigation of his sexual apparatus by not only examining the prostate per rectum but also by viewing the prostatic urethra with the cysto-urethroscope. It was in this manner that I obtained a large experience in disorders of the sexual function.

Heretofore, I have recorded a state of affairs existing at that time, but one which is not unusual even today, twenty years later. A neurologist of note at that time, informed me that whenever he suspected a sexual origin for some obscure neurological symptoms, he would send the patient to a genitourinary specialist and have him investigate the prostatic urethra, and that, if no gross lesions were found, he concluded that the sexual apparatus had nothing to do with the case. I emphasized, at the time and again stress that the most gross pathological conditions, such as polypi or other tumors in the prostatic urethra, may have no bearing at all on the symptoms, while a slight congestion, which appears almost insignificant, may be the cause of the most varied and severe neurologic symptoms. In other words, a clear bill of health in regard to the genitourinary apparatus, made by one who is unfamiliar with these cases, means absolutely nothing. In fact, many urologists employ cocaine or one of its derivatives preparatory to urethroscopy and must obviously miss even fairly severe congestions in the prostatic urethra due to the action of the anesthetic.

Many of these features have been changed today. Neurologists have for many years been aware of the possibility of neurological symptoms being due to conditions in the genitourinary tract. Accordingly I am being constantly consulted by patients who have been sent to me by prominent neurologists.

But today, and for several years past, a new state of affairs has developed in this field, which, for the time being, is farther reaching in its effects than that of the neurologist of a generation ago. I refer to the opinions and practices of a *small* group of psychoanalysts. With the truly scientific and honest psychoanalyst, who follows the example of the great teacher Freud in not treating any sexual condition before the patient had been examined for organic sexual pathology by the urologist, I have absolutely no quarrel. On the contrary, as I have so frequently emphasized, I have nothing but the most profound respect and admiration for the entire theory of psychoanalysis and its originator Freud. But I here refer to a small group, who seem to be ignorant of the fact that the Almighty has placed in every individual sexual organs as well as brains, and that these sexual organs through the hormones

they produce, exert a distinct effect upon the person and his sexual urge and capacity. This small group of psychoanalysts consider every sexual impediment as absolutely psychic in origin and treat it as such, without even an attempt at examination for organic defects. In some cases they even advise against any genitourinary examination. Some members of this group are not even physicians and so are obviously ignorant of even elementary knowledge of the anatomy, physiology and pathology of the sex organs.

Of course, for the benefit of the patient and for the dignity and respect of both the two great specialties interested, there ought not be any antagonism between them. We all know that almost any organ or function of the body may be affected by psychic influences. Thus we have psychic vomiting, psychic diarrhea, psychic frequency of urination, as well as psychic impotence. However, there is no more reason for treating cases of psychic impotence without a preliminary examination for organic pathology, than there would be, for instance, in treating a case of vomiting without investigation of the function or pathology of the stomach. It is therefore advisable for the genitourinary specialist, to refer to the psychoanalyst cases of impotence or other functional disorders, after he has determined that there is no organic pathology present, just as he has always referred to the neurologist cases where he suspected a cerebral or spinal cause of the trouble. The psychoanalyst on the other hand, should refer to the genitourinary specialist those cases for examination in which there is a likelihood of the presence of organic pathology.

Although there have been several revisions of my first book, so much real progress has been made since they appeared, that an entirely new work became necessary, requiring the complete rewriting of certain chapters, adding new methods of diagnosis, and eliminating or otherwise criticizing methods of treatment which more extensive experience has shown to be erroneous.

In the present book therefore, the entire subject of impotence has been rewritten, adding a discussion of the Steinach operation with its various modifications, the influence of the endocrine system, the Freudian theory in relation to the subject, an important and hitherto undescribed cause of impotence in the male, and finally (and perhaps most important of all) an entirely new method of treatment of impotence in the male, which I have employed with the most gratifying results.

The chapter on Masturbation in the Adult Male, has also been rewritten adding much material of great value.

In 1913, I published a book on sterility, which contained only original investigations and matter which could not be found anywhere else. It had been my desire for some time, however, to write a more extensive work on the subject which would bring it up to date. In fact, I had already completed part of this work. In bringing out the present book, the publishers suggested that I also include therein a complete discussion of sterility, and accordingly I have done so. In the chapters on sterility it has been my aim, just as in the other chapters of the work, to make the subject *practical,* laying special stress on diagnosis and treatment, and leaving out matter which is unessential or which could be found in any up to date work on gynecology. For this reason, I give no description of the anatomy and physiology of the male and female sexual organs and no academic discussion of doubtful theories or theories-in-the-making. These chapters, rather, represent in condensed form the large experience of the writer in this field for the last twenty-five years.

The growth of endocrinology in relation to sterility, has been so vast and theories have been changing so rapidly that not only have substantial books been written on this subject alone, but, as one prominent endocrinologist told me, he had to recall several chapters while his book was in press, because new discoveries had made them valueless. I have therefore thought it more advisable not to go too deeply into a discussion of the various endocrine theories, since such a course would be confusing, and have introduced only so much of endocrinology as is necessary in a *practical* treatise on sterility.

I have refrained also from discussing contraception, as the entire aim of a work on sterility, should be to help in the prevention and cure of sterility, and not in the prevention of pregnancy. Wherever, throughout the entire work, contraceptive methods are mentioned, they are mentioned only to show the harm that is often done to both male and female by the use of certain methods of contraception which sometimes are responsible directly for a later sterility.

In the bibliography which forms part of this work, those interested will find abundant references to works and articles on both gynecological endocrinology and contraception.

As repeatedly stated, the present work is to be what its title indicates, namely a *practical* treatise on disorders of the sexual function in

the male and female, and therefore such conditions as homosexuality and other sexual inversions are not discussed herein, though references to these topics will be found in the bibliography. Moreover, in order to make the work of the most practical value to the practitioner, especial emphasis is laid on *treatment* throughout. For the same reason, I have made the discussion of each subject complete in itself, so that readers who happen to be interested in some particular subject only, need not be referred to other chapters of the work.

For the convenience of the reader, who may be interested in some special phase of the subject, I have added an extensive bibliography, every item of which had to be read and reread not only to bring every phase of the subject up to date but also to limit the bibliography to a workable unit. Indeed, if it represented even everything which I had to read, in preparing this book, it would cover considerably over one hundred pages and, therefore, be entirely out of proportion to the work itself. For this reason I have included only the essential references and those containing the latest views of authors, some of whom have written extensively on their particular topics. As it is, even this reduced bibliography covers over 31 pages, and for all practical purposes ought to be found ample.

In conclusion, I desire to express my thanks to the MEDICAL JOURNAL AND RECORD for permitting me to include herein my article "A Hitherto Undescribed Cause of Impotence in the Male" as well as "Some Unusual Cases of Priapism," both of which appeared in that Journal, and to DINGWALL-ROCK, Ltd., publishers of ENCYCLOPAEDIA SEXUALIS, and to DR. VICTOR ROBINSON, the editor thereof, for permitting me to include in the chapters on sterility, portions of the article which I wrote on that subject for that ENCYCLOPAEDIA. I also wish to thank DR. GERSHOM DAWNS, the managing editor of AMERICAN MEDICINE, for permitting me to include herein portions of my article "Absence of Pleasure in the Female during Sexual Intercourse," which appeared in that Journal in 1933, and to Dr. I. C. Rubin and Dr. M. A. Goldberger for courtesies extended to me.

I hope that the present volume will receive the same generous response from the medical profession, which has been accorded my previous works.

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STERILITY

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CHAPTER I

STERILITY IN THE MALE

GENERAL CONSIDERATIONS

THROUGHOUT nature, in all forms of reproduction, except in the very lowest, every being is the result of the union of male and female elements. Man is no exception to this law. It does not matter whether this union has taken place through the natural manner of sexual intercourse or through artificial means, there can be no offspring without such union. Whenever, therefore, a man and woman have lived together for a period of three years, indulging in regular sexual intercourse, without the use of any contraceptive method, and pregnancy does not occur, we may say that sterility exists. Of course, we must investigate further to determine whether the man is at fault, or the woman, or both. The methods employed to make this diagnosis will be described in detail under the proper headings. I have just said that if, after a three-year period, pregnancy does not ensue, sterility may be said to exist. I have *not* said that sterility exists if no child is born during this period of time. From strictly a scientific point of view, sterility is the absence of impregnation, and if such impregnation occurs, but the fetus is expelled prematurely, we cannot consider this a condition of sterility, but should call it abortion or miscarriage and this latter condition must be classified separately, demanding treatment according to the cause of the premature expulsion. To make this clear and distinct, we may say that whenever the male and female elements have successfully united and the impregnated ovum has descended through the tube into the uterus and whenever the uterine mucosa has

been properly prepared to receive and nourish the ovum allowing its development, sterility does not exist.

Impotence means the lack of ability to engage in sexual intercourse, while sterility means the lack of ability to accomplish impregnation. In both conditions, the male or female or both may be at fault. The impotent man is not necessary sterile, for in cases of premature or rapid ejaculation, he may still be able to send his semen far enough into the female genitals to cause impregnation. Indeed, in rare cases impregnation has occurred without any real intromission and without even rupturing the hymen; the spermatozoa of the semen which had been ejaculated on the external genitals of the female, having been able to work their way into the uterus and cause impregnation. Similarly, the sterile man need not be impotent. In many cases of absolute azoöspermia, due to occlusion of both epididymides from a previous double epididymitis, the male is perfectly potent.

Not so many years ago, when a couple had no offspring, the blame was at once put on the wife. She was subjected to prolonged and painful treatments and operations when she was not at all at fault for the condition. Happily, this state of affairs does not exist as a rule in large cities today. Generally the husband's condition is taken into consideration at once and at once it is determined whether his semen contains normal spermatozoa in sufficient numbers. Therefore, in discussing the subject of sterility, we will first discuss sterility in the male and then in the female, and finally sterility due to both male and female; giving the causes, pathology, diagnosis, prognosis, and treatment in each case.

In order that impregnation take place, a live spermatozoon of the male must come in contact and unite with the ovum of the female. As will be described further in detail when considering the Huhner test, as far as the man is concerned, it is

only necessary for him to bring his healthy semen into the cervix of the female. As long as he is able to do this, he is absolved from any responsibility if impregnation does not occur.

The semen is a mixture of the secretions of various sexual glands; the most important being those from the testicles, the spermatozoa, which leave those organs via epididymides and vasa. It was formerly believed that during the intervals of coitus, the spermatozoa were in the seminal vesicles, from which these organs derive their name. Of late many investigators have doubted this fact and consider the vesicles merely sexual glands elaborating a secretion which helps the vitality of the spermatozoa. This opinion is apparently confirmed by the fact that in some animals, like the rhinoceros, the vesicles are solid glandular masses resembling the prostate. I believe, however, that at least in the human male, the seminal vesicles do act, in part at least, as a storage place for the spermatozoa, because, upon stripping these organs, it is not at all uncommon to find very many, very lively normal spermatozoa in the expressed fluid thus obtained. The spermatozoa plus the secretions from the seminal vesicles enter the prostatic urethra through the ejaculatory ducts, where they mix with the prostatic secretion. This mixture during coitus then passes through the entire urethra, mixing with the secretions of the urethral glands, and the entire substance, the semen proper, is ejaculated into the genitals of the female during coitus.

Any factor which interferes either with the manufacture of the spermatozoa or with their vitality, or prevents their expulsion into the female genitals, may cause sterility. We may, therefore, recognize the following etiological factors:

I. ETIOLOGY OF STERILITY IN THE MALE

A. STERILITY CAUSED BY INTERFERENCE WITH THE MANUFACTURE OF SPERMATOZOA

In any discussion of this cause attention may be given to congenital absence of both testicles; double castration done

for various reasons; undevelopment or severe injury to both testicles; atrophy due to mumps or more rarely to typhoid fever and other acute febrile conditions; alcohol and certain poisons; certain severe forms of tuberculosis of both testicles, in which no spermatozoa are manufactured; as well as certain rather unusual cases of syphilis of both testicles.

With regard to the influence which x-rays have on sterility, considerable experience has convinced me that there seem to be marked differences in which testicles react to these rays. For instance, I have had cases of dentists who did considerable x-ray work without any protection at all, and yet a condom specimen would show normal lively spermatozoa; while in other cases, very little exposure to the x-rays produced complete and prolonged azoospermia. I have had cases in which certain dermatological conditions were treated by expert dermatologists who employed, what they considered adequate protection to the testicles and still azoospermia followed. In many of these cases the dermatological conditions were not on the scrotum, but in its neighborhood, such as the thighs, perineum, or pelvic regions. In some cases the dermatologist assured me that not only was a protective device employed but the dosage of x-ray administered was too weak to produce azoospermia, but nevertheless I found this condition present whereas previous to the x-ray exposure no azoospermia was present, as shown either by condom examinations or by a pregnancy. In all these cases, of course, I carefully investigated for some other reason for the azoospermia, but in the cases referred to was convinced that the x-rays were at fault. In the Journal of the American Medical Association of May 18, 1935, I cautioned dermatologists and others about this supersensitiveness of some testicles to this modality.

It is perhaps not generally known that the gonococcus produces at times changes in the spermatogenic function of the

testicle. This has been demonstrated by me in a few cases where I aspirated the testicle in persons suffering from acute gonorrhea. I have found in patients who had borne several healthy children and who subsequently have become infected with gonorrhea, that upon aspiration no spermatozoa could be demonstrated in the aspirated testicular fluid. In other cases, however, spermatozoa could be demonstrated, showing that the gonococcus will destroy for the time being the testicular function of the testicles, in some cases, while in others it will not. My experiments, however, in this class of cases are very few in number, and more extended experiments in aspiration of the testicles may perhaps determine definitely just what occurs. The very important practical application of this observation will be taken up under the caption of Diagnosis.

B. STERILITY CAUSED BY INTERFERENCE WITH THE VITALITY OF THE SPERMATOZOA AFTER THEY HAVE BEEN MANUFACTURED

Under this heading may be mentioned severe forms of seminal vesiculitis, especially where both seminal vesicles are the seat of purulent inflammation. Here the spermatozoa which are stored in the seminal vesicles may be destroyed. Severe inflammation either of the vasa, the ejaculatory ducts, the epididymides, or the urethra may at times cause sterility by destroying the secretions. These latter conditions must, however, be very severe in character and are, moreover, very unusual since spermatozoa may retain their viability and may cause impregnation while passing through a urethra infected with acute gonorrhea.

In this connection, I must emphasize what I have already stated in many of my previous articles, that it is not the pus which interferes with the vitality of the spermatozoa, but it is the pathological condition which is responsible for the pus, which causes the loss of or lessened vitality of the spermatozoa.

This fact I proved many years ago by the following experiments: On a slide I mixed live spermatozoa from a condom specimen with a drop of pus just taken from the meatus of a proven case of acute gonorrhea and noted that there was no diminution in the vitality of the spermatozoa. This definitely proved that not only does pus have no deleterious effect upon the spermatozoa, but also that live gonococci likewise have no detrimental effect upon normal spermatozoa.

Coming now to the prostate and seminal vesicles, we again find no antagonism between gonococci and spermatozoa. It is a well known clinical fact that a patient may be apparently cured of his gonorrhea, and yet harbor virulent gonococci in his prostate and seminal vesicles. It is just these cases, as is well known, that are so tragic because they produce gonorrhea in the bride, after the husband had honestly thought that he was well and safe. Such husbands, in the majority of cases, are not sterile, although harboring gonococci in the prostate or seminal vesicles. This shows, that even prolonged contact between gonococci and spermatozoa does not injure the latter. It is this condition, through infection of the wife, that is often the cause of one-child sterility.

Moreover, in attempting to determine whether a man is really cured of his gonorrhea, condom specimens have been submitted to culture for gonococci. In uncured cases, it is not unusual to find gonococci present in a culture from a condom specimen which shows, at the same time, many normal lively spermatozoa. It is, of course, possible that necrospermia may result from a gonorrheal seminal vesiculitis; but here again it is not the gonococci but the altered seminal secretion, which causes the death of the spermatozoa. Just exactly to what extent necrospermia is due to this condition has not as yet been definitely determined.

As a matter of fact, we find the same conditions in the female. A woman suffering from gonorrhea may become

impregnated and bring forth offspring. Cases are on record where women suffering from acute gonorrheal purulent salpingitis, have been impregnated, showing that the gonococci have no detrimental effect either upon the ovum or the spermatozoon.

Under this same caption properly belongs the effects of the various female secretions upon the vitality of the spermatozoa after they have entered the female genitals, but I will postpone this discussion here and will describe it in detail when discussing the "Huhner Test."

C. STERILITY CAUSED BY CONDITIONS WHICH PREVENT THE EXPULSION OF SPERMATOZOA INTO THE FEMALE GENITALS

Under this heading we find as the most frequent cause the occlusion of both vasa due to a double gonorrheal epididymitis. In this condition, although coitus may be absolutely normal, not one spermatazoon is able to reach the urethra. In tuberculous and syphilitic epididymitis, the same condition may obtain. In the prostatic urethra, in rare cases, we find bands of tissue constricting the openings of both ejaculatory ducts and causing sterility.

Herein, also, come those cases of tight strictures of the urethra in which the semen is prevented from coming out during coitus, although it may dribble out later on when the penis has resumed the flaccid condition.

Under this heading come also those cases of impotence, in which neither erection nor ejaculation take place, or in which the ejaculation is so rapid that the semen is expelled before the penis has had time to enter the vagina (premature ejaculation). We may here also mention a very rare condition in which the semen, during coitus, is regurgitated into the bladder and not a drop of semen is expelled from the meatus. Absence of penis, as well as rudimentary penis, may cause both im-

potence and sterility. Finally may be mentioned extreme cases of hypospadias and epispadias, in which during coitus, the semen is ejaculated entirely away from the female genitals.

II. DEFINITION OF TERMS

In discussing the subject of sterility in the male, certain terms are employed which it is necessary to know in order to clearly understand the discussion. It must be emphasized, however, that giving a certain condition a name does not by any means state the diagnosis of the case; this will be gone into in detail under the caption of diagnosis.

Aspermia: Aspermia is that condition in which no semen at all is ejaculated.

Azoöpermia: Azoöspermia is that condition in which no spermatozoa at all are found in the semen.

Necrospermia: Necrospermia is that condition in which all the spermatozoa in the semen are found motionless.

Oligospermia: Oligospermia means the discharge of very little semen at coitus.

Oligozoöspermia: Oligozoöspermia is that condition in which the number of spermatozoa in the semen is markedly diminished.

In the conditions just mentioned, the semen is examined from a condom specimen in a manner to be described later on.

III. PATHOLOGY OF STERILITY IN THE MALE

In discussing the pathology we will follow the generally accepted scheme by beginning with the testicles and continuing through the various channels which the spermatozoa and semen must travel to their exit.

A. PATHOLOGY OF THE TESTICLES IN RELATION TO STERILITY

I have already indicated the pathology in the vast number of cases when I enumerated the causes of sterility due to interference with the manufacture of spermatozoa (page 5). I have also shown the part played at times by gonorrhea as it interferes with the spermatogenic function of the testicles.

In this connection, I want to emphasize that the spermatogenic function of the testicle is entirely distinct and separate from its function in producing a hormone which causes the well known secondary sexual characteristics of the male. Each of these functions may be absolutely destroyed without interfering with the other function in any way. At the one extreme, we find the sexual invert who has absolutely no sexual inclination towards the female sex, indulges in sex practices with males, marries (if at all) for only social or financial reasons, and yet may impregnate his wife and bring forth perfectly normal offspring. At the other extreme we find a person, who, for any of the previously mentioned reasons is sterile, and yet has absolutely normal passion and can perform the coital act to his and his partner's perfect satisfaction.

The most obscure and trying cases under this heading are those without any pathology at all, as far as can be determined. They are perfectly normal sexually; may never have suffered from venereal disease or any of the other causative conditions mentioned above; may have, as far as examination can determine, perfectly normal and well developed testicles and prostate; and may also be perfect specimens of manhood. Repeated condom examinations, however, will fail to reveal any spermatozoa and, on aspiration, no spermatozoa are found in the testicular aspirated fluid.

That some of these cases are endocrine in origin is proven by the fact that endocrine treatment, presently to be described,

will in some cases restore or develop the spermatogenic function of the testicle so that spermatozoa will be found in the condom and pregnancy result. But there are some cases which do not respond to any form of treatment and are apparently congenital in origin.

Under this same heading of pathology may be mentioned the well-known fact that cryptorchids are almost always sterile. A testicle that is retained in the abdomen will not produce spermatozoa but, if brought down and retained in the scrotum by operation, will, in many cases, regain its spermatogenic function. For many years this phenomenon was not understood, why a normal testicle should be able to produce spermatozoa when in the scrotum and entirely unable to do so when in the abdomen. The brilliant experiments of Carl Moore of Chicago and his co-workers have now made it clear. They demonstrated that the scrotum has a heat regulating function and that, when the testicle is in the abdomen, the higher temperature interferes with the spermatogenic function, which is regained when it is brought down into the scrotum. They have absolutely proven this fact in animals.

B. PATHOLOGY OF THE EPIDIDYMIS IN RELATION TO STERILITY

It is in the epididymis that gonorrhea causes the most damage in regard to male sterility. Here again it is to be noted that it is not the gonococcus iself, but the inflammatory reaction caused by the gonococcus, mechanically occluding both epididymides, which is the cause of the sterility. This fact is so generally well known that it is not necessary for me to dilate upon it any further. However, there is one caution in this regard which I have brought out in some of my previous publications; namely, that we may have a combination of occlusion of the epididymides and absence or destruction of the sperma-

togenic function of the testicles, so that if we wish to avoid needless surgery, before operating upon such occlusion, we must determine by the aspiration of the testicle whether spermatozoa are present.

C. PATHOLOGY OF THE VAS DEFERENS IN RELATION TO STERILITY

Coming now to the vas deferens, we may have occlusion just as in the epididymis, and everything I have stated regarding the epididymis applies to a certain extent to the vas. In addition, I would like to call attention to a form of vasitis which I frequently have stressed in many of my publications but which has not yet found its way into many of our excellent genitourinary text books. I refer to cases in which there occurs such a slight inflammation of the vasa during gonorrhea that no clinical evidence of it is noticed during the gonorrhea or thereafter, but the inflammation is sufficient to occlude both vasa, causing absolute sterility. In these cases there was never a clinical history of an acute epididymitis, and there are never found later the thickenings, which are characteristic of a previous epididymitis, yet condom specimens show absolute azoospermia, while aspiration shows spermatozoa in the aspirated testicular fluid. This definitely demonstrates that the cause of the sterility is in neither the testicle nor the epididymis, but in the vas. This conclusion can only be reached by aspiration of the testicle.

In addition, mention should be made that in poorly conducted varicocele operation, the vas was either tied off, or resected by mistake, or so badly injured during the operation that occlusion occurred with permanent sterility on one or both sides. The same condition of affairs has resulted from poorly performed hernia operations.

D. PATHOLOGY OF PROSTATE AND SEMINAL VESICLES IN RELATION TO STERILITY

I have already observed that neither the gonococcus nor the pus in either of these organs are inimical to the vitality of spermatozoa. It must be remembered, however, that the secretions of the prostate gland and, probably also, those of the seminal vesicles have a vivifying effect upon the motility of spermatozoa. Although spermatozoa obtained by aspiration from the testicles and epididymides do show motility, their movements are exceedingly sluggish and slow and, as a rule, do not at all compare to the well known activity noted in them from a normal condom specimen. In fact, many authors erroneously have stated that spermatozoa do not possess any motility at all until they have come in contact with secretions from the prostate.

If, therefore, the secretions from these organs are pathological, it happens at times that these altered secretions have a detrimental effect upon the viability of the spermatozoa.

In addition, I may mention some of the effects of the prostatic secretions upon the fructifying ability of the spermatozoa which as yet are little understood. I refer to cases in which condom specimens show apparently normal lively spermatozoa and in which the female has been found absolutely normal by all the usual tests and yet no children are born. In some of these cases, a congestion of the prostate gland exists but, upon relieving this condition by proper treatment, the prostate is brought to normal and conception occurs. Other similar cases recently have demonstrated that although the woman conceives, she soon miscarries; and it is the opinion of many specialists that these early miscarriages are due to defective spermatozoa and that they cease when the male is brought to normal condition. The pathology of these cases is very imperfectly understood and, in some cases, it is hard to determine definitely whether the resulting pregnancy was due really to a changed condition

in the spermatozoa, brought about by treatment, or was merely a coincidence. As mentioned, heretofore, nothing abnormal or different was found in the spermatozoa either before or after treatment. Belief in this explanation of the previous sterility is sustained by proof that in animals mere motility does not insure fertilizing power, and by certain experiments which have shown that the spermatozoa lose their fertilizing properties long before they show any diminution in motility.

E. PATHOLOGY OF THE EJACULATORY DUCTS IN RELATION TO STERILITY

Theoretically, the same occlusions which occur in the tubes higher up also may occur here. Practically, however, because of the modern procedure of catheterizing the ejaculatory ducts through the modern urethroscopes, and also of injecting them for purposes of roentgen-ray examinations, it has been demonstrated that sterility is due very rarely to occlusions here. When I say very rarely, I mean in proportion to the other causes. Moreover, in cases of occlusions very low down, there also would be aspermia, which is indeed a very rare condition.

F. PATHOLOGY OF THE ANTERIOR AND POSTERIOR URETHRA IN RELATION TO STERILITY

There is really very little pathology in either of these parts which has any bearing on sterility. The only condition is a very tight stricture, which may so interfere with ejaculation, as to prevent the semen from entering the female genitals. The stricture, however, must be very bad indeed to cause sterility, as in many cases enough semen may dribble out of the urethra after the organ has resumed its flaccid condition, to cause impregnation.

G. PATHOLOGY OF THE PENIS IN RELATION TO STERILITY

There are two conditions, under this heading, which at times may be the cause of sterility. I refer to hypospadias and

epispadias. In either of these conditions, the stream of semen may be directed away from the cervical os during ejaculation, and, in extreme cases, even away from the vaginal outlet.

IV. SYMPTOMS

Strictly speaking, there may be no symptoms except the inability to procreate. The man may be perfectly potent and experience all the pleasures of coitus, having normal libido, orgasm and ejaculation, and still be sterile. In some cases, however, the knowledge that he is hopelessly sterile may bring on severe psychic symptoms with marked depression, in bad cases even leading to suicide.

V. DIAGNOSIS

A. TRANSPORT OF CONDOM

In every case of sterility, a condom examination should be made before instituting any treatment of the female. There are certain precautions to be observed in obtaining a condom specimen, which, though simple, are of great importance and, if neglected, may lead to serious error.

It must be emphasized that spermatozoa can stand a certain amount of cold without harm. In fact, for scientific experimentation, we can even freeze a condom specimen and, by gradual thawing, bring back normal motility in the spermatozoa. *But the least amount of heat above normal, will quickly and permanently kill all the spermatozoa in the specimen.*

In my previous publications I have protested against a very common method of procedure in handling a specimen and I wish to do so again since it continues to be recommended by some gynecologists and urologists. They instruct their patients to keep the condom in a jar of warm water while en route to the laboratory with the idea of preventing it from cooling.

Now, if every patient were an expert chemist or physicist and would take the temperature of the water with a thermometer to see that it were just about 99° F., there certainly would be nothing wrong with this method. In practice, however, most patients use water which is too hot, thus killing off all the spermatozoa at once. Indeed, my investigation has demonstrated this situation time after time when doctors have referred patients to me to determine the cause of the necrospermia.

My instructions to the patient are as follows:

Have an ordinary towel between the bedding. After removing the condom, tie it with a string, rather than with the condom itself, and place it in the towel. Keep the entire package between the bedding until ready for transportation. Caution must be taken not to place a hot water bag on the package and not to place the package on a warm radiator. When the package is to be transported to the doctor, place it in an inside pocket, as near the skin as possible. Then it will arrive at the doctor's in good condition.

B. MICROSCOPIC EXAMINATIONS

When the specimen arrives at the doctor's office, it should not be removed from the towel until everything is ready for the examination. The microscope must be in position and several slides and cover-glasses must be in a cleaned condition to receive the specimen.

I wish to lay stress upon a remark which I deem of some importance. *For the ordinary examination of semen, an ordinary microscope with high and low power lenses is sufficient.* There are some writers who insist that such an examination requires more detailed method and special instrumentation. I desire to protest most emphatically against such suggestions. We need no warm-stage apparatus or anything else to keep the specimen in condition during examination. The doctor's office is warm even in winter, and the process of cleansing the slides

and cover-glasses warms them sufficiently. For a study of spermatozoa for experimental and scientific purposes, oil emersion lenses and various scientific and chemical apparatus may be necessary, but for the ordinary examination for diagnosis, no such detail need be employed.

When everything is in readiness, we may proceed to procure the specimen. I have always found, that the more compli-

Fig. 1. Appearance of normal semen under the microscope. (High power.)

cated the method, the more the specimen is poured from dish to dish, the worse the result. The only instrument I employ is a large pipette, I untie or cut the cord with which the condom is fastened, insert the pipette, suck up its contents, allow the first drop to escape, then deposit a drop on the slide and cover it with a coverglass. While examining this specimen, I enclose the pipette and its contents in the towel so as to keep it warm if more specimens are to be examined. Nothing can be simpler or more efficacious than this procedure.

For the examination of the specimen, I employ the high power (No. 6 Leitz) lens, with No. 4 Leitz objective. In an ab-

normal specimen, where there are very few spermatozoa, I first use the high power lens to find one live spermatozoon and then focus on this with the low power lens. While under the low power, I look around for a possible better field and then return to the high power.

I first note the general appearance of the field. A normal specimen should show at once innumerable spermatozoa dashing very rapidly hither and thither. When we have to search for spermatozoa, the specimen is abnormal. There are no two

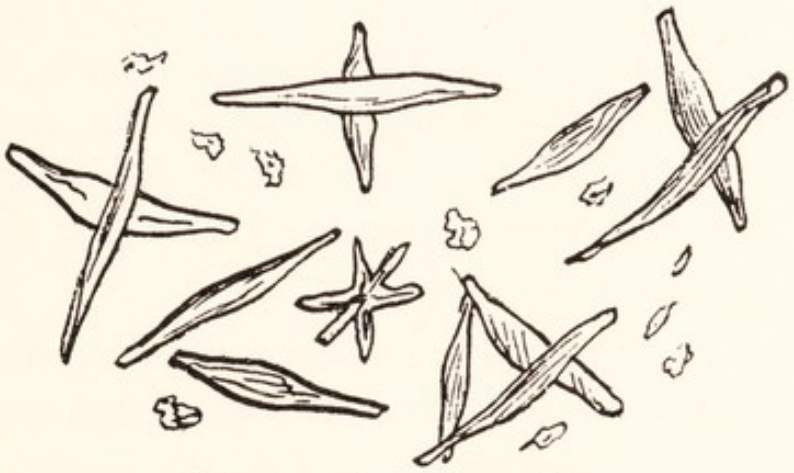


Fig. 2. Spermatic crystals.

ways about it, either you see them or you don't. No staining is necessary or advisable.

If, however, instead of the above picture, we see at once a large number of spermatic crystals. (Böttcher's crystals) (Fig. 2), we can at once make up our minds that either the spermatozoa are dead or absent. Even in normal semen, we may find some of these crystals, but they are very few and far between. In the abnormal specimen just described, they are entirely in preponderance and are found in every field. We can thus rapidly diagnose, in a general way, the normal from the abnormal.

The theory of the formation of these crystals is as follows: A moving fluid does not crystallize or does not do it as rapidly as a still fluid. Therefore, in semen containing many moving

spermatozoa, these crystals either do not form at all or do so very slowly; whereas in semen, in which there are no spermatozoa at all or only dead spermatozoa, the crystals are formed very rapidly and found in large numbers by the time the specimen reaches the office. Eventually, even normal semen will show them, after a definite lapse of time when either all the spermatozoa have lost their motion or are only moving very feebly. It is the early formation of these crystals that stamps the specimen as pathologic. Having noted the general appearance of the specimen as a whole, we now look more carefully for details. A large number of pus cells in the field is abnormal, and should they be associated with either dead, feeble or absent spermatozoa, we might in a general way say that there is some pathological condition in the male sexual apparatus which is the cause of the abnormal condition of the semen, and that it, therefore, should be investigated.

It cannot be impressed too emphatically upon the mind of the reader, that the mere detection of a few active spermatozoa, or the finding of many spermatozoa which possess, however, feeble motion, does not absolve the male from sterility. Many inexperienced physicians do not yet see the importance of this. It is so easy to say to the patient that it only takes one single spermatozoon to cause impregnation and that as long as a specimen shows one live spermatozoon impregnation is possible.

When we consider, however, that with each normal ejaculation there are thrown into the female genitals more than three hundred million spermatozoa in order that one shall reach the ovum, it is easy to calculate the chances of impregnation when only a few lively ones are ejaculated. In the ordinary normal course of events, millions of live spermatozoa are lost and killed in the vagina before ever reaching the cervical os. Very many die in the cervical canal. Of the large number ejaculated,

only a comparatively small quantity ever reach the Fallopian tubes. I am not talking theoretically, but from practical experimentation and study. Even in normal cases, only comparatively few spermatozoa can be recovered from the uterine fundus.

There is another point in the examination of semen to which I desire to call attention, and that is the finding of dead spermatozoa. Most physicians attach no importance to this, but in fact it has great diagnostic significance and ought to help

Fig. 3. Immature and deformed spermatozoa.

us to decide the question of treatment. The finding of dead spermatozoa tells us that there is no obstruction either in the epididymis or vas. To perform epididymovasostomy, in a case of sterility when dead spermatozoa are found in the condom, is absolutely contraindicated and yet it has been done. In these cases, we have to decide not only where death occurs, but also what kills the spermatozoa, and treat our patient accordingly.

In the examination of a specimen, one finds at times both immature and deformed spermatozoa (Fig. 3). These are probably useless for purposes of impregnation, but they do not interfere with the potency of normal spermatozoa. They may be found in normal semen as well as that of sterile cases. Veterinary doctors have investigated the frequency of these abnormal forms of spermatozoa in animals, and have come to the conclusion that they are more frequently found in the semen of those

male animals in whom the production of offspring with their mates is far less than in other animals or even absent altogether. They have come to the conclusion that a large number of abnormal forms is indicative of a poor quality of semen. Moench has investigated this question in human semen, and his conclusions are similar. Whatever the final decision may be as to the diagnostic value of this test, it cannot be too emphatically stated that it can never replace the Huhner Test; for obviously the observations and deductions are strictly limited to the behavior of spermatozoa obtained from a condom specimen, and we therefore get no information as to the behavior of these spermatozoa when deposited in the female genitals. This latter information can only be obtained with the Huhner Test. After all, the main point in determining the fructifying power of human semen is this: Are there a sufficient number of active spermatozoa?

To determine an answer to the above query, we must actually see an enormous number of very lively spermatozoa in the field. They must also show good motion, certainly during the time of an ordinary microscopical examination. This is all which reasonably should be answered by a condom specimen. The actual fructifying value of the semen can best be determined by the Huhner Test presently to be described.

When we watch spermatozoa in a drop of semen under the microscope, we see them moving rapidly about, in a more or less indefinite manner. Reynolds, after watching spermatozoa for long periods of time, divided their movements into five classifications: (1) Progressive vibratile motion; (2) undulatory tactile; (3) stationary bunting; (4) rotary swimming; (5) pendulum swimming.

While his observations are very interesting from a scientific point of view, and reflect great credit on the perseverance and

scientific acumen of the observer, it is not necessary to go to all this trouble and detail from purely a practical standpoint.

There has been a tendency on the part of some workers in this field to test the vitality of the spermatozoa by their rate of motility and their endurance as observed under the microscope. Thus, one observer watches a given spermatozoon, while his assistant stands with a stopwatch, and at a given signal determines how long it takes a certain spermatozoon to cross the field. This process is repeated with several spermatozoa and an average is determined for that particular specimen of semen. Again under the microscope, with special precautions against drying and variations from the proper temperature, specimens of semen are timed to note how long the spermatozoa in any particular specimen survive.

Many years ago, I protested against this method of procedure from a purely practical standpoint. Mind, I am not saying a word against the scientific value of studying spermatozoa by this method. As I have previously emphasized, I have nothing but the most profound respect for the scientific spirit which goes to so much trouble to help us understand something more of the life history of the spermatozoon. What I do protest against, however, is the impression which often follows; namely, that by such cumbersome and timetaking examinations only can we determine the value of semen in any particular case. Such impression tends to discourage the average practitioner from making any examination of semen at all. The more complicated an examination is, the less the tendency of the general practitioner to have anything to do with it.

From purely a diagnostic point of view, also, I do not think that these time-consuming examinations can at all compare in accuracy with the deductions to be obtained from the Huhner Test. Of course, I will presently describe the latter in detail. For the present, however, let me remark, that we need not

care how long spermatozoa live under the artificial conditions of a microscopic stage, so long as we can determine absolutely accurately how long they live, or if they live at all, in the female genitals. Surely for practical purposes the latter deductions are of more value than the former. Moreover, in any particular case, with the Huhner Test, we determine the vitality of the husband's semen in the genitals of his own wife, which is of the most practical diagnostic importance.

Aside from the time-consuming disadvantages of determining the value of semen by seeing how long the spermatozoa from a condom specimen survive under the microscope, I have shown that the method is not at all reliable. I have in mind a case in which I removed live spermatozoa from the fundus uteri several days after coitus, and yet these died quite rapidly under the microscope. Those who would draw conclusions from the longevity of spermatozoa under the microscope, would put down these spermatozoa as particularly poor in quality, but the fact that they survived for days in the fundus uteri proves conclusively that they were absolutely normal.

It sometimes happens that a young man about to be married wants to know whether he is able to have children. Of course we could ask for a condom specimen, but I deem it absolutely inadvisable to suggest to any person to have extra-marital coitus for the sake of making a diagnosis of possible sterility.

My method of procedure in such cases has been to have the young man come to my office, if possible a week or more after his last pollution, and with a moderately distended bladder. I then massage his prostate rather vigorously, strip his seminal vesicles, and at once examine the expressed fluid thus obtained for spermatozoa.

Before looking at the specimen, however, I inform the patient that quite often no spermatozoa are found by this method, although the person is perfectly fertile. In a condom specimen,

we must find many lively spermatozoa in every normal case, but in specimens obtained by massage and stripping, we may or not find them. If we do, we know that the testicles manufacture normal spermatozoa and that the various genital tubes are unobstructed. If we do not find any, we can draw no conclusion, but may repeat the examination. I have never advised procuring a specimen by masturbation, although such procedure has been suggested.

But our diagnosis is not at all completed by merely examining a condom specimen. The male may still be at fault in a sterility case even though live spermatozoa in sufficient numbers are present in a condom specimen. It is important that he be able to ejaculate his semen with sufficient force to reach the cervical os of the female. In certain forms of impotence, he may not be able to do this and thus be responsible for the sterility. A consideration of determining this point in diagnosis will be given in detail in describing the "Huhner Test."

In cases of azoöspermia, we definitely must determine for purposes of treatment, whether the testicles themselves fail to manufacture spermatozoa, or if they do, whether the tubes leading from the testicles to the urethra are occluded, or whether both conditions coexist.

Before I published my original investigations on aspiration of the testicles, the differential diagnosis of the conditions just mentioned merely was guesswork. It was assumed that if a patient had at one time suffered from a gonorrheal epididymitis, especially if the characteristic thickenings were found on palpation at the tail of the epididymis, that the sterility was necessarily due to an occlusion of this duct, and the operation of epididymo-vasostomy (namely, the anastomosing the vas with some other portion of the epididymis) was recommended. In many cases this operation also was recommended in cases of male sterility where the testicle appeared perfectly normal as

far as could be determined from external examination, on the theory that somehow there must have developed an occlusion of the genital tubes.

In 1913, I published my book on sterility, in which I called attention to aspiration of the testicles as a diagnostic procedure; devoting an entire chapter to the subject, giving a description of the method in detail and also an account of 49 aspirations which I had performed up to that time. Since then I have added greatly to the number of my cases in which I believe that I was the first to call attention to this method as a diagnostic procedure.

C. TECHNIC OF ASPIRATION

The technic of aspiration is very simple. A small area of the skin of the scrotum is painted with iodine, the testicle is held firmly against the skin, and a rather large bore sterile needle attached to an ordinary hypodermic syringe is plunged through the skin into the body of the testicle and epididymis. Aspiration is immediately commenced and kept up while the needle is being slowly withdrawn. A small amount of collodian is poured over the puncture, and this completes the entire operation.

The point of the needle is then put directly on the slide and a small amount of the aspirated fluid is expelled, covered with a cover glass, and immediately examined under the microscope. This portion of the technic is rather important, for if we first expel the air from the needle, as is the custom in ordinary hypodermic manipulations, we may lose the major portion of the spermatozoa, which, in many cases, seem to adhere to the very point of the needle.

If no spermatozoa are found, we expel a little more of the aspirated fluid on another slide and examine this as before; we continue to do this until either spermatozoa are found or the entire fluid has been examined. Sometimes it takes quite a long

time before some are found. As a general rule if one is found, more will be found in that particular location.

The number of spermatozoa found are very few. Sometimes they exhibit motion, but rarely the very active motion seen in a condom specimen. We often find motionless spermatozoa, but these must not be considered dead, as is the case in a condom specimen; they are simply spermatozoa which have not yet started to move, as they have not yet been brought under the stimulating influences of the prostatic and other genital secretions.

Although I have done about 100 aspirations, I have never had any bad results following this procedure. The pain is quite sharp at times and is testicular in character, for anesthetizing the skin has no effect on the pain. It is often felt more in the region of the inguinal canal than in the testicle itself. Pain disappears within a short time, though on one occasion, in a particularly nervous individual, it lasted for the entire day.

If, therefore, spermatozoa are found in the aspirated fluid in cases of azoöspermia, we can definitely conclude that the condition is due to double occlusion of the vasa or epididymides, and operation distinctly is indicated. Moreover, as will be emphasized later on, the operation may be undertaken with a certain amount of hope for success.

If, however, no spermatozoa are found after repeated aspirations, an operation should not be undertaken no matter how many nodules are found in the epididymides. Even if we are certain that the tubes are occluded, the absence of spermatozoa from the testicles precludes any hope of success for the time being, even though the obstruction in the tubes is relieved. By adhering to this principle, we will be saved the embarrassments met by Hagner, Martin and others who, after commencing the classical operation of epididymo-vasostomy and not finding any

spermatozoa in the testicles or epididymides, were compelled to discontinue the operation.

In my experience with this procedure, many interesting cases appeared which showed the value of this method. In some of these cases the diagnosis of the true condition could not possibly have been made without that method, and an entirely wrong conclusion and treatment would have resulted.

Take, for instance, the case of N. H., a sterility case in which several condom specimens that were taken after long periods of continence, showed absolute azoöspermia. He denied ever having had any venereal disease. He first came to me in 1916 complaining of impotence and sterility. At that time a cystourethroscopy showed a very large and congested verumontanum. There was also a distinct stricture in the anterior urethra. The expressed fluid, obtained by massaging the prostate and stripping the seminal vesicles, showed very many spermatozoa, most of them dead, but quite a few lively ones as well. A condom specimen taken at the time showed many spermatozoa, but all dead. He was cured of his impotence, and I did not see him again until 1924, at which time a condom specimen showed absolute azoöspermia. Since then all condom specimens taken thereafter showed complete azoöspermia.

Were we to reason out theoretically the cause of his present azoöspermia, in contrast to his oligospermia of several years ago, we might conclude that the pathological process had advanced, completely closing off both tubes. An aspiration of his right testicle, however, showed no spermatozoa at all. This proved that there has been a gradual decline in the spermatogenic function of the testicles until the present azoöspermia had been reached. The present treatment endeavors to restore the spermatogenic function of the testicles, whereas, if the diagnosis had been occlusion, an operative procedure would have been recommended, which must have been doomed to

failure. As a matter of fact, a prominent Brooklyn genitourinary specialist actually had advised operation as the only hope.

Another interesting case was that of B. A., seen by me in consultation on June 1, 1925. He also had denied having venereal disease, and a condom specimen (examined one hour after coitus) showed only a few dead spermatozoa. The same condition was found by his own physician, who had examined several specimens. The expressed prostato-vesicular fluid showed one feebly moving spermatozoon. There were no pus cells in the specimens. The penis and testicles were normal to touch, but the prostate was much smaller than normal. Upon aspiration, no spermatozoa were found.

In this case it was not deemed necessary to examine his posterior urethra with the cystourethroscope, as the presence of spermatozoa proved that there was no obstruction in the vasa or the ejaculatory ducts, and the absence of pus cells showed that there was no inflammation in the seminal vesicles or prostate which might kill the spermatozoa. The entire absence of spermatozoa in the aspirated fluid, combined with the other factors, indicated that the entire trouble was in the testicles, a diminished spermatogenic function. In this case, acting upon the diagnosis, I gave him tablets of the anterior lobe of pituitary extract, which in many cases increases and develops the spermatogenic function of the testicle. A condom specimen taken four months later showed many more dead spermatozoa than before, but a few live ones in addition. He had been advised to continue the tablets, but I have lost track of him.

Another case, that of S. I., came from Cleveland, Ohio, for sterility. He had had a gonorrhea with double epididymitis ten years previously. A condom specimen examined by a Cleveland physician, was pronounced normal, but examinations by other physicians had always shown azoöspermia. Distinct nodules were felt at the head of both epididymes. A condom specimen

examined by me also showed azoöspermia. I thereupon aspirated his testicle and found both live and dead spermatozoa present. This proved that the spermatogenic function of the testicle was normal, a fact, which certainly could not have been diagnosed from his history without aspiration. The correctness of my theory was demonstrated by an x-ray taken at Dr. Lowsley's clinic at the New York Hospital, after the method of Delzell, which showed complete obstruction on both sides. I believe the positive finding by the Cleveland physician must have been a mistake.

I have selected from my cases only those which have some interesting lesson to teach. Those in which there never was a history of gonorrhea or epididymitis are of special interest. In some of these, spermatozoa were found in the testicle but not in others. Without the procedure mentioned, it would have been impossible to diagnose whether the condition was due to the testicle or to an obstruction, because in most of these cases nothing abnormal was found either in the testicle or the epididymis.

My statistics show that spermatozoa were found in about 45 per cent. of the cases in which, under the most favorable circumstances, condom examinations repeatedly showed absolute azoöspermia.

This approximately would represent the percentage of cases which should be submitted to operation. However, it would not by any means indicate the percentage of cures to be expected.

The statistics of my so-called non-sterility cases, show a somewhat higher percentage of spermatozoa (56 per cent.), but this is to be expected. I must, however, call attention to the fact that these cases were aspirated solely for statistical purposes. I have labelled them non-sterility cases in order to distinguish them from the other group. In none of these, however,

were condom specimens examined, as they did not come to the clinic for sterility, but for other genitourinary complaints. Many of them were unmarried, and it is therefore impossible to state whether there were any actual sterile cases in this group.

In those sterility cases in which repeated condom examinations were found to be negative and in which there existed no palpable evidence of epididymitis and no other pathological or clinical finding to account for the sterility, spermatozoa were absent in a little over 50 per cent. Here again we note that without this test, we would be absolutely at a loss to account for the sterility. In many of these cases, operation had been advised on general principles but in over half of them, such operation would have been doomed to failure. In many of these cases, recognizing that the fault lay in the spermatogenic function of the testicle, by the internal administration of the anterior lobe of the pituitary extract, I have caused a reappearance of the spermatozoa and, at times, with resulting pregnancy. In the remaining half of this group (namely, those cases of azoöspermia with no clinical or pathological reason to account for it and in which spermatozoa were found in the testicle) we concluded that there was some occlusion of the tubes. In a certain percentage of these cases also, this fact may be determined by injecting sodium iodide through the ejaculatory ducts and taking an x-ray picture after the method of Delzell. In some of these, the remarkable pictures which were produced, not only determined that the tubes were blocked up, but actually showed the exact point of occlusion.

In over forty per cent. of the most hopeless cases of azoöspermia, spermatozoa could be found on aspiration. In most of my cases, I have made one aspiration only. In those where repeated aspirations were made, my statistics showed that in over 90 per cent. of the cases, where the result was negative on the

first aspiration, it was likewise negative on the other aspirations also.

In necrospermia, we must determine whether the spermatozoa are dead before leaving the testicles or whether they are killed after they leave these organs by the secretions of some portion of the genitourinary tract. I have already emphasized the possibilities of causing an artificial necrospermia by an improper handling of the condom specimen.

D. OTHER METHODS

To determine whether the spermatozoa are dead before leaving the testicles, we may make use of the observations of Ultzmann, who found that in spermatozoa which have died gradually after ejaculation, the tails are out-stretched (straight) or, at most, slightly curved; while in those which have been discharged motionless, the tails are either rolled up in a spiral or are bent.

In those cases where the spermatozoa leave the testicles alive, but are killed before ejaculation, we must determine by the most painstaking examination of the entire sexual tract just where they were killed and what killed them. This determination is sometimes difficult or even impossible. In some of the cases where, at first blush, it appeared absolutely impossible to solve the riddle, a diagnosis may be made later by the therapeutic test. In other words, where we find a congested or inflammed prostate, though we cannot positively declare that it is the altered prostatic secretion which is responsible for the condition, we may treat this organ and when it has returned to its normal condition by such treatment, we may find that we have cured the necrospermia at the same time.

We must remember, however, that in many cases the necrospermia is apparent rather than real. In other words the ejaculated semen contain live spermatozoa, but of such poor quality

that they are dead by the time the condom is examined. This condition may sometimes be diagnosed by examining a prostato-vesicular expression and finding live spermatozoa therein. In some cases the Huhner Test may clear up the diagnosis, because, remaining in the normal genital female tract till the moment of examination, they can be seen earlier than in a condom specimen.

The importance of the Huhner Test in cases of necrospermia cannot be overestimated. The up-to-date gynecologist very wisely refuses treatment in a case of female sterility, where the husband is obviously at fault and where no other indication for treatment exists. When the gynecologist therefore examines several condom specimens (one specimen is not enough) and constantly finds all the spermatozoa dead, he advises the wife to have her husband examined by a urologist to determine the cause of the necrospermia and to treat him accordingly. This the urologist in many cases is unable to do and as a result, the woman receives no treatment for her condition. Yet, I have found numerous lively spermatozoa in the female genitals; in many cases the condom specimen always showed dead spermatozoa, even if the condom specimen was examined as early as twenty minutes after coitus.

Strange as it may seen, these spermatozoa, removed from the female genitals, sometimes remained alive for several hours under the microscope. Whereas, as just stated, they were found dead in the condom within twenty minutes after coitus. The cause of this phenomenon is hard to discover. In the cases mentioned, every precaution against producing an artificial necrospermia was employed. No heat was applied to the condom specimen, the condom itself had been ordered to be washed out so as to avoid any deleterious powder which often is inserted in the condom by the manufacturers, and even different brands of condoms were employed. I believe, therefore, that

the female genital secretions have the power to preserve the vitality of the spermatozoa better than do the ordinary ingredients of the semen. I have had cases in which the gynecologist easily diagnosed a somewhat undeveloped or infantile condition of the female genitals, but which caused no annoyance to the woman aside from the sterility. It would certainly have been unwise to submit such a woman to prolonged treatment and expensive endocrine injections, where the husband was obviously at fault. This again emphasizes the fact that, *no examination of a condom specimen, no matter by what method examined, can give that definite information which can be obtained by the Huhner Test.*

In cases of necrospermia (as well as in azoöspermia), when we have determined that the spermatozoa were dead before leaving the testicles, (testicular necrospermia), we must not be satisfied with this diagnosis merely. We must go into the entire history of the case very carefully and look for the underlying cause. This may be any of the factors, mentioned at the beginning of this chapter, as interfering with the manufacture of spermatozoa, such as exposure to x-ray, alcoholism, metallic poisons, etc. In many of these cases, the condition may be due to endocrine causes, especially dysfunction of the pituitary or thyroid, and brilliant results have sometimes been achieved by scientific treatment applied according to such diagnosis.

In oligospermia, which is generally endocrine in origin, it may be necessary to have an examination made of the entire endocrine system to determine the cause.

Aspermia may be due to a tight urethral stricture, or to the presence of bands in the neighborhood of the ejaculatory ducts in the prostatic urethra, or to a paralysis or inhibition of the ejaculatory centers in the spinal cord. In this latter condition, which is very rare, the patient has normal libido and normal

erection, yet, even though he try as hard as he may, he does not have any ejaculation. In some of these cases, however, the patient may be able to masturbate, and bring semen out of the meatus, which may contain live spermatozoa. In other cases, the patient may have nocturnal pollutions containing spermatozoa, while in still others, fluid may be brought out by massaging the prostate and stripping the seminal vesicles, and this may likewise contain live spermatozoa, but during coitus there is no ejaculation. In some cases, spermatozoa may be found in the urine after coitus. Aspermia may of course also be due to complete closure of the ejaculatory ducts or their openings.

As above stated, aspermia is a very rare condition, but at the same time a very interesting one. Occasionally I have found it produced by the patient training himself to retard ejaculation for a very long time either while "spooning" or during actual coitus. After months or years of such practice, the entire valvular and nervous mechanism of coitus becomes disorganized, and ejaculation finally ceases entirely, the fluid regurgitating into the bladder. I have seen it reported also, that certain French prostitutes, in order to avoid pregnancy, insert their finger into the rectum of their partner, compressing the urethra just prior to ejaculation, thereby causing the fluid to go into the bladder. After a man has submitted to this practice for a long time, the fluid will go into the bladder even without compression. In all these latter conditions, impotence finally occurs. I also have seen a case of temporary psychic aspermia in a physician, who had a case of aspermia to the treatment of which he devoted much time and study, with the result that he himself suffered from the same condition for a time.

In oligospermia, we must investigate the same possible causes as have just been described in aspermia. A very common cause for this condition is too frequent coitus, some of my cases having indulged many times a night and kept this up every night

for a long time, and were then surprised at the small quantity of fluid ejaculated. In some people, the *occasional* use of a condom for the purpose of procuring a specimen, is likewise a cause for this condition. In these cases, the patient sometimes finds that he cannot have as complete an ejaculation with the condom as without it. Some cases are distinctly psychic, especially those where the man was always absolutely normal as regards coitus, but if he had to indulge at a particular time in order to procure a specimen, found himself either absolutely unable to perform the act, or if able, found his ejaculation very meager. Other cases are purely imaginary, and we must not always take the patient's word for the condition, for he may be suffering from very rapid ejaculation, the condom specimen showing a normal amount of semen.

VI. PROGNOSIS

The prognosis depends upon our ability to relieve the underlying cause. Sterility due to absence or total destruction of both testicles obviously cannot be relieved. Sterility due to complete absence of penis is likewise incurable unless artificial impregnation can be resorted to. Sterility due to rudimentary penis can sometimes be relieved by artificial apparatus. The outcome of sterility due to impotence depends, of course, upon our ability to cure the impotence. Sterility due to complete closure of both vasa is absolutely hopeless if the condition has lasted more than three years, unless relieved by epididymovasostomy. Sterility due to syphilis, unless very extreme, can generally be relieved by antisyphilitic treatment. The prognosis of sterility due to tuberculous epididymitis or orchitis generally is very bad. Sterility due to prolonged exposure to the x-ray is generally curable, if further exposure is stopped; as a rule, however, it takes several years before live spermatozoa are again found in the semen.

In discussing the prognosis with the patient, there is one point upon which I feel very strongly. I believe that it is only fair to be absolutely honest and truthful with the patient as well as with his wife. There are some surgeons who are so afraid of causing a severe nervous shock, that they deliberately refrain from telling the truth or at least the entire truth. Thus I have seen very many cases where the man suffered from a hopeless azoöspermia, in which previous examiners had mitigated the truth and told the patient that his semen was merely a little weak. As a result the patient kept on hoping, in some cases spending considerable sums of money which he could ill afford, in the vain effort of relieving a condition which was absolutely incurable. Again in discussing the chances of success after the operation of epididymovasostomy, it is only fair to inform the patient that in the majority of cases the operation is a failure insofar as curing the sterility is concerned, but that it is worth while trying, as there is absolutely no hope without operation and an operation, even if unsuccessful, leaves the patient no worse than before. If the patient then decides to take the chance of being one of the lucky few who may be cured, it is up to him. It is absolutely unfair, however, to obtain money from a patient by promising brilliant results. By following this course, the surgeon may lose an occasional case, but he will be acting in accordance with the ethics of the profession.

VII. TREATMENT

A glance at the etiological factors will at once suggest the proper treatment. In those cases where the diagnosis shows that the spermatogenic function of the testicles is at fault, endocrine treatment may at times bring about remarkable results. The internal administration of the anterior lobe of pituitary extract tablets, starting with two five grain tablets four times a day and rapidly increasing until the patient takes four tablets

four times a day, that is 80 grains a day, will be found most efficacious. Of course the expense to the patient is considerable, especially as the tablets have to be taken for a period of six months before results are produced. During this period condom specimens should be examined once a month, each such examination being preceded by a week's continence. If no improvement in the spermatogenic function of the testicles, (as shown by condom examination), is noted after a six months' trial, it is hardly ever necessary to continue the tablets. In some cases the internal administration of thyroid extract is advisable in connection with the pituitary tablets. I also have had a patient treated by direct irradiation of the pituitary gland, given by an expert but without any results.

In the lesser forms of spermatogenic insufficiency, especially in those obscure cases where there is but a slight diminution in the number of spermatozoa or in their motility, the insistence on an outdoor life will often bring about desirable results.

I wish to emphasize that in all these cases, we should not be guided by the size of the testicle (unless distinctly atrophied), for very small testicles may have normal spermatogenic function. Nor should we expect any increase in size by any method of treatment and the patient should be informed of this fact. We also must guard the patient from all quacks or irresponsible practitioners, by telling him that no electricity or any other modality can possibly have any effect upon the growth or development or spermatogenic improvement in the testicles.

Moreover with an out-door life, a change of diet is of the utmost importance. This effect of diet definitely has been observed in the lower animals, not only by ordinary farmers, but also by specialized veterinarians. Definite experiments have been made which have proven, beyond the shadow of a doubt, the

importance of diet on the breeding capacity in both male and female animals.

It is not the amount of food but rather the character of the food which is important. Indeed, the diet question is of greater importance to the rich than to the poor. The practical physician will have to take into consideration the tastes as well as the digestive peculiarities of each particular patient. No diet should be given or adhered to, which causes digestive disturbance in the particular individual. As a rule eggs and milk are useful, and it may be said that a diet rich in protein and farm products is the most advantageous.

TOREK'S OPERATION

Cryptorchids frequently regain the spermatogenic function as soon as the testicle has been brought into its normal position by operation, even if the condition has existed for many years. I believe that the best operation is the one devised by Torek and I therefore insert the following brief extract from his article published in the New York Medical Journal, November 13th, 1909.

The first part of the operation is similar to that for inguinal hernia. The testicle is exposed, the cord dissected out and the testicle and the cord are freed from all their coats. It is advantageous to turn back the tunica vaginalis. The vas deferens and the vessels of the cord must be denuded of all their coverings. The gubernaculum testis is removed so that nothing remains of the cord but the vas deferens and the blood vessels, and these should be separated from all surrounding connective tissue to a point high up behind the abdominal parietes. If this is done the testicle can be pulled down far enough. Should any vessel prevent this, it may be divided, except those which accompany the vas deferens.

The testicle is now drawn down gently out of the inguinal canal and at the point where it touches the thigh, an incision should be made to expose the fascia lata. The incision coincides with the natural lines of the skin.

A pocket is now made by gently digging with the finger from the lower end of the inguinal wound through the loose connective tissue to the bottom of the scrotum. Here the pocket is opened by an incision which must correspond in length and direction precisely with that in the thigh, in order that the cut edges may be united evenly without tension and without folds. The testicle may now be drawn down through the newly formed canal and be made to emerge from the scrotal wound. The entire posterior lip of the scrotal wound is united with the corresponding edge of the thigh wound.

The author goes into much detail in his description concerning the taking of the sutures and the placing of the knots. The testicle is now fastened to the fascia of the thigh. It is important that enough of the tunica albuginea should be caught in the sutures to give a good hold. It is also important that the position of the stitch holes in the fascia should correspond with those in the testicle so as to insure even traction. One must avoid injuring the femoral vein. Chromisized catgut should be employed to fasten the testicle, although non-absorbable silk may be employed.

After the sutures between testicle and fascia have been tied, the anterior lip of the scrotal wound is sewn to the lower edge of the thigh wound.

The testicle is now completely covered by skin and the inguinal wound is closed just like in a hernia operation, only that the cord is not displaced unless a hernia is present.

All the visible skin sutures are removed after about six days. The patient remains in bed about ten days.

After three to six months, the testicle is carefully detached, the scrotal wound closed over it and the wound in the thigh is also closed.

In bilateral cases only one testicle is brought down at a time and the first testicle is detached at the time of operating on the second testicle.

In a private communication, Dr. Torek informed me that he considers the best time for operation between the ages of six and ten, although he operated with good results as early as three and as late as thirty-eight.

It must be remembered, however, that the operation and the suggestions as to the best time for operation were made by Dr. Torek over twenty-five years ago, at which time no remedy was known for this condition other than operation.

Within the last few years, however, it has been noticed that in a certain number of cases the retained testicles descend of their own accord into the scrotum at about puberty, and that in other cases the injections of Antuitrin-S (Parke, Davis & Co.) for a variable period, will cause the descent of the testicles. The modern theory seems to be that the normal descent of the testicles is due to a product of the anterior lobe of the pituitary gland and that the failure to descend is due to a deficiency of this product, which may be offset by the increased secretion of this gland at the time of puberty or the administration of the extract of this gland in the form of Antuitrin-S.

In view of these recent developments, it becomes necessary to modify our views. At present therefore, no case should be submitted to operation before a trial of Antuitrin-S or similar substance. This should be done irrespective of the age of the person. All the cases reported, especially the successful ones, have been on patients at or about adolescence or before that. It has been assumed that after adolescence no benefit is to be expected from the injections, yet I have at present under treat-

ment a patient 29 years of age in which the injections have caused a distinct descent of his testicle into the scrotum. For a period of about three months he has been receiving injections of 1½ c.c. of Antuitrin-S every other day, with a rest every third week, and the testicle is distinctly in the scrotum though at the upper portion of it. Treatments will be continued to see if further descent can be brought about. In some of the cases reported between the ages of 8 and 10, the testicle descended after only one or two injections.

BOLAND METHOD

Dr. Boland of Georgia has recently mentioned another method to help the descent of the testicle from the inguinal canal into the scrotum, which he says has proven successful in a few cases. The description of his method may be found in his discussion of a paper on the undescended testicle read by Dr. Wangensteen and published in the Annals of Surgery for November, 1935. In brief, he employs a glass cylinder with a rubber at one end, the other end being connected with a suction apparatus to obtain a vacuum. The entire pubic region is well soaped and the scrotum and penis are put inside this cylinder, which is pressed tightly against the pubic region. Treatments are given two or three times a week for from two to ten minutes, the patient's feeling being the only guide to the length of treatment. He is given as much vacuum as he can stand. The vacuum is maintained from five to twenty seconds at each suction. As soon as the patient feels that he has had as much pulling as he can stand, the vacuum is at once discontinued to be repeated a few minutes later.

The operation of epididymovasostomy was first devised by Martin, but I believe it has been greatly improved by the technic devised by Hagner whose results certainly are superior to those of Martin. His technic is as follows:

HAGNER OPERATION

The tunica vaginalis is opened, thus exposing the entire epididymis. By this method it is easier to inspect and pick out the most desirable portion of the globus major which is richest in tubules and in which it is most likely to find live spermatozoa. The vas is not injected with argyrol to determine its patency, but a fine tear-duct probe and a strand of silkworm gut is used instead. An elliptical piece of the epididymis is now excised, and the milky fluid is examined for live spermatozoa. If none are found, the incision is closed and another site chosen. Fine silver wire is used instead of catgut as suture material. In making the opening in the vas, it is important to be careful and cut only into the lumen; it is very easy to cut through the entire vas.

The first suture is placed at the distal end of the incision, taking a heavy bite, as this is the anchoring suture for the operation, and the obstruction is below this point. It then is anchored firmly in the lower end of the elliptical incision of the epididymis. Two lateral sutures are placed then so as to take a fairly heavy bite and include some of the cut tubules. Thereafter the suture is passed through the cut edges of the vas, taking just enough tissue to approximate the edges. The last suture is placed through the upper edge of the incision in the vas, in the same manner, care being taken not to occlude the lumen. This completes the anastomosis. It is important to stop all bleeding before making the anastomosis. By doing a bilateral operation, the chances of a cure are of course doubled.

OTHER METHODS

In cases where spermatozoa are produced but are destroyed after production, appropriate treatment will at times cure the sterility. In seminal vesiculitis, massage and stripping of the seminal vesicles with the treatment of the posterior urethra

will often effect a cure. In some cases Belfield's operation of irrigating the seminal vesicles through a puncture in the vas will clear up a bad situation.

In cases of azoöspermia due to occlusion of both vasa, and where the operation of epididymovasostomy is refused, I have attempted many years ago to cause impregnation by injecting the aspirated testicular fluid directly into the cervical os of the female. I made various attempts by using the undiluted fluid; by mixing it with the patient's own prostatic secretion, obtained by massage as well as other methods; by performing the injection immediately after the menstrual period, just before the expected period, and also in the mid-period time; but have never obtained any result. The failure of this procedure is easily understood when we consider that the aspirated testicular fluid contains but very few spermatozoa, certainly less than one hundred, while it has been calculated that during normal intercourse the husband ejaculates into the female over three hundred million spermatozoa in order that one should reach the ovum. Rohleder at one time reported a success by this method, but afterward discovered that the female who was exceedingly desirous of having children, used this opportunity to indulge in outside coitus. Other investigators likewise have failed to obtain any result. However, Walker in his latest book reports a successful result performed by an English surgeon, C. H. Mills, and in animals Iwanoff has had very successful results by this method.

Treatment of sterility due to impotence in the male is described in subsequent chapters. In severe cases of rapid or premature ejaculation, we may try artificial impregnation by injecting the semen directly from the condom specimen into the female cervix.

During the past year the newspapers published a very dramatic and unscientific presentation of a series of cases of arti-

ficial impregnation under the title "Test Tube Babies." Following this announcement, many of my sterility patients came to me with the clipping and requested information and possibly a trial of this so-called new method. This induces me to discuss the procedure under the above caption, so that other physicians who undoubtedly will be approached by the laity in that connection, may be in a position to give honest advice.

TEST TUBE BABIES

No less an authority than Rohleder, the great German sexologist, has written an entire book under the above title which was published by the Panurge Press, New York, in 1934.

As a matter of fact there is nothing new or novel in the procedure of artificial impregnation. I believe that I was the first to try this method extensively in America, following a German article on the subject. I cannot claim priority, however, as I did not publish my work in this regard, it being known only to my associates at the Mt. Sinai Hospital Dispensary, where I obtained my material.

When I made my first experiments in 1915, I followed the German technique and had some very disagreeeable experiences. It was only after I had given up the German method, and tried the one to be presently described, that I had no complications. Later on, it appeared that the German experimenters likewise had similar disagreeable experiences in some cases, but that they had not published their bad results.

One of the reasons why my results were negative was that my trials were made prior to the introduction of the Rubin Test. Many of my cases probably had closed tubes, and so the procedure obviously could be of no avail. In addition I experimented only on women with whom every method known at the time had failed. What is most important, however, I had limited my trials to cases in which the Huhner Test had actually

demonstrated that no spermatozoa reached the cervix during ordinary sexual intercourse.

It should be self-evident that when, during normal sexual intercourse, the spermatozoa reached the interior of the uterus in normal condition and in sufficient quantity, there would be no advantage in artificial insemination, and conversely, if pregnancy does ensue after this procedure, in cases where the spermatozoa can get there normally, the resulting pregnancy cannot be due to the procedure. This is the crux of the entire question. In a description of the cases where the method had apparently succeeded no investigations were made to determine this important point. In all the cases mentioned by Rohleder this had never been investigated. In some of the cases reported, the trial had been made on unmarried girls, where certainly the Huhner Test could not have been made. In some of the successful cases of this kind it has been rumored that the girl had previously subjected herself to the risk of pregnancy and permitted this method to be tried in order to clear her reputation should a child be born.

But to return to successful cases of artificial impregnation in legitimate married women after a more or less prolonged period of sterility. Medical literature is just teeming with cases in which pregnancy followed the most simple procedure or ordinary examination, where exactly the same procedure had been tried on the same woman on one or more previous occasions. Frank, for instance, has reported a whole series of cases of sterility in which pregnancy followed a simple examination or even no examination at all. I give here but a single instance from my own practice. At the time I was making my experiments, I had a whole series of intrauterine canulas made, each with a different curve to correspond with the various intrauterine canals. In order to be certain that no force should be used in inserting the canula into the fundus, which might cause

bleeding and so vitiate the result, I had the woman come to my office and inserted one canula after another, until I found exactly the right one which could be introduced into her fundus without any effort. This canula was laid aside to be used on that particular woman for the seminal injection. In this particular case, after I had selected the proper canula and made the appointment for the injection which was to be given immediately after the termination of her next period, she did not appear, but phoned me that the expected period had not occurred. She continued with her pregnancy and finally gave birth to a normal child. Here therefore the simple passing of a canula was followed by pregnancy in a sterility case of long standing, in whom not only sounds had been passed on various occasions, but in whom also a dilatation and curettage had occurred without result. It is for this reason that we must be so cautious in recording our results. Had the pregnancy followed the artificial insemination, the latter would have been given the credit.

It may be argued, however, that if our object is the pregnancy of the woman, irrespective of the real cause of the success, why not try artificial impregnation in every case, as Rohleder suggests. The trouble is that those who have described the method, make it appear to be a harmless and simple procedure. This is decidedly *not* the case. We must remember that there is no known method of sterilizing the semen without killing the spermatozoa, and that the most painstaking care must be taken to obtain semen free from bacteria. I believe that in ordinary coitus, the genital secretions have the property of keeping back any ordinary bacteria and allowing only the spermatozoa to pass upward. As previously mentioned, it is only the occasional good results that are reported, while the unhappy or serious consequences do not find their way into medical literature. It was for this reason that my first attempts were sometimes followed by complications, and it was only long

afterward that I became aware that the original German procedures, which were reported so enthusiastically, had made no mention of similar bad results. Thus Rohleder, who has devoted an entire book to the subject, gives the percentage of successful cases of various experimentators, but makes absolutely no mention of any untoward results. He considers the whole procedure as simple and harmless; he never investigated the question of the possibility of the spermatozoa arriving there during normal coitus, and what is even more remarkable in a writer whose book appeared as recently as *1934,* he states that in unsuccessful cases there may be "a closure of the tubes, *which present methods are unable to ascertain*" (italics mine). How a writer on this subject can be ignorant of the Rubin Test, at this late date, it is hard to understand.

My own results were very peculiar. The immediate results, were negative except in a single case, but the remarkable thing was that in many of the cases pregnancy followed within a very short time after the insemination. I believe that these later successes were due to a temporary or partial occlusion of the tubes and that the injection which was made directly into the fundus probably reached the tube, causing some kink or slight adhesion therein to disappear just as pregnancy sometimes follows a mere insufflation of the tubes for diagnosis. Rubin has reported several cases of this kind, and insufflation sometimes is used for its therapeutic effect. However since my cases occurred before the advent of the Rubin Test there was no definite way of either proving or disproving this theory. The particular semen which I injected certainly was not the cause of the impregnation several weeks or months later and the number of cases which later became impregnated could not have been a mere coincidence. At present, I would especially caution against the forcing of any semen into the fundus or tubes since bad results may follow.

I have done about 140 artificial inseminations, of which the vast majority were between 1915 and 1917. In a few cases I have done over a dozen inseminations in the same woman at about monthly intervals without any untoward results. Most of these inseminations were made shortly after the cessation of menstruation.

The method I have employed after much experimentation, aims at asepsis rather than antisepsis. The husband is instructed to wash his penis with soap and water before intercourse, and to form a cuff of the outer end of the condom, so that it may be removed after coitus without the fingers or anything else coming in contact with its inner side. The condom is tied low down, so that during transportation, the semen may not come in contact with the upper portion which had come in contact with the penis. When ready for use, the outside of that portion of the condom containing the semen, is washed slightly to rid it of any vaginal mucus, and a small area is painted with iodine. A large size sterile needle, attached to a sterile syringe, is plunged through the iodine area on the condom and some of the condom contents sucked in. It is then immediately slowly injected just within the cervical os. If the operator prefers to make the instillation with a canula attached to a syringe, he may carefully nip a small hole in the condom with a scissors, above the level of the semen, but still in the iodized area and obtain the semen in this manner. Care should however be taken not to inject the semen into the fundus of the uterus for fear of injecting it into the tubes and thereby causing severe cramps and possible complications.

As will be emphasized later on, it is not the mechanical flexion which prevents the ascent of the spermatozoa, in the majority of cases, but, even were this true, there are simple methods to overcome this flexion which will be discussed in detail in the chapter on Sterility in the Female.

The physician should instruct the layman that the designation "Test Tube Babies" is after all, only a fancy designation made to attract the public, and that the semen is not cultured in a test tube in an incubator as bacteria are cultured, but is simply injected from the husband's specimen and put where it should normally be deposited during intercourse.

CONCLUSIONS

1. The semen injected must be normal both as to quality and number and should be uncontaminated.
2. A Rubin Test should have been made to determine that the tubes are patent.
3. A complete examination of the female should be made so as to rule out or remedy as far as possible, any defect in her sexual or general system which might be the cause of the sterility.
4. A Huhner Test should be made to determine whether the spermatozoa are found in the uterus after coitus. The mere fact that the husband has a feeble ejaculation or a very rapid ejaculation, is no indication for artificial insemination, as spermatozoa are very frequently found in the uterus after such weak ejaculation. As a matter of fact many of my cases of rapid or premature ejaculation have actually complained that while both husband and wife have had very little pleasure from the intercourse, the wife constantly was becoming pregnant. In some others the attempts of avoiding such pregnancy is the very cause of the rapid ejaculation.

Tight strictures, as well as epispadias and hypospadias and other organic conditions should be relieved by the well known surgical procedures. In cases of epispadias and hypospadias,

the operation should not be recommended for sterility until a Huhner Test has shown that no spermatozoa reach the cervix, because spermatozoa may often reach the cervix in spite of these handicaps, especially if coitus is practiced in the lateral or reverse positions. In some cases, the employment of a condom with a hole at the tip or other place, may serve to direct the semen into the proper direction.

CHAPTER II

STERILITY IN THE FEMALE

BEFORE taking up the subject of sterility in the female, we must repeat what has already been said under "General Considerations," namely, that as a general rule a woman should not be investigated for sterility only until she has been married for a period of three years during which period no contraceptive measures had been employed. I have seen cases where women, who had been married but a few months, have had their tubes tested not merely by gas insufflation but by x-ray examination, including the injection of lipidol into the tubes as well.

In order that conception may take place, it is necessary for the spermatozoon of the male to enter the uterus and to travel through it into one of the Fallopian tubes and meet the ovum of the female. The impregnated ovum must descend into the uterus and find the uterine endometrium properly prepared to nest and nourish the developing fetus. This is the ordinary course, and any obstacle to any of these events may prevent conception.

I have already limited the male's responsibility in that process, to his ability to deposit normal spermatozoa in sufficient quantities into the uterine cervix. If he is able to accomplish this, that is all that is required of him, and any further obstacle to the completion of the events above mentioned must, as a general rule, be laid to the female. We may therefore take up these various obstacles to conception in their normal progress, and discuss each obstacle separately.

I. CAUSES

A. CAUSES WHICH PREVENT THE SPERMATOZOA FROM ENTERING THE FALLOPIAN TUBES

Under this heading must be mentioned a very frequent and important condition, which has not been given the importance it deserves, namely an alteration in the cervical secretion which has the effect of either killing the spermatozoa outright or entangling them in a lump of mucus, and mechanically preventing their further progress. Before I published my method in 1913, this condition was hardly recognized. Even those gynecologists who had a suspicion that there might be something wrong with the cervical secretions, were not certain of their ground and were unable to prove their theorem, although they tried to come to some conclusion by making complex chemical examinations of the cervical mucus. I shall further elaborate on this pathological condition when discussing the "Huhner Test" under the caption of diagnosis, but will mention here that we cannot come to any conclusion on this matter by any chemical analysis, no matter how thorough. Moreover such chemical examinations are very complex, very time-consuming and therefore entirely impractical.

Under this heading it has been usual to mention an acutely anteflexed uterus, for it has been assumed that on this account the spermatozoa are mechanically hindered from going into the fundus. It occurred to observers later on, however, that no matter how acute the anteflexion was, it did not hinder the menstrual blood from going through, and it was therefore argued that there was certainly room enough for such microscopic cells as the spermatozoa. Other clinicians contended that this was not a fair argument, inasmuch as the menstrual blood is pushed out by the powerful contractions of the uterine muscles and has practically no other exit than the uterine cervix, whereas no such force is present to push the spermatozoa up-

ward. It had been noted clinically, however, that in some cases pregnancy ensued upon relieving the flexion by either dilatation or incision.

I have given serious thought to this important question and have come to the conclusion that the anteflexion does not prevent conception on account of any *mechanical* hindrance, but that, by preventing free drainage, it so perverts and alters the cervical secretions, that they become inimical to the progress of the spermatozoa.

Clinically it has been noticed that women with very marked anteflexions are constantly conceiving; whereas in former days, when dilatation and curettage was considered to be the regulation treatment for sterility and were prescribed in thousands upon thousands of cases, sterility was relieved in only the occasional ones. As will be more fully discussed later on, one of the most valuable points in the use of my test is that we can diagnose ahead of time, in just which cases it is advisable to employ the procedure above mentioned.

Other displacements of the uterus, are not nearly as important factors as some authorities would have us believe. When we examine a woman immediately after intercourse in the ordinary gynecological position and find that the cervix points directly upward towards the abdomen, while the fundus, instead of the cervix, is found within the seminal pool, it is but natural to imagine a marked retroversion to be the cause of the sterility. On performing the "Huhner Test" in many of these cases, however, we find the cervix just swarming with live spermatozoa in spite of its apparently unfavorable position. In a very small number of cases, mal-positions of the uterus are a factor in sterility, but this is mostly due to the concomitant congestion and to a lack of normal drainage rather than to a direct mechanical hindrance. It is the common experi-

ence of every gynecologist to find women conceiving despite all sorts of mal-positions of the uterus.

For the sake of completeness, I will also mention here a group of cases in which the spermatozoa are prevented from even entering the cervix, without any fault on the part of the husband. Under this heading may be mentioned such conditions as *Atresia of the Vagina, Rigid Hymen, Vaginismus, Marked Dyspareunia, Absence of the Vagina,* some cases of double vagina, various forms of arthritis and hip disease where it is impossible for the woman to open up her thighs sufficiently to allow penetration, tumors of the vagina, etc. Some of the conditions just mentioned, however, may exist without causing sterility. I would likewise call attention to a condition which will be referred to again in the chapter on impotence, in which neither husband nor wife knows the position which the wife should assume for the proper coitus.

B. CAUSES WHICH PREVENT THE SPERMATOZOA FROM PROGRESSING IN THE TUBES TO MEET THE OVUM, OR PREVENT THE FECUNDATED OVUM FROM DESCENDING INTO THE UTERUS

As a rule, both of these conditions are due to the same causes; namely, occlusion in the tube or at its fimbrii, or kinks, adhesions or some other pathological condition within or outside the tube. Generally speaking, the spermatozoon and ovum cannot meet if any obstruction exists in the tubes, but in exceptional cases conception does take place. If the obstruction is sufficient to retard the fecundated ovum, it grows too large for further progress. It may either die or continue to develop, forming an ectopic pregnancy. Until Rubin published his method of diagnosing this condition, it was merely guessed at by excluding all other causes of sterility, and a laparotomy often was performed with the main object of diagnosing an occluded

tube. A full consideration of the Rubin Test will be taken up under the caption of Diagnosis in this chapter.

C. CAUSES WHICH INTERFERE WITH THE DEVELOPMENT OF OVA OR PREVENT THEIR EXPULSION FROM THE OVARY

Under this heading come the very important group of cases characterized by a lack of development of the ovary, by atrophy of the ovaries, as well as those conditions in which the tunica albugenia of the ovaries is too thick to allow the escape of the ovum. In this group of causes we may also mention cysts and inflammations of the ovaries, as well as the action of certain metallic and other poisons which interfere with ovulation.

A more extensive consideration of these cases will be given when discussing diagnosis. This group of cases forms perhaps the most interesting study, although it includes some of the most hopeless forms of sterility. More study has been alloted of late to endocrine conditions, than to any other branch of the subject. Moreover, it is here that we hope to be able to accomplish finally a great deal for the prevention of some of these conditions through study of the normal and abnormal development of the preadolescent and adolescent girl.

D. CAUSES WHICH PREVENT THE NIDATION OR PROPER DEVELOPMENT OF THE FECUNDATED OVUM IN THE UTERUS

Under this heading may be mentioned cases of infantile or undeveloped uterus, generally small uterii, cases of hyper-involution of the uterus and those endocrine conditions which are generally of ovarian origin and in which the endometrium has not been properly prepared to receive and nourish the developing ovum. Many of these cases are endocrine in origin and are due to the same causes as those causing a lack of development of the ovary itself and its ovulating function. Here, again, as in the case of the male, we must distinguish the two separate and distinct functions of the ovaries, the one being the produc-

tion of ova and the other the formation of a hormone which is absorbed into the blood and which gives the secondary sexual characteristics in the female. As in the male, each of these functions is distinct from the other, and one may be destroyed without interfering with the function of the other.

Without going into detail concerning the complex physiological and chemical changes in the endometrium, I merely wish to state that as a result of a distinct chemical *hormone* stimulation, and not due to a *nervous* stimulation as previously generally believed, certain changes take place in the endometrium in regular cycles and these finally have the result of preparing the endometrium for the reception of the impregnated ovum. These changes take place, practically during the entire month, and not just prior to the menstrual period, as was formerly conjectured. They take place irrespective of whether coitus is indulged in or not. If impregnation does not ensue, the endometrial cells are discharged in a process known as menstruation. These cycles or changes in the endometrium continue during the entire childbearing period of the female except during pregnancy and lactation, when they are inhibited by another hormone action. A woman menstruates because she does not become pregnant. Menstruation, therefore, is not necessary for ovulation or pregnancy, as a girl may become pregnant before she has even started to have her periods, and a woman may become pregnant after her change of life. In fact, among certain semi-civilized tribes, menstruation is considered a disgrace, the girl marrying before the advent of this event, she becomes pregnant almost at once, and pregnancies continue during her entire sexual life without there ever being a chance for a menstrual period.

II. DIAGNOSIS

Merely designating a condition of affairs as sterility, is in fact, no diagnosis. The couple themselves know that sterility

exists, but what is expected of the up-to-date clinician is to determine whether the male or the female is at fault, or both. Having determined this point, the next step, in case of the female, is to determine just what part of her anatomy or physiology is at fault. It is only after having made this correct diagnosis, that we can apply rational therapy. I will therefore first consider the diagnosis in sterility as to which partner is at fault.

It is now almost 25 years since I began a serious and intensive study of sterility. I was so disappointed with the haphazard methods of diagnosis and the treatment of sterility in both sexes, which was in vogue at the time, that I determined to work out a method whereby a fairly exact diagnosis could be made on a purely rational scientific basis.

Let me briefly consider the confusion that existed in the minds of the foremost gynecologists before the Huhner Test was evolved. Literally volumes of books and articles had been written on the so-called mechanical influences of the various displacements of the uterus and particularly the position of the cervical os, as an important factor in sterility in the female. A liberal amount of medical literature was devoted to so-called endometritis and endocervicitis as a cause of sterility. The size and width of the vagina was also assumed to be a factor in the prevention of the ascent of the spermatozoa into the uterus. To illustrate the confusion existing at the time concerning the diagnosis of sterility, we may quote Kisch, perhaps the greatest gynecologist of his day, who says:

"Sometimes we meet with abnormalities of the vagina—not strictly speaking morbid states—which, though they may not at first sight appear to be of much significance, yet suffice to render conception difficult, or even impossible. One of these conditions is extreme shortness of the vagina, in which during coitus the semen is ejaculated at a distance from the os uteri externum; another is excessive length and width of the vagina; another, some displacement of the vagina which diminishes the prospect that the semen will enter the cervical canal."

He finally sums up the confused knowledge at the time by saying:

"How difficult it is, in a particular case, to determine whether the pathological anteflexion is the true obstacle to conception, or the antecedent paramethritis posterior and the concomitant metritis and endometritis. How can we decide whether a retroflexion is the simple mechanical cause of sterility, or whether the latter condition does not rather depend upon complicating perimetritis and oopherititis?"

Again, our own Reynolds of Boston, the great pioneer writer on sterility a generation ago, likewise goes into much detail concerning the appearances of the vaginal and cervical secretions, giving complex and painstaking chemical examinations of the secretions in order to reason out their effects on the vitality of the spermatozoa.

In order to develop my method, it was first necessary to determine the normal behavior of spermatozoa ejaculated into the wife's genitals. For over six years I made observations on this point in hundreds of cases, carefully examining the females at various periods after coitus and in various normal and pathological conditions. At the end of that time, I had collected a mass of data together with other facts on the subject of sterility, which I finally published in book form under title of "Sterility in the Male and Female and its Treatment." This was the first series of investigations which had ever been made on a large scale and in systematic manner of the behavior of spermatozoa in the female genitals. It is true that single observations on this subject had been made in previous years by Sims (I believe in four cases) and Hausmann in about 20 cases, but these were simply accidental findings with no attempt to deliberately study the subject on a large scale and make scientific experiments with spermatozoa.

As a result of my studies of the behavior of spermatozoa in the female genitals at various periods after ejaculation in

normal and pathological conditions, I brought out a test for sterility, which I called "The Cervix Test," and later elaborated in a special article, calling it the "Spermatozoa Test." This test was taken up by other writers, notably by Reynolds, who, in an address on sterility read in 1915, before the Section on Obstetrics, Gynecology and Abdominal Surgery at the 65th Annual Session of the A. M. A. in San Francisco, devoted considerable space to a description of the "Huhner Test" by which name it is now universally known both here and abroad, notably in England. At first there were a few who did not appreciate its value, and some who even derided it, but I have had the satisfaction of knowing that it is now used by the very physician who derided it, though he calls it by a different name. I will now describe in detail the Huhner Test.

THE HUHNER TEST

This test is simplicity itself. All it requires is a microscope, slides and coverglasses, the pipette already mentioned, and some intrauterine syringes in case we desire to obtain specimens from the fundus uteri.

The patient is ordered to the office as soon as possible after coitus and, is instructed not to take a douche. She is placed in the ordinary gynecological position, a bivalve speculum is inserted, the cervix brought into view, the pipette is applied to the cervical os, some of the cervical contents sucked up and immediately placed on a slide, covered with a coverglass, and examined. Very often we at once see numerous lively spermatozoa, yet what a wealth of information is obtained from these few minutes of examination. What do we care whether the cervix is in its normal position or not, or whether we could reason out theoretically that the penis during coitus goes into this cul-de-sac or that, whether the vagina is very short or of excessive width or length. The living spermatozoa on the cervix

tell us at once that for that particular penis the cervix is in the right position to catch the semen. Every year I see very many patients in my office who have been advised by their physicians to assume unusual positions during coitus, with a view of aiding the spermatozoa to reach the cervix. This question is solved by my test at once. Again, we do not care if the woman tells us that all her husband's semen runs out of her vagina immediately after coitus, and that is why she does not become pregnant, for we have positive proof before us, that no matter how much runs out, enough spermatozoa have reached the cervix for purposes of impregnation. What need we care, if informed that the husband suffers from rapid ejaculation, for here again we have positive proof before us that he can deposit his semen in the right place. Similarly, we need not worry about many other conditions which are commonly supposed to be the cause of the sterility, such as diminished or absence of orgasm on the part of the woman, stricture of the urethra, epispadias, hypospadias, etc., etc., in the male, for we have found live spermatozoa on the cervix, and therefore, we know that none of these conditions can have any influence in the case.

Likewise we need not worry about the possibility of the cervical or vaginal secretions being inimical to the vitality of the spermatozoa, nor need we subject these secretions to microscopical or chemical examinations for this purpose, for here again we know that they cannot be the cause of the sterility in this particular case. And so one may go through many of the theoretical questions in the etiology of sterility, and see how frequently they may be dismissed as the result of this few minutes' examination. Perhaps I may be pardoned for my enthusiasm concerning the test, but I really know of no other from which so much valuable information can be gained in so short a time.

Suppose, however, that only dead spermatozoa have been found in the cervix. We then examine a condom specimen, and if the spermatozoa are dead in the condom we know that the fault is with the husband; if live ones are found in the condom, however, we diagnose at once that something about the genital secretions in the female has killed the spermatozoa. Here again we do not need to submit the secretions to expensive and time-consuming chemical and microscopical examination to arrive at this conclusion, for we have the *physiological* proof right before us.

The treatment will be discussed later on, but I would like to mention in passing that if we find the vaginal or cervical secretions markedly acid in the case under consideration, and suspect that hyperacidity is the cause of the death of the spermatozoa, we should order a bicarbonate of soda douche to be taken before coitus and then make another test. If this second test shows live spermatozoa, we have not only made our diagnosis, but have been informed how to preserve the vitality of the spermatozoa and how to cure the sterility.

If no spermatozoa at all are found in the cervix, the husband may still be at fault, even though *live* spermatozoa are found in the condom. This again is one of the most important and practical features of the test. Ordinarily a normal condom specimen was considered absolute proof that the husband was not responsible for the sterility. A gynecological examination was then made, and any slight deviation from the normal, such as an anteflexion, was at once seized upon as the cause of sterility, and the wife was subjected to prolonged treatment and even to operation. Yet the husband might be suffering from a tight urethral stricture, in which case at times, no semen is ejaculated from the penis, but it remains behind the stricture to flow out when the organ has resumed its flaccid condition, a condom specimen showing absolutely normal semen. Or

again, the husband may be suffering from rapid or premature ejaculation, or may have a hypospadias or epispadias, in which latter conditions the semen is directed away from the cervical os or even away from the vagina during coitus, while the condom specimen will show nothing abnormal.

But the diagnostic value of the Huhner Test is not limited to the cervix. We may look for spermatozoa as high up as the uterine fundus. At first blush, this seems impractical, as whatever specimen we obtain from the fundus is bound to be contaminated with that of the cervix. After making very many experiments and observations, I have found that the spermatozoa deposited low down in the female genitals, that is, in the vagina and cervix, die within a few days. If, having demonstrated live spermatozoa in the cervix but finding only dead ones there later on, we then recover live spermatozoa by inserting our syringe into the fundus, we may be reasonably sure that the latter actually came from the fundus. Of course, the later that such examinations are made after coitus, the harder it is to find spermatozoa, but if they are found we are the more certain that they came from the fundus. If we do not find any live or dead spermatozoa in the fundus, we cannot draw any conclusions from that fact, as even in normal cases we may not detect them. The test, therefore, as far as the fundus is concerned, is only of value if spermatozoa are actually found.

If a positive finding is obtained, however, we again receive valuable information. How many women have been operated on because an anteflexion was supposed to interfere mechanically with the ascent of the spermatozoa into the fundus and tubes? Here we are likewise informed that the uterine endometrium is not inimical to the vitality of the spermatozoa.

Occasionally we find women who do not wish their husbands to know that they are investigating the cause of their sterility. With the Huhner Test this can be accomplished easily.

Of course, if no spermatozoa are found, we must request a condom specimen, and so let the husband into the secret.

Technic of the Huhner Test

Of course, the microscope, slides and coverglasses should be in readiness. The instruments, which have been sterilized by boiling should not be placed in any antiseptic solution, as such solution may kill the spermatozoa. They may be placed in sterile water or on a sterile towel. No lubrication is to be used in inserting the speculum. In case a gynecological examination is to be made at the same visit, this should be done after the Huhner Test.

It is advisable to examine each specimen as soon as procured. Moreover, it is wise not to take all the specimens from the various portions of the genital tract at the same time and examine them all later on. In many cases the material obtained is quite sticky and dries very rapidly.

Some physicians instruct the patient to put a plug of cotton or tampon into the vagina after coitus in order to prevent the seminal fluid from running out while the patient is en route. I do not advise this procedure, for, in the first place, it is unnecessary, and, in the second place, the plug of cotton actually sucks out the seminal fluid from the vagina into the cotton, doing exactly what it is supposed to prevent. The woman may wear a napkin if she so desires.

If the precaution is taken to allow the patient to extend her legs while the specimen is being examined, we will not hear any complaints of the legs getting tired during the performance of the test.

When we try to procure specimens from beyond the cervix or fundus, we must be very gentle in our manipulations, for in some cases the slightest roughness on our part may produce bleeding or oozing, which may spoil all the specimens, and may

even prevent us from taking any more at the time. If it should be necessary to employ a tenaculum forceps in order to pull the cervix down, we should fasten the cervix by the *lower* lip, so that if any bleeding results, it will not run over the os and spoil or interfere with the specimens.

Under the caption of causes which prevent the spermatozoa from entering the fallopian tubes or even the vagina, I have mentioned a number of pathological conditions of the uterus and vagina. The diagnosis of these conditions can be made with the routine gynecological examinations. The important point in many of these cases is to determine whether they are the real causative factor in the sterility. Women may conceive with almost any pathological condition, and the mere fact of finding an acutely anteflexed or retroverted uterus or any other of the pathological conditions mentioned, must not make us immediately jump at the conclusion that such a particular condition causes the sterility. This statement is not made for academic effect, but for distinct practical guidance. I have seen many cases in which women were subjected to months of treatment and even to operations because the examiner had found an anteflexion, where further study developed that it really had nothing to do with the sterility. Even rapid and premature ejaculation on the part of the husband may not be a factor in any particular case. The same may be said of such conditions as vaginismus, dyspareunia, rigid hymen, etc. It is just in these cases that the Huhner Test is so valuable, for when we find live spermatozoa in sufficient number within the cervical os, we can at once exclude all these conditions as causative factors in that particular case.

The diagnosis of those cases in which the spermatozoa are prevented from progressing in the tubes in order to meet the ovum is of supreme importance. Years ago, such diagnosis could only be made by exclusion. In other words, in cases

where every other possible cause of sterility had been eliminated, we guessed that there might be some occlusion of the tubes and were accordingly compelled to open the abdomen and test the patency of the tubes with a fine probe.

In 1920, Dr. I. C. Rubin of New York, devised his epoch-making test by which the diagnosis could be established without operation by merely insufflating the tubes through the uterus with a gas and by noting the pressure on a manometer, in combination with an x-ray examination. This showed the presence of the gas in the free abdominal cavity, and definitely determined whether the tubes were patent or not. I can do no better than give Dr. Rubin's description of the latest method of performing

THE RUBIN TEST *

In describing this test, I shall let Dr. Rubin speak for himself, by giving extracts from his various publications.

It is possible to determine whether the tubes are patent or otherwise by inflating the uterus with carbon dioxide and in normal cases filling the peritoneal cavity with a measured quantity of carbon dioxide. The artificial pneumoperitoneum establishes definitely the patency of the Fallopian tubes. In a preliminary report, Dr. Rubin pointed out that the peritoneum will tolerate the carbon dioxide introduced by way of the uterus and Fallopian tubes in the same way as if injected by direct abdominal puncture. There is no doubt, however, that the result is the same whether the peritoneum is filled with carbon dioxide through the abdominal wall by puncture or through the uterine cavity without puncture. For the specific purpose of establishing the fact of open Fallopian tubes the amount of carbon dioxide need not exceed 300 c.c., and in the last of his cases tested by this method about 150 c.c. would be the average volume used.

* The following description of the Rubin Test has been abstracted from various articles of Dr. Rubin.

The small volume of carbon dioxide has the advantage of enabling the examination of the patient in the office, without the necessity of her going to bed for twenty-four hours or more. Symptoms of phrenic irritation are decidedly less, and the patients may go about their daily work. When a greater amount of carbon dioxide is injected, the patient is more comfortable in a moderate Trendelenburg posture. This causes the carbon dioxide to rise to the pelvis, and the excursions of the diaphragm are less hampered by the column of carbon dioxide.

Technic of Rubin Test

The technic of the procedure is very simple. The instruments needed for the intra-uterine injection are (1) a metal cannula (Keyes-Ultzmann type) perforated at the tip by several small apertures; (2) a tenaculum (bullet) forceps; (3) a uterine sound; (4) a dressing forceps; (5) a bivalve vaginal speculum (Graves type), and (6) a carbon dioxide tank connected with a water bottle. The rubber stopper is perforated at three points through which bent glass connecting tubes pass into the bottle; one of these glass tubes connected with the carbon dioxide tank dips down below the water level. The two other glass tubes dip down for 1 or 2 inches, and do not reach the water level. One of these is attached by rubber tubing to a mercurial manometer and the other is attached in the same way to the metal cannula. In order to determine the volume of carbon dioxide gas released from the tank, it is allowed to pass through the water bottle in a stream of discrete bubbles. These should not exceed 300 per minute. The actual amount per minute can then be measured by displacing an equivalent quantity of water from a graduated bottle into another. It will then be seen that, for example, the gas displaces from 200 to 250 c.c. of water per minute. The same rate is then maintained in the intra-uterine injection. The water bottle connected with the

carbon dioxide tank contains hot boiled water or some mild antiseptic solution.

The cervix is exposed by means of the speculum; the vagina is carefully wiped clean and the cervix is cleansed dry and painted with tincture of iodine. If there is any uncertainty regarding the direction of the uterine cavity, it may be determined by passing the sound. The cervix is steadied with tenaculum forceps grasping its anterior lip. The carbon dioxide, which has been released from the tank and regulated, is now allowed to pass from the water bottle through the glass and rubber connecting tubing to which the metal cannula is attached. By pinching the rubber tubing near the cannula one can make sure that all the joints are air tight. The mercury immediately rises in this case. If there is some leakage between the carbon dioxide source and the cannula, the pressure will be negative. This is a very important point to be observed. Having made certain of the pressure, the air valves in the manometer are opened and the catheter is then inserted into the uterine cavity to a point well beyond the internal os. This is done so that there is no immediate escape back along the cervical canal and out into the vagina. The rubber urethral tip, placed ordinarily from 1½ to 2 inches away from the cannula tip, is then fitted into the external os, insuring better obturation. This is not essential in the nulliparious intact cervix, but is required in the irregular patulous external os resulting from previous operations or from lacerations attending childbirth. The air valves are now closed. Within a few seconds after the carbon dioxide enters the uterine cavity, the pressure as noted in the mercury manometer will rise; and in the patent cases the mercury reaches its maximum point within from one half to three quarters of a minute. It then fluctuates for a few seconds or drops rather sharply from 10 to 30 points, maintaining the last level more or less for the rest of the time. There may be a slight

audible escape of carbon dioxide from the external os in the cases of patent tubes, but as a rule there is none till the cannula is removed, when slight regurgitation is present.

In the non-patent cases, the pressure usually rises steadily for three quarters of a minute to a minute or longer, and then drops sharply as the gas regurgitates into the vagina. As the time required for sufficient carbon dioxide to pass into the abdomen where it can be detected by fluoroscopic examination is one and a half minutes, the cannula is not withdrawn till this time limit is reached. If the pressure reaches 200 mm. in one minute, it is well to open one of the air valves (needle valve) to prevent it from mounting higher. In all our patent cases this high level was not reached.

The intrauterine gas pressure has been a valuable adjunct in checking up the time required for the gas to pass through the tubes and reach the peritoneal cavity. In his earlier cases, Dr. Rubin decided on a three-minute interval as being necessary. In that time from 750 to 850 c.c. were released from the carbon dioxide tank. There was no way of telling when the gas actually passed through the Fallopian tubes. The symptoms were naturally accentuated. The pneumoperitoneum was excessive. A liter of carbon dioxide was not necessary when a quarter of a liter was just as valuable for the purposes of establishing the fact of patency. With the manometer attached to the water bottle it can be decided, knowing the rate of flow beforehand, how much to inject into the abdomen. From the moment the pressure falls, the gas is allowed to flow for from one-half to one minute, and the quantity can be established with reasonable accuracy, allowing for an error of 50 c.c., which for practical purposes is unimportant.

In the positively patent cases, the pressure need not exceed 40 mm. The average pressure is from 60 to 80; occasionally the pressure rises to 100 or more before the carbon dioxide will

pass through the uterine ostium of the Fallopian tubes. When the pressure reaches 150 or more, the likelihood is that the tube lumen is closed completely or stenosed, but not necessarily in every case. A pressure of 200 is tolerably certain to be due to closed tubes. Fluoroscopy, however, should always be employed to check up the partially stenosed cases, as sometimes carbon dioxide will succeed in escaping into the abdomen, though the pressure required to force it in is comparatively high.

While the pressure gage, as studied in the second series of thirty-seven cases, is an excellent indication of patency of the Fallopian tubes, it is well always to examine the patient with the fluoroscope. It occasionally happens that with the greater pressure a slight amount of gas succeeds in entering the peritoneal cavity and reaching the subphrenic space on the right or left side, where it can be detected by the Roentgen ray.

In the positive cases, that is, when the tubes are patent, the carbon dioxide will be seen as a clear space below the diaphragm, most often on both sides, but occasionally on one side only. The space varies, depending on the volume of carbon dioxide injected. In the average case in which from 150 to 200 c.c. is used, this clear space below the diaphragm varies between one-quarter to 1 inch in depth. The diaphragm appears as a transverse septum above the dense liver shadow on the right side and over the pale stomach margin on the left. It is unmistakable, and is readily seen when the patient breathes deeply. In all our cases in which we have roentgenograms the finding was always confirmatory. Stout patients require a somewhat greater amount to allow for the density of the abdominal wall.

The whole examination is complete within five minutes. When the minimum volume of carbon dioxide has been used, that is, from 100 to 150 c.c., the symptoms are negligible. There is the slightest discomfort around the diaphragm, and slight

sticking pains referred to one or both shoulders. The patient dresses herself and is able to go home with comfort, and performs her duties as though she had had a simple cystoscopy. When, however, more gas has been used, the symptoms may be somewhat annoying. In such cases it is well for the patient to lie down for a few hours on reaching home, with the foot of the bed elevated (moderate Trendelenburg posture).

In the negative cases, that is, when the tubes are occluded, no artificial pneumoperitoneum results. These patients have no discomfort after examination, and have none of the referred pains in the shoulders or about the diaphragm.

In none of the cases are there pains in the pelvis following the intrauterine carbon dioxide injection. A little bloody oozing for a few minutes follows a withdrawal of the cannula, particularly in cases just before or just after the menstrual period.

Contraindications

The method is not to be used in the presence of any acute or subacute pelvic infection, nor in the presence of purulent diseased bartholinian glands, urethra, vagina or cervix.

The causes of sterility are too often obscure and undetermined. It appears, however, that at least the mechanical factor of patency should be possible of determination in most cases. The method of intrauterine carbon dioxide inflation with the production of an artificial pneumoperitoneum obviates the necessity of surgical exploration and is especially serviceable in the obscure cases.

In studying the several points mentioned with the aid of the kymograph, it has been noted that at least three times the amount of gas is insufflated than has previously been found necessary to determine the mere fact of tubal patency. By observing all the rules of careful technic, it has been possible to intro-

duce from 200 to 300 c.c. of carbon dioxide in the ambulatory cases.

The Question of Localizing Obstruction in the Tubes

The data obtained by the use of the kymograph have been of help in estimating the location of the obstruction. It has already been pointed out that when the initial pressure rises to from 40 to 80 millimeters of mercury, the drop being characteristic and followed by fluctuations in the manometer, the tubes are normally patent. Clinically, in the presence of closure of one tube, the patient experiences some pain during the insufflation on the side affected. It is reminiscent in some cases of the type of dysmenorrhea to which the patient may be subject, and its location and distribution in other cases point to tubal colic. The pain is due to stretching of the tube lumen which takes place when an obstruction exists. If the closure is at the fimbriated end, the pain is definitely lateral; if closed at the uterine end, it may be central. The pressure is usually elevated when one tube is completely obstructed.

Pain is of great importance in diagnosing the degree of patency. In the normal cases, the insufflation is unattended by pain. The patient experiences at the most, a sense of discomfort characteristic of the menstrual molimena referred to the midline (occupied by the uterus), and the momentary sense of discomfort occasioned by the introduction of the uterine cannula. In the great majority of the normally patent cases, the discomfort is limited to the brief moment required to introduce the uterine cannula beyond the internal os. Any pain induced by the examination beyond this slight uterine discomfort has telltale value and should be carefully noted.

Unilateral Pain: Such pain indicates that one tube lumen is partially permeable to the gas and is distended by it, the closure in this instance being in the ampullary portion as far as the fimbria or at a point between the isthmico-ampullary junc-

tion and the fimbria. If the pressure rises as high as 200 mm. and the gas fails to enter the peritoneal cavity, it means that the other tube is most likely obliterated at the isthmus or near the uterine horn. Frequently the withdrawal of the uterine cannula is followed by somewhat prolonged regurgitation, indicating that both uterus and tube were distended.

If the pressure rises above 100 mm. and a subphrenic pneumoperitoneum is produced, the unilateral pain indicates that there is some occlusion on the side of the pain.

Bilateral Pain: This indicates bilateral tubal stricture. When associated with a subphrenic pneumoperitoneum and higher pressure, it means obstruction of both tubes near the fimbria, or at least in the ampulla of the tubes.

Since the adoption of a kymograph in 1925, to note the reactions of the Fallopian tubes to the insufflated gas, many new facts have been brought to light that could not have been ascertained before. Through numerous experiments upon animal tubes and upon human uteri and tubes, it became possible to answer the question of first importance, namely, what is normal patency? It soon developed that normal tubes exhibit peristaltic motions which vary with the phase of menstrual, i. e., ovarian cycle. From three to four peristaltic movements per minute in the interval stage to several more impulses in the ovulation or midintermenstrual phase were noted in experiments with strips of tubes.

When tested clinically these peristaltic motions are demonstrable upon the kymograph. In normal cases patients do not feel the slightest pain reactions referable to the tubes themselves. At most they complain of a sense of discomfort in the suprasymphyseal area referable to the uterus which is momentarily distended. The slight discomfort lasts for the brief period before the gas passes through the uterotubal junction (the first physiologic barrier) and diminishes as the gas passes

through the Fallopian tubes into the peritoneal cavity. Frequently the patients state they have an "unwell feeling" quite similar to the menstrual molimena. In many cases even this slight discomfort is absent.

In the presence of some stenosis or stricture of the tube on the one or other side, there is as a rule some pain referable to the tube affected if unilateral, and to both if the stenosis is bilateral.

Other Diagnostic Values

With the aid of the kymograph various degrees and types of tubal abnormality may be diagnosed. The use of lipiodol, iodipine, etc., has further enabled Dr. Rubin to check up the interpretations of the findings with uterotubal insufflation in the nonpatent cases and in those with a high grade stenosis. The superiority of these iodized oils over collargol and iodine or bromide in solution was realized soon after Siccard and Forestier's publication in 1923. Lipiodol was employed by Dr. Rubin for fluoroscopic visualization of the tubes in an attempt to study their physiology and for purposes of comparison with the findings obtained by the gas method.

A comparative study of lipiodol and carbon dioxide uterotubal insufflation in 66 cases of tubal obstruction was made by Dr. Rubin and presented by proxy at New Orleans, December, 1927.

Though a résumé of that paper should prove of considerable importance in connection with the present topic, it will suffice at this time to give merely the concluding paragraphs:

"Carbon dioxide uterotubal insufflation has proved to be superior to lipiodol in demonstrating (a) uterotubal spasm, which can be graphically recorded by the kymograph; (b) in demonstrating the presence and type of tubal peristalsis with uniformity in patent tubes; and (c) in revealing the presence of tubal adhesions which do not completely constrict the tube

lumen. The salpinograph can reveal the first point of occlusion of the tube lumen but not the presence of tubal adhesions which may bind the tube externally without obliterating the canal. Tubal peristalsis which is altered under these conditions can be demonstrated by the kymograph. Occasionally in the hands of an expert the diagnosis of tubal adhesions will be ventured. My associate in this x-ray work, A. J. Bendick, has reported the finding of tubal adhesions on two occasions."

It is of interest in this connection to quote from H. Sellheim, who states that "roentgenography of the Fallopian tubes has not shown us more than insufflation as far as patency or non-patency is concerned." Roentgenography is however, the only means, at least, by which in many cases we may obtain some idea of the site of the obstruction, so that before doing a laparotomy we may know whether we may have to do a salpingostomy or tubal implantation, depending upon whether the obstruction is at the fimbria or at the isthmus. Dr. Rubin has been particularly interested in ascertaining whether it were not also possible to determine this point by uterotubal insufflation. Based on increasing experience with uterotubal insufflation, Dr. Rubin has been able to call attention to the diagnosis of the site of tubal obstruction, *i. e.,* at the uterine end and at the fimbria without resorting to the use of intrauterine iodized oil injection.

The technic of uterotubal insufflation has improved from a somewhat crude first effort to its present development. The apparatus employed to test tubal patency now includes a kymograph in addition to the quantimeter and manometer. The fluoroscope, which Dr. Rubin resorted to constantly for accurate control, is still a useful adjunct. The kymograph, however, has practically enabled Dr. Rubin to dispense with the fluoroscope in normal patency. Thanks to these aids, the interpretation of the findings has led to more refined diagnosis. Thus not only is an answer available to the question, whether in a certain case

the Fallopian tubes are open or closed, but also if patent, to what degree they are open. For it must obviously make a difference whether a pressure of 40 or 60 mm. Hg. or one of 200 mm. Hg. or more is necessary to open the tubes. Thus data of prognostic value in a given case of sterility are added to the diagnostic value.

The kymographic record of non-patency is characteristic and never varies. There is a gradual steep ascent to 200, the highest point experience has taught to be safe. At this point the gas valve is shut. The tracing then becomes horizontal and falls sharply when the release valve is opened or when the cannula is removed from the uterus.

When a permeable stricture is present the initial pressure rises as a rule to more than 100 mm. Hg. and instead of dropping sharply and exhibiting oscillations the kymographic tracing shows definite deviations. The descent of the curve from the initial drop is more gradual. It may exhibit slight oscillations at first or none at all; or it may upon reaching a much lower level, maintain a more or less horizontal line or even exhibit slight fluctuations resembling those encountered in normally patent tubes. Frequently the drop of the pressure is so gradual as to describe a parabolic curve. In such cases oscillations are less likely to occur.

In the presence of spasm the initial rise of pressure is high, up to 150 mm. Hg. or more when a sudden drop is noted, varying between 50 and 100 or sometimes more mm. Hg. in depth, after which normally appearing oscillations come into evidence.

A combination of spasm with stricture can occur but this is not very frequent. As a rule, during uterotubal insufflation, the strictured tubes will produce kymographic tracings that are characteristic.

The depth of the subphrenic pneumoperitoneum, other things being equal, is a practical guide as to the type patency, *i. e.,* the degree of stenosis present. If, for example, 120 c.c. of gas will produce an immediate subphrenic pneumoperitonium represented by a meniscus under the diaphragm of one to one and one-half inches in a woman five feet, four inches, weighing one hundred thirty pounds, the same amount of gas in a person of equal height and weight whose tubes are strictured will produce a mensicus of approximately one-fourth to one-half inch in depth. The gas bubbles forced at the high pressure through a small aperture are necessarily smaller on the one hand, while on the other a good deal of the gas will be regurgitated back from the cervix and hence will not reach the peritoneal cavity. In a few instances part or whole of the gas volume is caught by adhesions in the pelvis surrounding the tubes and ovaries and thus fails to rise to the diaphragm altogether. Some of the gas may reach the subphrenic space after a delay of several or more minutes.

By observing the pain reactions to the insufflation we can determine whether the site of obstruction is on the one side or other, or both. The patient often does not stress her sensory experiences. Therefore, it always is necessary to ask her to describe them carefully with reference to location and distribution.

It has been noted that when the obstruction is bilateral, the pelvic pain is bilateral during uterotubal insufflation. When it is unilateral the pain is unilateral. There are few exceptions to this rule.

In general, the points of obstruction are at the uterotubal junction, in the isthmus, at the isthmicoampullary junction, at some point of the ampulla, or at the fimbria. The stricture may be bilateral and symmetrical or asymmetrical or altogether unilateral. One tube may be freely patent while the other may

be absent through operative ablation, or congenital failure, or the tube may have a stricture at one of the points mentioned above.

Here it may be well to point out that the side upon which the subphrenic pneumoperitoneum appears is not diagnostic of patency of the tube situated on the corresponding side; because a right tube may be patent with the gas appearing under the left diaphragm and a left tube may be patent with the gas appearing under the right diaphragm; or both tubes may be patent and the gas appear only on one side or the other. Frequently the gas will be seen under both halves of the diaphragm. When the meniscus is seen under the left diaphragm I have been in the habit of putting the patient upon her left side while making pressure over her right chest. This forces the gas to rise to the right side and may readily be seen as a right-sided subphrenic pneumoperitoneum. Unless one is experienced in differentiating the gas bubble almost constantly present in the stomach one may mistake it for a left-sided subphrenic pneumoperitoneum. It is best, therefore, when in doubt to resort to that change in posture, because gas under the right half of the diaphragm cannot be mistaken for anything else.

Another type of tubal abnormality which cannot be so readily diagnosticated by lipiodol injection is presented by peritubal adhesions. These do not necessarily act as a barrier to lipiodol or gas under pressure, but the physiologic condition of the tubes is so altered as to have an important bearing upon the question of fertility or sterility. Thus the pressure required may be 100 or little higher or lower, but the tube is bound down by adhesions that prevent it from exhibiting normal peristalsis. The two types of motility which normal tubes exhibit under purely physiologic conditions are the typical vermicular motion and the lateral swaying or writing movement. These

tubal movements have been observed with the fluoroscope in the living subject and in experiments with freshly extirpated and surviving specimens of uteri and tubes.

Tubal peristalsis can of course be demonstrated by repeated x-ray plates (several per minute) to "catch" the tube in the peristaltic motion. It requires an extremely well-trained and patient roentgenologist. Moving x-ray films would be of decided help in this respect. There can be no doubt that this will be accomplished in the future. Its scientific value is unquestioned. Practically and economically it is another matter.

A satisfactory idea of the behavior of the tubes during insufflation is at once given by the tracings which are automatically recorded by the kymograph. By comparing the peristaltic waves of normally open unhampered tubes we may get a good idea of what takes place when the tubes are bound down by adhesions. The character of the curves is altered, depending upon peristaltic motions which begin as a rule at the fimbria and proceed toward the uterus.

Prognostic Value of the Curve With Reference to Tubal Stricture

When normal peristalsis is exhibited by the tubes during insufflation and the initial pressure is below 100 mm. Hg., the prognosis as far as pregnancy is concerned is good, *i. e.,* provided all other factors possibly entering into the cause of the sterility have been satisfactorily accounted for. When the pressure is high at the initial rise and the sharp drop is then followed by more or less normal peristalsis, it indicates the presence of spasm. This may be relieved by atropine or it may require further treatment. The prognosis is good in such cases. But when the initial rise is high and the drop is gradual and there are no oscillations and especially if the character of this curve is not much altered in subsequent tests, the prognosis is poor. In a certain proportion of cases repeated insufflation ap-

pears to improve the status of the tubes as indicated by lower pressures and the exhibition of more typical peristaltic motions. The possibility of tubal pregnancy in such instances must be borne in mind.

Conclusion

The method of uterotubal insufflation can determine the fact of tubal patency and of nonpatency. It can in the vast majority of the cases of nonpatent tubes render information as to the site of the obstruction at the uterine end or the fimbriated end and thus aid in a decision for or against operative intervention to open the tubes. With the help of abdominal auscultation and a careful notation of the pelvic pain reaction during the examination it is often possible also to locate the tube which may be the seat of a permeable stricture. The diagnosis of bilateral permeable strictures is more difficult, whether gas or iodized oil is used. With the aid of the kymograph certain alterations of tubal function such as uterotubal spasm and those due to peritubal adhesions are also readily diagnosticated.

In a personal communication, Dr. Rubin informed me that he uses the lipiodol injections in only selected cases in which the question of operation presents itself and when definite tubal closure or high grade stricture had been established by his method. In addition he stated that he has little need for the lipiodol owing to the progress made in uterotubal insufflation with the kymograph as an aid.

The diagnosis of sterility in the female in which the cause appears to be ovarian in origin is very important and very interesting. In many cases such diagnosis can only be made by exclusion, for we must remember that while we can palpate an enlarged or misplaced ovary, there is no method by which we can palpate or diagnose an atrophic ovary. We must also remember that while in the male we can easily examine the fructifying elements of the testicles, namely the spermatozoa,

there is no method of examination by which we may determine whether the ovaries produce normal ova. As is well known, at more or less regular periods the ovary expels an ovum which enters one or other tube, and the fecundated ovum descends into the uterus. If impregnation does not take place, the ovum becomes disintegrated in the tube and disappears; it does not come out so that it can be examined and its fructifying quality investigated. In this connection I have spoken with expert botanists who informed me that even with seeds in their hands and directly under vision they could not determine whether any particular seed would develop into a plant if put into the ground.

As a very rough guide, which is not scientific, but practical, we may say that if the female had started her menstrual life at about the normal time for her race, and if the periods have come on at regular monthly intervals, have lasted the average normal number of days, and the amount of blood lost has been about the normal average, if moreover, she is endowed with normal sexual passion and normal secondary sexual characteristics, the probabilities are that her ovaries are working properly. If, on the other hand, she started her menstrual life very late and her periods are scanty and come at long and infrequent intervals, we may guess, in the absence of other complications, that the sterility is of ovarian origin. In many of these cases we will also find a small underdeveloped or infantile uterus.

Endocrinology

I have said that the above guide is very practical though not absolutely scientific. Frank and his co-workers, Goldberger, Bonham, Gustavson, Kingery, McGee, Holloway, Hindman, Kreuger, White and others have done remarkable work on the female sex hormone, and its findings in the blood and urine. Their studies on the general endocrine system in the

female have done very much towards elucidating some of these doubtful conditions. Their work is still in progress and it is to be hoped that future studies will give us a practical test, and what is more important, a therapeutic agent of value in many of these conditions.

Without going too much into detail concerning the complicated mechanism of our endocrine system, I will only state that the ovary is but one of a series of endocrine glands which has a bearing on ovarian sterility. The ovary, thyroid and pituitary gland, as well as others are interrelated, and it is only the normal harmonious working of all of them that gives us the normal woman; and conversely, if any of the other glands are seriously affected, there may be an entire break-down of the entire endocrine balance which may have ovarian sterility as one of its results. I cannot do better in this connection than quote from Frank's epoch-making work "The Female Sex Hormone," giving his description of what constitutes the normal woman.

"The normal woman begins life normally, shows normal development from infancy onward, and at the time of adolescence common to her race, surroundings, and climate, usually between the ages of 9 and 14, develops the signs of puberty.

"At the time of puberty, her secondary sex characters are manifest. These include the feminine pelvis, female hair development, female fat distribution over the breasts, nates, and mons, the small female larynx, the gradual or abrupt arrest of growth, due to closure of the epiphyses as well as the development of a female psychical outlook and heterosexual inclinations.

"The adolescent develops a menstrual cycle which recurs every 26 to 32 days. The duration of the menstrual flow varies generally between 3 and 7 days. The amount of blood lost appears to be between 50 and 60 c.c. during a period, but may reach double or triple that amount without being considered abnormal. The menstrual bleeding is rarely exactly periodic,

variations of 1 to 3 days being rather the rule than the exception, even in regularly menstruating females.

"The normal woman suffers little pain, but most women feel minor disabilities due to the menstrual phenomena, such as irritability, lassitude, headaches and backache at this time. These phenomena have to be recognized and taken into account by industrial corporations employing women, by girls' schools and colleges.

"Premenstrually, a slight mucoid vaginal discharge is normal. Increase in size of the breasts and the presence of colostrum may be considered physiological. The fundus of the uterus increases at least 1/3 in size preliminary to the period, with some softening of the supravaginal portion of the cervix with consequent resemblance to Hegar's sign of pregnancy. Often the one or the other ovary is found enlarged due to the presence of the corpus luteum. These symptoms disappear rapidly with the onset of the menstrual flow. Whether this sudden deturgescence corresponds to the unloading of the female sex hormone stored in the mucosa or extracted by the endometrium, or whether it is due to the excretion by other channels, must remain open for the moment.

"The normal woman, when mated to a potent partner, conceives readily. The researches of Corner, Allan and Pratt, and others, show that ovulation takes place between the 12th and 14th day after the onset of the preceding menstruation. This, therefore, should be the optimum time for conception, but in the human female no time in the cycle has proved a 'safe' period. Little light has been thrown upon this phase of the subject by means of attempts at artificial insemination. (Rohleder).

"After conception has taken place, a period of gestation, lasting in the human female approximately 278 days, ensues. The extra demands made upon the genital tract and the entire body by the parasitic ovum appear to be readily met, largely through the stimulating agency of the female sex hormone. The large amount of female sex hormone continuously secreted during pregnancy is amazing. That large amounts may be needed to produce the uterine, vaginal, and mammary hyperplasia

incident to normal gestation and labor is readily understandable. The overproduction reaches such extravagant heights that literally thousands of M. U. of female sex hormone are daily excreted through the urine and feces, showing a great prodigality on the part of nature."

The entire subject of endocrinology in relationship to female sterility is so fascinating that I would fain linger on the subject and quote also the pioneer work of Allen, Aschheim, Adler, Doisy, Fraenkel, Hitschmann, Robert Meyer, Pratt, Zondek and a host of others, as well as the later, though not less important work of Kurzrok, Mazer and Goldstein and others, but I must resist such temptation, otherwise I would write indefinitely and perhaps produce a moderate sized volume on this portion alone.

Concerning the mechanical interference with the expulsion of the ovum from the ovary, we must be guided by the experiences of Reynolds. In certain cases, in which he deliberately operated with this end in view, he found that the tunica albuginia was too thick to allow the expulsion of the ovum, and that the relief of this condition by operation would be followed by conception. In other cases cysts of the ovary, so small that they could only be diagnosed under an anesthetic or even on laparotomy, would prevent proper ovulation. In lower animals it has been demonstrated that a persistent corpus luteum and similar conditions would seriously interfere with proper ovulation and conception. In many cases these findings have been exemplified in the human female.

The diagnosis of the causes which prevent proper nidation of the fecundated ovum or its proper development and growth in the uterus, can frequently be determined by the ordinary gynecological examination. In such cases, we may find a small, generally anteflexed uterus, with a markedly large cervix entirely out of proportion to the rest of the uterus. One gets the impression that most of the uterus is made up of cervix.

In other cases, the entire uterus, (cervix and all) is very small. Such a condition is often accompanied by a history of delayed and infrequent menstruation.

One must be careful, however, not to jump at the conclusion that a patient with a very small uterus is necessarily sterile, or, if she be an unmarried girl, that she is bound to be sterile. Normal pregnancy may at times take place in an apparently very small uterus, and the stimulation of a normal sexual married life will certainly develop a small uterus, probably through the increase of ovarian hormone.

The late Dr. Brothers reported a rather unpleasant experience in this connection. A mother brought her unmarried daughter to him on account of severe dysmenorrhea. On examination, Dr. Brothers found a very small anteflexed uterus. He told them that the uterus ought to be developed by treatment, for, if the girl married, she could not possibly conceive with so small a uterus. About a year later, both mother and daughter again appeared, both very angry. The daughter was in a family way, but so much confidence did she place in the doctor's opinion, that she had neglected to get married.

These cases are closely allied to those just mentioned, where the condition is due to faulty ovarian endocrine action. In fact in most cases we find both conditions to co-exist. We must also recognize that sometimes nidation of the fecundated ovum actually occurs, but that on account of the undeveloped condition of the uterus, it cannot develop but degenerates and is shortly thereafter expelled. This condition is recognized clinically by the fact that a woman who has been fairly regular in her menstrual periods, may go over a few days or even a few weeks, and then the period comes on generally accompanied by an increase of loss of blood. This is really a very early miscarriage though not often recognized as such. The modern investigation of the presence of the female sex hormone in the blood

and urine, will probably be a great aid in the diagnosis of these cases in the future.

III. TREATMENT

PROPHYLACTIC TREATMENT

The modern recognition, that for the proper development of the entire sexual apparatus in the female, so much depends upon the endocrine system in general, and upon the ovarian, thyroid and pituitary endocrines in particular, has given us a powerful cue to the prophylactic treatment of the developing girl in regards to a possible later sterility.

It would take us too far afield and would extend this portion of the chapter entirely out of proportion to the rest of the subject, were we to discuss at length the social-economic conditions which confront the female of today, especially in our larger cities, compelling her to undertake burdens far beyond those which were expected of the girl of yesterday. New careers which were open to males only a decade ago, are now entered by the modern woman. The enormous increase in knowledge of science and culture, is participated in by the modern college girl quite as much as by her male colleague. All new innovations have had the marked effect of hurrying the young developing girl into premature womanhood, so as to enable her to compete with the male not only in a business career, but also in scientific achievement.

This very rapid change in the entire female outlook has had a very deleterious effect upon her physical development. It has had a deleterious effect on the male, but in his case the progress had been more gradual, so that he has been able to adjust himself to the new conditions. In the case of the female, however, the change has been so much more rapid that adjustment has often been well nigh impossible.

Statistics have shown (W. E. Castle, Genetics and Eugenics, Harvard University Press, 1916) that the average Harvard

graduate averages three-fourths of a son, which is certainly a much smaller percentage of offspring than from a similar body of men in other walks of life. From the same article we note that the Vassar graduate averages only one-half a daughter. What is more important, however, is the fact that among female college graduates the sexual development seems to be impeded, inasmuch as there are a far greater number of spinsters among them than non-collegiate females in the same age group. I am fully aware of the arguments used to explain these conditions, namely that college graduates are more "choosy" than other females and that they are often engaged in more lucrative occupations, such as teaching, which would be annulled by marriage, etc. I am willing to admit that these and similar conditions may be partly responsible for the larger number of college spinsters, but it certainly cannot explain the majority of cases. The normal sexual instinct is far too powerful to be set aside by the circumstances just mentioned.

Without indulging any further in this line of argument, I will return to the main object of this portion of my treatise, namely, the prophlaxis of sterility.

At Puberty: Parents and teachers should see to it that the developing child of preadolescent and adolescent age should have plenty of outdoor recreation, which means that it should not be too much burdened with extra studies. The normal school work has been properly arranged not to be too burdensome, but when to this is added extra work such as foreign language study, music lessons and the like, the result may prove a hardship. Every child is a rule unto itself, and the amount of work must be intelligently arranged for each child. I cannot go into detail but must merely indicate general principles.

It is just before and during puberty, however, that intelligent care must be exercised. The child should be thoroughly but tactfully instructed what is to take place, what the meaning

of the various changes are, so as not to become alarmed at the onset of the periods. Care should be taken not to overburden the child at this time with either mental or physical work. Constipation long previously should have been overcome by proper diet. Preventive measures regarding colds should have become automatic and the child otherwise should be as physically at ease as possible before the advent of such periods. Of course, long before this, the child should have had all questions regarding sex frankly and tactfully explained; but I do not believe in going to the other extreme and in removing all traces of modesty from children and girls. We must recognize that even today there is such a thing as feminine modesty and it is an attribute which normal men admire and which constitutes one of the greatest sexual attractions of men toward women. Of late there has been too much sex talk among both sexes, which partly accounts for the great sexual laxity among the unmarried females of today. The removal of the double standard does not seem to have meant that men strove to reach the high state of sexual morality which was common in the girl of yesterday, but that men should remain as they were, while modern girls should degrade themselves to the vices common to men, in order to assert their equality.

All decent associations with the opposite sex may be permitted and even encouraged, but the girl must be taught to resent the first indication of indecency or "freshness" on the part of the male, and should estimate the character of her male friends by their behavior in this regard. The extreme of such behavior as "petting parties" reacts deleteriously to the sexual health of both the male and female; but aside from this, there is the great danger that both parties are playing with fire and may misjudge their sexual power of resistance until it is too late. It is best and therefore easy for the modest girl to stop at the first indication of too much familiarity. The male, if

not encouraged, as a rule, will take the hint and realize that this particular girl is not one with whom to become "fresh." Too early stimulation of the sexual feeling is not sex development, and in those countries like Arabia, for instance, where the girl marries at the age of 11, she is sterile at 22. Alcoholic drinks in particular should be avoided as much as possible.

In addition to these general suggestions, the girl's endocrine system should be investigated if necessary. If the girl does not start her menstrual life at the time which is normal for her particular race and country, it is not wise to wait in order to see what may develop, but we ought to forestall (if possible) the non-development of the sexual apparatus. By this I do not mean a pelvic examination, but the possibility of a hypothyroidism or other endocrine disturbance must be considered and investigated. We must also think of possibility of homosexualism. If necessary the child should be relieved of all mental work, and an outdoor life instituted, with good nourishing food.

In Married Women: There is just one point in the prophylaxis of married women which I wish to emphasize as of great importance and that is the use of certain forms of contraceptive measures, as well as methods to destroy the early products of conception.

Because of legal reasons I will not go into a description of either of these methods, but will say that many of my saddest cases of sterility were brought about in perfectly normal women by their use. In many cases the woman prided herself upon the great value of the particular contraceptive method she had employed as she had escaped pregnancy by its use for many years. What really happened, however, was that as a result of its use, a mild infection had resulted which had traveled upward into the tubes and caused their complete occlusion. In other cases, the uterine endometrium had become so irritated, that it would not allow the nesting of the fecundated ovum and

rapidly expelled it. In all these cases the particular contraceptive received the credit, but how surprised these women were when later on, they found themselves sterile when they wanted to have a child! I said that these cases constituted my saddest experiences since their generally hopeless sterility had been caused by the women themselves

RATIONAL THERAPEUSIS

There is hardly any branch of medicine in which so much progress has been made during the past few years, as in the treatment of sterility. The great improvements in diagnosis have changed the haphazard method of treatment of a few years ago to a definite attempt at *rational therapeusis.*

In this connection too much credit cannot be given to the systematic method introduced by Meeker, of Boston. He has evolved a plan by which every organ that might have a bearing on the subject in the male and female is specially investigated by an expert in that particular department. The present up-to-date treatment depends upon accurate diagnosis. Before discussing this method systematically, I wish to emphasize particularly—

What Not to Do

A. Dilatations and Curettages as a General Routine: For many years it had been and still is the custom among a certain class of practitioners to perform dilatations and curettage in every case of sterility in the female, no matter what the cause. Even today, there is hardly a case coming to my office, that did not have at least one dilatation and curettage, and sometimes more than one. This procedure is not only unscientific, but may be very harmful. I have seen cases in which the surgeon, in his enthusiasm to perform a thorough curettage, had scraped so deeply as to permanently remove the endometrium, with a resulting atrophy of the uterus, which permanent-

ly deprives the patient of whatever chance of recovery she may have had. Therefore, avoid the above procedures as a general routine treatment for sterility; even limit them, as will be presently indicated, to certain definite pathological conditions only.

B. Failure To Note Details of Previous Operations: The next thing not to do is to refrain from treating any case of sterility in which the woman had had a previous operation, especially a laparotomy, without first getting into personal communication with the operator, and find out from him the condition of the parts at the time of operation. I have seen not a few cases who had been treated for sterility by various gynecologists and had even submitted to operation for the cure of such sterility before consulting me. On communicating with the original laparotomist, I was informed that he had found a double tubercular salpingitis, which had necessitated the removal of both tubes, so that all subsequent treatments were obviously of no avail. Of course, with the modern Rubin technic, together with x-ray examination, such condition easily could be diagnosed. I have also had cases in which one ovary and the opposite tube had been removed, while in other cases an appendicitis operation had disclosed a marked cystic condition which had necessitated the removal of the greater part of both ovaries. In all these cases the patient had undergone treatment for years for a condition which practically could not be alleviated. In some instances the laparotomist had refrained from informing the patient that she would be sterile, for fear of causing a nervous shock, while in others the removal, though perfectly justifiable, was not disclosed for fear of a possible law suit.

C. Don't Take For Granted That the Husband is Normal: Another "*don't*" is to avoid taking it for granted that the husband is normal, just because he has had children with a previous

wife or even with his present wife. I have seen several such mistakes in which an earlier consultant had neglected to examine the husband's semen because of such histories. In one case in particular I remember finding absolute azoöspermia in the condom specimen, although the woman had previously given birth to a child. Upon close investigation, the woman finally confessed that she had had outside connection without her husband's knowledge. In other cases, the husband had become sterile or markedly impotent since the birth of the last child.

In considering the actual treatment of sterility, we must again emphasize that sterility is not a disease, but a symptom dependent upon a certain pathological condition or conditions, and that the treatment depends upon the proper diagnosis of such condition. We will therefore examine systematically the various treatments for the various pathological conditions causing the sterility.

TREATMENT OF CASES IN WHICH THE SPERMATOZOA ARE PREVENTED FROM ENTERING THE VAGINA

The mere mention of the etiological factors will at once suggest the proper treatment. Marked impotence in the male should receive the treatment outlined in Chapter IV. A rigid hymen should be asceptically ruptured or excised. Vaginismus and dyspareunia should receive the treatments outlined in Chapters XXII and XXIII. In cases of absence of vagina, we must first determine by careful examination (under ether if necessary and in doubtful cases even by laparotomy) whether the patient is a male or female; whether there are present ovaries, uterus, and tubes or testicles, vasa, and prostate. The recent studies of the presence of the female sex hormone in the blood may sometimes solve the problem without operation. There are cases on record where the patient had been brought up as a girl, and male sexual characteristics had manifested

themselves at puberty. An operation disclosed that the subject was a male.

In case both sets of organs exist, one set is usually rudimentary and should be removed. In cases where a uterus is found, careful dissection will be able to make a vagina, and truly remarkable results have recently been reported by Hugh Hamptom Young in such instances.

There are also cases of undoubted females, where besides the absent or rudimentary vagina, there were found rudimentary conditions of the uterus and other sexual parts, and yet the female insisted upon the formation of a vagina, merely to be able to get married. There has been some discussion concerning the ethics of such an operation, but many surgeons have performed it, informing the patient of the true facts and relying upon her honesty to inform her prospective husband. Cases of double vagina can easily be corrected by removing the septum, thus making one capacious vagina.

TREATMENT OF CASES IN WHICH THE SPERMATOZOA ARE PREVENTED FROM REACHING THE CERVIX, FUNDUS OR FALLOPIAN TUBES

This forms by far the greatest and most important group of cases. It is in these cases that absolute diagnosis can only be made with the Huhner Test. Where no spermatozoa at all are found on the cervix, the condition of the husband must be investigated, even though a condom specimen is found to be absolutely normal. He should be investigated for hypospadias, epispadias or other penile malformations, and it should also be determined whether he is partially or totally impotent. The treatment of all these conditions has been described in the chapter on sterility in the male.

Where we find numerous spermatozoa in the vagina, but all dead, though the condom specimen had shown live sperma-

tozoa, we must *not* jump at the conclusion that there exists a hyperacidity of the vaginal secretion, but must take into account the time, after coitus, at which the test was made. The vaginal secretion is normally acid and will kill most of the spermatozoa within one or two hours. If, however, this condition is found to exist within half an hour after coitus, we can then make a diagnosis of inimical vaginal secretion, and order a douche of bicarbonate of soda to be taken before intercourse. This expedient will at times cure the sterility.

It is in the cervix, however, that the most interesting conditions are found. With the Huhner Test, we sometimes find the cervix swarming with spermatozoa that are all dead, while at other times we find live spermatozoa stuck in the plug of cervical mucus and making frantic efforts to extricate themselves. Both of these conditions indicate a pathological condition of the cervical secretions. In the first instance it is severe enough to kill the spermatozoa, while in the second instance, the upward progress of the spermatozoa is prevented by the viscosity of the mucus secretion which entangles them.

The main indication for treatment in these conditions, is to change the cervical secretions and to bring them back to normal. With this condition there often exists a markedly anteflexed uterus which, in many cases, is the cause of the pathological condition of the cervical secretions. It cannot be too strongly emphasized, however, that it is not the mechanical effect of the flexion which prevents the progress of the spermatozoa, but the changed condition in the secretions often brought about by such flexions. These are the cases which formerly were treated by curettage and dilatation on the theory of straightening out the cervical canal, and (where the operation proved successful) it was really the concomitant change in the character of the secretion which brought about the desired result.

Technic with Cervical Electrodes

In the treatment of this condition, I have found nothing so effective as the application of the negative galvanic electrode to the entire cervix, the positive pole being connected with an abdominal pad electrode. In the employment of these cervical electrodes, which come in different sizes, no force whatsoever should be used. Our main object is to alter the secretions, but we incidentally soften the cervix, and finally the entire electrode slips into the uterus. The great advantage of this method of dilatation over that of the regular uterine dilator, is that the cervical canal will remain open for months without any further stretching, while if the dilator is used even in connection with an anesthetic, the cervical canal will rapidly recontract to its former condition, unless kept open with a mechanical stem. But the main advantage is the improvement in the condition of the secretions.

The technic is very simple, and although an office procedure, it must of course be done under aseptic conditions. The insulated electrode holders, being made of gutta percha, cannot be boiled, but may be effectively sterilized by washing with green soap and water and by being placed in a solution of oxycyanide of mercury (1:4000) in the instrument tray. They do not come in contact with the cervix or even the vaginal mucous membrane. The ordinary bivalve speculum as well as the electrodes proper, together with the uterine forceps, are sterilized by boiling them in the usual manner and they are then placed in the same solution in the instrument tray.

An ordinary asbestos abdominal pad electrode, having been made thoroughly wet, is secured to the patient's abdomen by a belt, and the cable is connected with the *positive* pole of the galvanic machine. The patient is placed in the ordinary gynecological position; a bivalve speculum is inserted and the cervix

brought into view. Light is focused on to the cervix from an electric headlight connected with a battery. *It is important that the headlight should not be connected with the wall-plate or cabinet which is the source of the galvanic current that is being used.* The cervix may be wiped clean of mucus with an ordinary piece of sterile gauze or cotton, which has been dipped in any antiseptic solution, or the cervical os may be mopped dry and painted with iodine.

The electrode, attached to the carrier is now held against the cervical os, but is not forced in. The nurse thereupon turns on the galvanic current, which is gradually increased by moving the rheostat until the mil-ampere-meter reaches about 15. *There must be no pain throughout this procedure,* and it is not advisable to reach the 15 index if pain is produced. The current is allowed to pass for about 15 minutes.

During the treatment, froth will be seen about the os, and it will become softer and dilated. It is important that the dilatation be effected solely by the galvanic current and not by forcing the electrode into the canal. Finally the entire electrode or most of it will have become inserted into the uterine canal. As the dilatation progresses with the treatments, larger and larger electrodes may be used.

The remarkable feature of this method of treatment is that when the patient is examined on the following visit, the canal will be found almost as much dilated as at the completion of the previous treatment. After the electrode is removed, the froth is mopped away and a glycerine tampon is inserted, which is to be removed the same night followed by an antiseptic douche, or a plain bicarbonate of soda douche, if we have determined that the vaginal secretions are too acid.

The treatments are given every four or five days, except during the menstrual periods. They do not in any way interfere with the patient's ordinary occupation, mode of living, or

her sexual relations. After two months, the treatments are discontinued for about a month in order to give the patient a chance to become pregnant. If she does not, however, they may be resumed for another month.

The more severe cases may be treated by swabbing out the cervix with a dry sterile applicator and then applying iodine petrogen with a similar applicator or even pure carbolic acid. One must be careful not to have the applicator too wet, and should also protect the vagina from any possible excess flowing into it. In very bad cases, one may also gently curet the cervix (not the fundus) with a curette, to be followed by the application of either of the above solutions. In every case, a glycerine tampon should be inserted before allowing the patient to go home.

Finally as a radical measure, in the minority of cases, where the discharge has not been relieved by the above measures, we may employ the Sturmdorf operation, as the most rational one for the condition.

Sturmdorf Operation

Sturmdorf describes his operation as follows: (The Cervicoplastic Treatment of Sterility. Amer. Jour. Obstet. and Dis. Wom. and Chil. Vol. LXXVI, No. 3, 1917.)

"The main steps in the operation consist of:

1. Outlining and free liberation of an ample cuff from the vaginal sheath of the cervix.
2. Enucleation of the entire endocervical mucosa from its surrounding muscular bed, up to the internal os.
3. Sutural inversion of the vaginal cuff into the denuded cervical cavity.

To secure an ample cuff of vaginal mucosa, an outlining incision is made to encircle the eroded area around the external os.

The edge of the flap thus outlined is freely liberated as a cylindrical sheath completely around the entire cervix to the level of the internal os.

The eroded external os and the entire cervical lining, are now cored out of the surrounding muscular layer to the internal os, as a complete cone.

In a congenitally deformed cervix, its muscular framework thus exposed, may now be advantageously reshaped by appropriate incisions on the lines established by Sims, Pozzi, or Dudley, according to indications or predilection.

The tubular flap of vaginal mucosa is not included in any of these corrective incisions to which no individual stitches are applied, as the two main retentive sutures secure all necessary coaptations.

These retentive sutures are introduced as follows:

Beginning at the anterior edge of the cylindrical flap, a long heavy strand of silkworm gut it introduced on its vaginal surface, transversely through its center, like the first loop of a mattress suture, one-eighth of an inch from the free border and embracing one-eighth of an inch of tissue, this suture hangs free until a second suture is passed through the posterior edge of the flap in a correspondingly similar manner.

The right free end of the anterior suture, threaded in a specially bent Peaseley needle, is now carried into the cervical cavity to a level just above the internal os, whence piercing the cervical musculature in a direction forward, upward and slightly to the right, emerges on the vaginal surface at the base of the flap.

The left free suture end is directed in the same manner forward, upward and to the left, so that the two suture ends diverging slightly in their course, reappear in the center of the anterior vaginal fornix, about one quarter of an inch apart.

The free ends of the posterior suture are passed in a corresponding posterior direction and emerge in the center of the posterior vaginal fornix.

By tightening and tying each individual set of suture ends, the tubular vaginal flap is drawn into the denuded cervical cavity, thus relining its entire raw surface, at the same time it is automatically interposed between the edges of any supplemental incision or excision of the cervical musculature, pre-

venting their reunion and is approximated to the circumference of the internal os, where it is firmly retained in close apposition until the sutures are removed.

Drawing too short a vaginal flap into the cervical cavity will foreshorten the anterior vaginal wall and tilt the uterus backward.

To lengthen a congenitally foreshortened anterior vaginal wall, as suggested by Reynolds, it is only necessary to incise the anterior flap segment transversely and pull this transverse incision into a longitudinal slit before passing the main sutures, which emerging at the sides of the slit, coapt and retain its edges in the longitudinal axis.

Additional sutures are usually unnecessary, the silkworm ends are left long to facilitate their removal and tucked into the vagina.

A narrow strip of iodoform gauze introduced into the cervix with the object of maintaining flat coaptation of all raw surfaces completes the operation.

This gauze is removed on the third or fourth day, when the patient is permitted to walk about.

The stitches are not removed until the end of the third week.

Other Methods

A new method of treatment has lately been introduced to replace the Sturmdorf operation. It is much simpler, and consists of the use of the actual cautery to burn out portions of the endometrium. It has been claimed that this method produces the same results as the Sturmdorf operation, but I have had no personal experience with it.

In certain forms of tubal obstruction, especially where the patient is very anxious to have children, we may advise salpingostomy. While this operation is not dangerous, we must be perfectly honest with our patient, and truthfully inform her that it is successful only once in a while. In this class of patients it is so easy to persuade them into an operation, that the utmost candor should be used.

Finally for the sake of completeness, I will simply mention some additional procedures which have been employed for relief in such cases. One of these is the transplantation of the ovary into or against the external opening of the Fallopian tube or even into the uterus itself. While success has sometimes resulted from this procedure, the number of successful cases is so small that the operation should be reserved only for those cases in which the urge for a child is extreme, and where all other measures have failed.

TREATMENT OF THOSE CASES IN WHICH THE OVA EITHER DO NOT DEVELOP OR ARE PREVENTED FROM LEAVING THE OVARY

The lack of development of the ova is generally due to an endocrine condition. As mentioned, heretofore, the diagnosis sometimes can be made only by exclusion; while in other cases there are evident signs of general endocrine disturbances, particularly in the genital organs as evinced by a small infantile uterus and delayed, scanty and infrequent menstruation. The prophylactic treatment has already been discussed on pages 86 - 90.

For confirmed cases, much can often be done by proper treatment. If it can be demonstrated that the thyroid or pituitary glands are at fault, extracts of these glands may be given. Thyroid extract need not be given in the large and somewhat dangerous doses which were formerly the custom. Doses of one-fifth of a grain of thyroid extract, made by a reliable firm, and given three times a day, will produce definite results. As regards the pituitary extract, I am fully aware that prominent endocrinologists have expressed themselves on the uselessness of this product, claiming that the amount of hormone contained in the tablets is entirely too small to produce any results. They also have claimed that these tablets can not have any effect whatsoever if given by mouth, as the hormone is destroyed by some of the gastro-intestinal juices. In spite of these theoretical

and other objections, however, I still cannot forget my own clinical results based on many years of experience. I have given the anterior lobe of the pituitary extract in doses of 80 grains a day for hypo-pituitary condition both in the male and female, and have noted definite improvement from these large doses. The expense is a drawback, especially as the tablets have to be used for many months. I have had more success in the male cases than in the female.

In cases of endocrine origin, but where the ovaries seem to be at fault, I have had excellent results with corpus luteum extract in doses of 5 grains, three times a day. Here again expert endocrinologists will disagree with me upon the utility of the preparation, but again I cannot disregard my clinical findings. Strange to say I have had much better results with the internal administration of the drug than by the hypodermic use.

Diet

Macomber (Diet and Fertility. J.M.S. New Jersey, 1928), has demonstrated in animals and also clinically in some cases in the human female, that certain dietary factors have a definite influence upon sterility of ovarian origin. He concludes as follows:

"Without accurate diagnosis the hit or miss employment of diet may benefit health but is little likely to prove an efficient means of treating patients. When a careful diagnosis shows that one is dealing with a case of lowered fecundity, and there are at the same time dietary or nutritional abnormalities, diet is a most powerful aid in treatment, particularly when it is combined with other measures designed to promote health. In the field of prevention it is of even more general utility, but the one thing that I want to emphasize again and again is that poor diet will always be reflected in lowered vitality and efficiency and that no one who is dealing with cases of sterility can afford to neglect the importance of these fundamental facts."

He suggests the following dietary régimes.

Dietary Elements Essential for Reproduction

(1) An adequate amount of readily digested protein which shall contain all the necessary amino-acids.

(2) Sufficient mineral salts, particularly calcium, phosphorus, iron and iodin.

(3) An abundance of vitamins.

(4) An amount of food which when balanced by exercise will supply sufficient energy for growth or reproduction without the deposit of an undue amount of fat.

(5) Plenty of water.

Practical Essential of a Human Dietary in Relation to Reproduction

(1) Protein. Meat or fish once a day. 1 egg a day, and 3 to 4 glasses of milk.

(2) Minerals. Calcium and phosphorus supplied in milk. Iron in red meat, liver, spinach and other vegetables. Iodin in sea fish or other sea foods.

(3) Vitamins supplied in butter, whole grain products, yeast, fresh fruit, green vegetables, particularly salads, and cod liver oil (or sunlight).

(4) Calories to be controlled by weight, metabolism and exercise.

(5) Abundant water.

A Typical Day's Diet

BREAKFAST	P.	F.	C.	Cal.
Orange 1	1	0	20	96
Cereal 3 tbsp. (oatmeal)	4	2	18	108
Thin cream 3 tbsp.	3	15	3	159
Bread or toast 2 slices	6	0	32	160
Butter 1 pat	0	13	0	117
Egg 1	6	6	0	84
Sugar 1 tsp.	0	0	10	41
Coffee (for cream and sugar see above)	0	0	0	0
	20	36	83	765

LUNCH	P.	F.	C.	Cal.
Salad vegetable lrg. portion	2	0	6	32
French dressing 2 tsp. oil	0	10	0	90
Bread 2 slices	6	0	32	160
Cheese cottage 2 tbsp.	18	1	4	100
Butter 1½ pats	0	20	0	175
Milk (whole) 1 glass	7	9	11	157
Fruit	1	0	40	176
	34	40	93	890
DINNER				
Meat 1 slice (lean)	25	5	0	145
Potato 1	4	0	32	149
Vegetable 10% 3 tbsp.	1	0	7	32
Vegetable 5% 3 tbsp.	1	0	3	16
Bread 2 slices	6	0	32	160
Butter 1½ pats	0	20	0	175
Milk (whole) 1 glass	7	9	11	157
Dessert	4	12	54	352
	48	46	139	1186
	102	122	315	2841

Those cases where the ova are prevented from leaving the ovary can generally be diagnosed only by exclusion, though Reynolds has at times diagnosed them with the woman under an anesthetic. The condition is one in which the tunica albuginea is too thick to allow the graphian follicle to rupture, and must therefore be remedied by operation. At times the unruptured follicle enlarges into a cyst beneath the thick tunica and can be felt, especially if the woman is examined under an anesthetic. Treatment consists either in puncturing these cysts or removing them. The persistence of these corpus luteum cysts may sometimes themselves be the cause of the non-development of other follicles. This is often a common cause of sterility in animals where such cysts can more easily be felt and ruptured per vaginam or rectum.

My treatment of these cases, where the ovum is impregnated, but nidation and further development in the uterus is prevented, consists in the development of an infantile or underdeveloped uterus. To this class also belong cases of hyperinvolution of the uterus after childbirth, due, in many cases to prolonged lactation. This latter condition is often purposely acquired by the woman as a contraceptive method, for many women believe that prolonged lactation will prevent further conceptions. This, however, is only partially true, for while conception is undoubtedly hindered by such practice, it cannot be relied upon as a safe method. This practice, as heretofore stated, results in the hyperinvolution of the uterus so that when examined it appears as a small infantile organ. As a rule the condition is only temporary and the uterus soon resumes its former size and function when lactation has ceased.

The treatment of the first class, namely, the truly undeveloped uterus or infantile uterus, is much more difficult and involved. It is generally an endocrine condition, and goes hand in hand with an undeveloped ovarian function. The treatment is exactly the same as that described in connection with the ovarian condition. The prophylactic treatment is also of importance.

Electrotherapy

Besides the endocrine treatment, however, much can be done to redevelop the uterus by electrical measures. The technic here is somewhat similar to that described when discussing the changing of the cervical secretions by galvanism. In fact the first part of the technic is exactly like the former as described on pages 95 - 97.

The asbestos pad is applied to the abdomen and connected with the positive pole, while the uterine electrode is applied to the cervix and connected with the negative pole. The galvanic current is turned on and the current allowed to pass for about

fifteen minutes. As the cervical canal softens and allows the entire electrode to slip into the uterus till the fundus, (a condition which may not be reached until after several seances), the cables are connected with the sinusoidal faradic current, the galvanic current is turned off and the faradic current turned on. The rapidity is moderate and the faradic current is gradually increased until the patient tells you that it is strong enough. There is no other criterion as to the strength applied. The sinusoidal faradic current is now allowed to pass for about ten minutes. The advantage of this current over the plain faradic current is that it is painless and the gradations are finer and gentler. As it is the characteristic of the sinusoidal current that the polarity changes with every revolution, there is no need of investigating which cable is connected with which pole.

These treatments may be given as often as every other day. There is not the slightest doubt that this method develops the uterus and accordingly larger and larger uterine electrodes may be employed. The enlargement of the uterus can be demonstrated by actual palpation and the improvement in function can be noted in the character of the menstrual flow, and in many cases by the resulting pregnancy.

In very mild cases, the use of hot water, either in the form of prolonged hot douches, or in a rubber bag inserted into the vagina, may also help to develop the uterus by the causation of local congestion, thus increasing the blood supply of the parts.

STERILITY DUE TO BOTH THE MALE AND FEMALE

It had been repeatedly observed that a man might be sterile with one woman and yet be able to impregnate another, while the first woman, although sterile with this particular man, might be able to conceive with another man. In other words both the

male and female might be fertile with different individuals but not with each other. A classical example of this state of affairs is that of Napoleon and his wife Josephine. She had children with her first husband, but was sterile with Napoleon, while he impregnated his second wife, after his divorce from Josephine on account of sterility. The example is not without possible faults in reasoning and deduction, but is usually mentioned because of the prominence of the parties.

This state of affairs was formerly set down as one of sexual incompatability or disharmony between the parties. No explanation was ever offered, for it was simply taken for granted that certain individuals could not produce offspring with certain other individuals.

Modern research, especially in animals, has brought out some very interesting facts which seem to explain these cases rationally. As a result it has been found expedient to classify every male and every female as of high, medium and low fertility. Of late, many workers in this field prefer not to speak of sterility in the male or sterility in the female, but to designate the condition as sterility of the couple. It has been demonstrated, especially by Reynolds and Macumber, that a male of high fertility may be mated with a female of medium or even low fertility and produce offspring, whereas the same female of medium or low fertility if mated with a male of low fertility, would be sterile and *vice-versa.* It has also been demonstrated that there is a certain threshold of fertility, below which impregnation cannot take place.

In this connection I cannot praise too highly the pioneer work of Meaker, who in his clinic has elaborated a system by which a complete examination of both parties is made by a gynecologist, a urologist, an internist, and an endocrinologist. As a result of this system, both parties are classified independently in their relationship to sterility, and proper treatment

is given to one or both. The details of the basic routine are given by Meaker (Modern Methods in the Investigation and Treatment of Sterility. Boston Med. & Surg. Jour. Nov. 3, 1927), as follows:

"The gynecologist obtains a history, makes the usual abdominopelvic examination, carries out a special study of the endocervical secretions, does at least two transuterine insufflations, and examines the cervical contents after intercourse.

The urologist takes a history, examines the male genitals, makes certain tests of the prostatovesicular strippings, and studies a condom specimen.

The internist makes a complete medical investigation of both husband and wife, with special attention to evidences of endocrinopathy.

In the laboratory both patients have a determination of basal metabolism, a complete uranalysis, including nitrogen partition, a study of blood morphology, and the Wassermann Test.

Finally all the data are correlated by the group, and upon the conclusions reached are based recommendations for treatment."

The diagnosis, prognosis and treatment of this state of affairs is obviously dependent upon the pathological conditions found in both parties and is exactly as that described in the previous pages.

PART II

IMPOTENCE

CHAPTER III

IMPOTENCE IN THE MALE

DEFINITION

IMPOTENCE in the male is that condition in which the man is unable to perform the sexual act. It may be either complete or partial. In the former he is absolutely unable to perform the act, while in the latter he may still be able to have a more or less complete erection, but either the erection is so weak that it subsides at the moment of intromission or even before intromission, or, in addition to this weakness, there may exist such a hyperirritability of the parts or sexual centers that the entire process of erection and ejaculation lasts but a very short while and is finished at the moment of intromission, or a very short while after intromission, or even before the penis has had an opportunity to enter the vagina.

Impotence in the male must be strictly differentiated from sterility in the male. In sterility there is an impossibility of impregnating the female, while in impotence there is an impossibility of performing the sexual act. The sterile man is not necessarily impotent. He may be fully able to properly perform the sexual act, but, on account of an old double epididymitis with occlusion of both vasa, not one drop of his testicular secretion can reach his penis. In bad cases of hypospadias and epispadias the man may have proper erection and ejaculation, but, on account of the abnormal opening of his urethra, not one drop of his semen enters the vagina, and sterility is the result. On the other hand, it is also possible for a man who is partially impotent not to suffer from sterility. He may have premature or very rapid ejaculation and only be able to deposit his semen at the very entrance of the vagina, without even real intromission,

and still pregnancy may result. As a general rule, however, the impotent man is also sterile, inasmuch as (except in very exceptional cases) he is unable to deposit his semen deep enough into the female genitalia to cause impregnation.

I believe the old classification of impotence into *impotentia cœundi,* and *impotentia generandi,* the former designating impotence of coition and the latter impotence of impregnation, has been the cause of much confusion. It is far better to limit the term "impotence" to define impossibility of performing the sexual act, and "sterility" to impossibility of impregnation.

Impotence may be classified, according to its pathology, into (I) Organic, (II) Functional, and (III) Psychic.

ORGANIC IMPOTENCE

Organic impotence is that condition in which the impotence is due to some anatomical defect in the sexual organs.

ETIOLOGY AND PATHOLOGY

Any condition which may cause a lack of development of any portion of the sexual apparatus, or an atrophy or degeneration of these parts, is an etiological factor in this form of impotence. Among such conditions may be mentioned mumps, which in bad cases may cause a complete atrophy of both testicles so early in life, as to preclude the development of sexual powers. Injuries or other conditions which may result in complete castration before puberty will also interfere with the development of sexual sense and power. Lack of development or absence of the penis, either congenital or by destruction of this organ through injury or disease, must result in impotence, although the sexual desire may still be present. In certain forms of spinal syphilis as well as in locomotor ataxia the erection centers may be completely destroyed and impotence will follow. Injuries to the spinal cord may cause impotence, either by direct destruction of the erection center or by destruction of those

fibers which convey the impulses to and from these centers to the peripheral organs. In the same way injuries to the cerebrum may likewise cause impotence. Severe injuries to the urethra may result in such distortion and shortening of the urethra that it is impossible to stretch normally in erection, resulting in curvature of the penis and impotence. Cicatrical contractions of the tissues of the penis, as the result of burns or other traumas, may also mechanically interfere with erection.

It must however be emphasized that while complete absence of the penis must of necessity lead to impotence, yet a small, undeveloped penis does not *necessarily* lead to that result.

It is a very common idea among patients who have rather small penes, to blame this condition upon their early habit of masturbation. This emphatically is not so, but quite the reverse. Masturbation if started early and kept up for a long time, very often makes the penis *larger* than it otherwise would have been, for the constant influx of blood and manipulation helps to develop the organ abnormally.

It must also be emphasized that in most cases, the idea that the penis is too small, exists only in the imagination of the patient. I always inform my patients that the penis is put there only for two purposes, one, for urination and second for copulation. If these two functions can be normally performed, the patient must not complain. In many of these cases, especially after a cold bath, the penis appears rather small and shrunken, but it can easily be demonstrated that during erection it enlarges sufficiently to deeply penetrate the female. The patients themselves very often admit that during erection the penis gets big enough. The chief reason why they complain is that, in public male baths, they notice that other men's penes are much larger than their own and are ashamed of the fact.

As an instance of redevelopment of the penis, I might mention a case which came under my personal observation. The

mistress of a young patient of mine, suddenly got an attack of sexual insanity during the night, and while her partner was asleep amputated his entire penis with a heavy razor. The patient was brought to the hospital in an ambulance, the hemorrhage was stopped and the parts repaired by operation. I had charge of the patient in my clinic for a few weeks after the operation, and found that all that was left of the organ was a small stump not larger than about half an inch. Urination was normal. He consulted various authorities with the idea of having a penis from some other person transplanted into him, but, of course received no encouragement for that procedure.

About twenty years later, I happened to meet this patient in a restaurant. Upon inquiry, he informed me that he had married and that by manipulation and attempts at coitus, the stump had developed to such an extent that on erection, he can have normal coitus and also satisfy his wife. He had become a father. I did not have an opportunity to inspect the organ myself.

There are many cases on record in which men with almost rudimentary penes were able to perform the sexual act more or less properly. The same may be said of hypertrophy of the penis. There are indeed very few penes, no matter how large, for which intromission is not possible. Sturgis gives an extreme case (mentioned by Hyrtl) of a Swiss smith whose penis was the size of a child's body. Of this case Sturgis remarks "Clearly such an unlucky wretch would be compelled to a life of celibacy, for no mortal vagina would be capable of receiving such a *membrum virile*." It is also remarkable how much of the penis can be destroyed by ulceration or other causes without resulting in impotence. Among other penile curiosities which may have that effect may be mentioned penoscrotal fusion and bifid penis, while neoplasms of the penis may from their size

render the person impotent. Plastic exudates either in the corpora cavernosa or corpus spongiosum may also interfere with erection. Shortness of frenum has likewise so interfered with erection that impotence resulted until relieved by operation.

Among other conditions interfering with intromission may be mentioned enormous hydrocele, large scrotal hernia, and elephantiasis. In these conditions the penis may be so enveloped by the surrounding parts that it appears absent and cannot protrude enough for intromission even in erection. After gangrene of the penile integument or after destruction of portions of the penis from chancroidal ulcerations, scarring and contraction may result to such an extent as to interfere with erection. Among the rare conditions causing organic impotence may be mentioned horny growths of the penis, elephantiasis of the penis and scrotum, preputial calculi, ossification of the penis, and, lastly, fracture of the penis, either as a result of coitus or of "breaking" a chordee.

Walsh, in the *American Journal of Urology* for May, 1913, reports an unusual condition causing impotence in the male. In these cases erection was normal, but there was absolutely no ejaculation. Nocturnal pollutions, however, did occur, and massage of the prostate produced a normal-appearing fluid which contained actively motile spermatozoa. On attempting to introduce the posterior urethroscope, an obstruction was experienced in the posterior urethra. The posterior urethra was dilated by sounds until the urethroscope could be introduced. It was then seen that there had previously existed a band of tissue connecting the two ejaculatory ducts which was torn by the sound dilatations. After this the patients became perfectly normal.

The explanation given by Walsh is that, during erection, the posterior urethra, or at least that portion adjacent to the ejaculatory ducts, should be capable of distention to receive the

contents of the ducts. On account of the presence of the band of tissue, however, this was impossible. The fluid could not enter the urethra and ejaculation was impossible. During sleep, however, when the penis is not at all or only partially erected, there is no tension put on the urethra causing the mouths of the ejaculatory ducts to close, and consequently the seminal fluid escapes easily. The same held good in massage of the prostate.

Horse-back riding as well as bicycle riding may cause impotence if done excessively and for a prolonged period of time. Moderate exercise in this regard has no such effect.

SYMPTOMS

The chief symptom is the impotence itself. In many cases partial erection can take place, and in some cases erection takes place, but is exceedingly painful. As a result of any form of impotence there often follow a whole train of nervous symptoms, in some cases bordering on insanity and not infrequently leading to suicide. But as these symptoms are common to all forms of impotence (whether organic, functional, or psychic) they will be described later on.

DIAGNOSIS

The main point in the diagnosis is to find the original cause, for, after all, impotence is but a symptom of some other disease.

PROGNOSIS

This depends upon the etiological factor, and the possibility of removing the impediment by operation or other means. Many of the causes just mentioned are very easily remedied by operation, while others are clearly beyond our control.

TREATMENT

A glance at the various etiological factors will indicate the method of treatment in many of these cases. One point should

be emphasized, however, in the management of cases with small or rudimentary penes. For some of these cases, ingenious apparatus have been invented enabling the penis to enter the vagina, especially if the woman be instructed to take an astringent douche before coitus. It has also happened that after frequent coitus with the aid of such apparatus, the penis has actually increased in size and developed sufficiently for coitus without any artificial aid.

CHAPTER IV

FUNCTIONAL IMPOTENCE

DEFINITION

Functional impotence is that form of impotence in which there exists no *gross* pathological change in the structure of the sexual apparatus, but in which the mechanism of copulation is disturbed through an interference with the function of the sexual centers or the nerves and peripheral end-organs.

In this class of cases there is found neither the absence of important organs nor the marked pathological conditions mentioned under Organic Impotence. Generally speaking, the sexual organs are sound. I have emphasized the word "gross," to indicate that the condition is not without a pathological basis, and that, in a not infrequent number of cases, the endoscope will reveal areas of congestion, inflammation or even erosions in the posterior urethra, and in many of them an examination will show congestion of the prostate and seminal vesicles. The condition must be considered functional, however, because these lesions do not act by imposing a mechanical impediment to either ejaculation or erection, but act purely reflexly upon the sexual centers.

Impotence is physiological before puberty as well as in old age. It may also be considered physiological after a normal coitus, although some men are able to repeat the act many times.

It must be emphasized, however, that potency, or sexual vigor, is a *relative* term, and that there are some men who can indulge in coitus every night and keep this up for a very long time, while others can only indulge once or twice a week. A man belonging to the latter class would by no means be con-

sidered impotent or suffering from sexual weakness. We must therefore take the entire history of the case into consideration before deciding whether a man is losing his sexual vigor.

ETIOLOGY AND PATHOLOGY

The normal act of coitus consists in the following sequence of events, and in the harmonious relationship of the various factors. In the first place there must be the libido, or desire for sexual intercourse; then there must be the erection of the penis, then ejaculation and orgasm. The absence or disturbed relationship of any of these factors constitutes impotence, either partial or complete. Moreover, not only must the normal sequence of events occur, but also the relative time for each factor must be observed for normal coitus. Thus, if ejaculation comes too quickly, before erection is complete, or too slowly,—that is, long after erection has subsided,—or if erection does not last long enough, or if the whole process of coitus goes very quickly, or any other condition in which the time allowed to each factor is relatively out of proportion, impotence may be said to exist.

In order to understand the pathology of organic impotence, as well as the influence of various etiological factors in the production of the same, it is necessary to have a clear idea of the mechanism of normal coitus. This will be considered under two heads: First, the mechanism and sequence of events as they take place in the end-organs (*i. e.,* the testicles, epididymides, vasa, seminal vesicles, ejaculatory ducts, prostate and penis), and secondly, the sequence of events in the sexual centers and nerves.

MECHANISM OF COITUS IN THE END-ORGANS

As soon as the libido is aroused, either by the sight or contact of a woman, or from peripheral irritation of the penis, an impulse is sent to the erection center in the lumbar portion of the spinal cord, which arouses it into activity. The center, now

aroused, sends impulses to the arteries and muscular structure of the penis. In the quiescent state, the arteries of the penis are in a state of contraction, allowing no more blood than is necessary for nourishing the parts. The musculature is also in a contracted state, thus obliterating all trabeculation. The impulses which are sent out from the erection center are vasodilator in character, thus allowing the arteries to dilate and fill up with blood; they have also the effect of relaxing the musculature, and so causing the formation of large trabecular spaces. As a result, the corpora cavernosa become engorged with blood. The muscles surrounding the penis, however, are thrown into contraction, which has the effect of compressing the veins of the penis, and the resulting congestion adds still further to the engorgement of the parts. The fibrous investment of the penis is put on the stretch by the increase in volume of the organ, and this also adds to the compression of the veins and the consequent engorgement of the penis. The influx of blood, however, has more to do with erection than the compression of the veins; this is proven by the fact that in priapism, which may continue for a very long time, sometimes for days and even weeks, no gangrene results.

As soon as the organ becomes rigid, the action of its suspensory ligament aided by the erector penis and the accelerator urinæ muscles causes it to become elevated. Finally all the perineal muscles come into play to complete the erection, and now the organ is hard and tense. The testicles at the same time are drawn close to the abdomen through the contraction of the dartos and the muscular fibers of the cord.

As a result of the active congestion, the mucous glands of the urethra pour into the urethra an alkaline secretion to neutralize any acid urine which may have been left therein, and which would be inimical to the vitality of the spermatozoa.

As a result of the muscular action upon the testicles, aided by the peristalsis of the musculature of the epididymis and the vas, the spermatozoa are pressed out of the epididymis into the vas and into the ampulla.

As coitus proceeds the contents of the seminal vesicles are squeezed by muscular action into the ejaculatory ducts, the muscles of the prostate also contract, squeezing out the prostatic secretions, and at the height of the orgasm the contents of the seminal vesicles mixed with the spermatozoa, which have just been extruded from the testicles, are pushed through the ejaculatory ducts into the posterior urethra, where they mix with the prostatic secretion, and the entire product, the semen, is driven from the bulbous urethra through the penis by the contraction of the entire perineal group of muscles. The squeezing of the contents of the seminal vesicles plus the testicular contents into the posterior urethra causes the extreme of pleasurable feeling known as the orgasm.

It may be noticed that, in the above description of the physiology of coitus, I have *not* mentioned that the semen, after it has reached the posterior urethra, is prevented from going into the bladder by the erection of the verumontanum, which by its erection closes off the posterior urethra from the bladder. This statement has been passed on from, I do not know how many years back, until the present time, and may be found even in some of our latest textbooks. Like so many statements, it has simply been copied from one work into another without investigation or challenge.

Since the advent of modern improved posterior urethroscopes, however, it has been noticed that in many cases the verumontanum may be exceedingly small; in fact, I have seen it in some cases no bigger than a pimple, and nevertheless no interference with the act of coitus is experienced. Moreover, Rytina has reported a series of cases in which for various rea-

sons he had removed the entire verumontanum without any sexual difficulty being experienced by the patients.

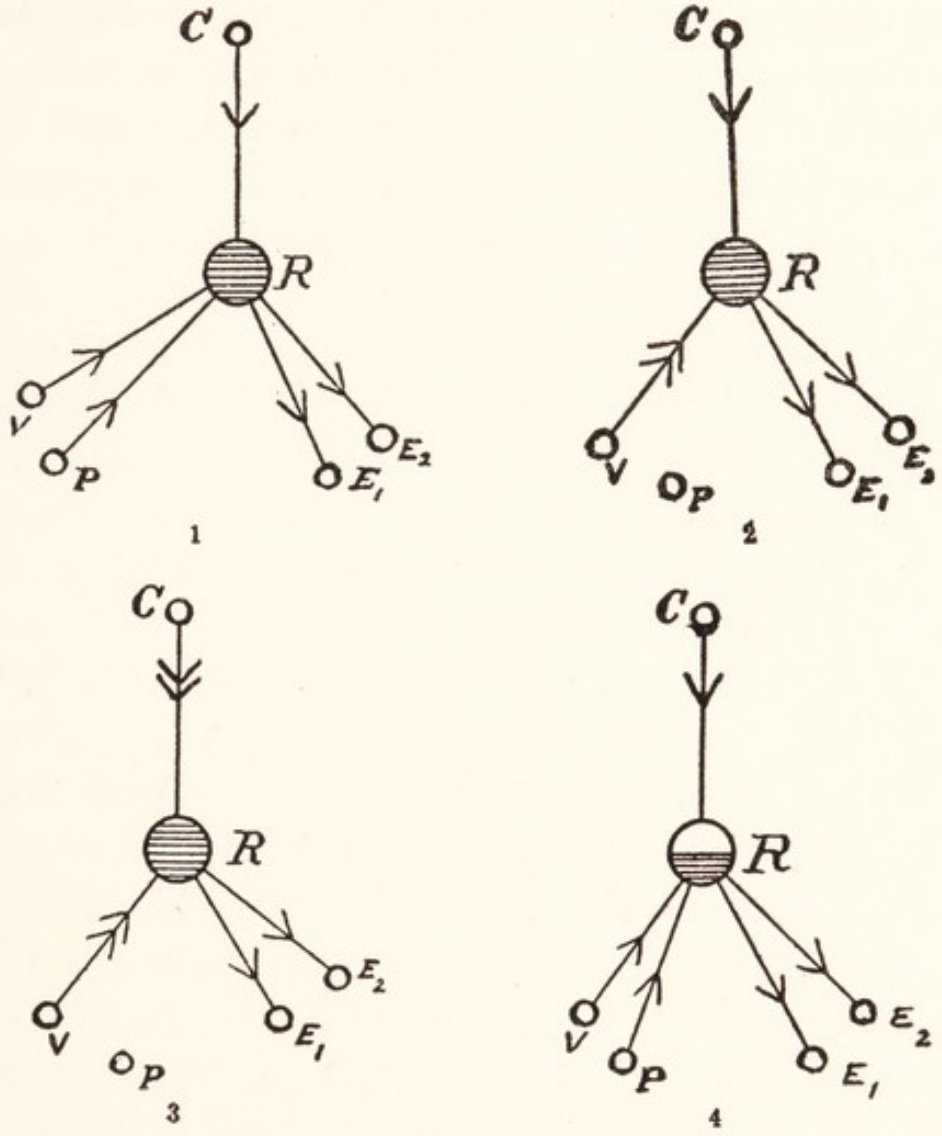
But, while we know that the verumontanum is not the organ which prevents the urine from coming out of the bladder during coitus or the semen from entering the bladder instead of the urethra during the same act, there is a mechanism which has these desired effects; for, even if a man tried, he could not urinate into the woman during coitus. This mechanism is under very delicate valvular, muscular and nervous control, and as will be shown later on, may be easily disarranged by indulgence in various unnatural or unphysiological methods of sexual gratification.

NERVOUS MECHANISM OF COITUS

In the description of the sequence of events which take place during normal and pathological coitus, in the sexual centers and nerves, I have closely followed that given by Groag as being of especial clearness.

We may represent the various conditions diagrammatically as follows (Figs. 1-4). From *C* (cerebrum, *i. e.,* libido) impulses are sent to *R* (erection center), which sends them to the dilator nerves until complete erection results (*i. e.,* dilatation of blood-vessels of penis, etc.). Now *R* receives from *P* (glans penis during friction) continuous new impulses which serve to strengthen and keep up the erection. Besides sending the receiving impulses to the dilator nerves, *R* has also the function of keeping back a part of the impulses it receives until the cells of the erection center are filled to their utmost tension (Reitzspannungsvermögen), and then only to send the impulses to E_1 (sympathetic ejaculation center, which causes the expulsion of the secretions of the sexual glands), and also to E_2 (spinal ejaculation center, which controls the striated muscular fibers). The impulses that come from *P* to *R* (through friction of the glans penis) may be weaker, in proportion as the impulses that

come from *V* (distended seminal vesicles) are stronger. In other words, with markedly distended seminal vesicles we can get normal coitus even if there is less friction of the glans penis, for enough impulses are coming from the seminal vesicles to fill up *R*. As soon as *R* is so filled up with impulses from *C*, *P* and *V* that they overflow to E_1 and E_2, ejaculation occurs.



Diagrammatic scheme of the nervous mechanism of normal coitus, impotence, and pollutions. (After *Groag*.)

C, cerebrum; *R*, erection center; E_1, sympathetic ejaculation center (which causes the expulsion of the secretions of the sexual glands); E_2, spinal ejaculation center (which controls the striated muscular fibers); *P*, glans penis; *V*, seminal vesicles. The single arrow indicates an ordinary impulse; the double arrow, a very strong impulse. The transverse lines in *R*, in Figs. 1, 2, and 3, indicate that *R* sends out impulses to E_1 and E_2 *only after having been completely filled up with impulses*, while in Fig. 4 we see that *R* sends them out before it is completely filled up with impulses.

NORMAL COITUS

We may now briefly describe the nervous mechanism of normal coitus according to the above diagrammatic scheme, and later on the pathology of impotence according to the same scheme. The seat of the libido is in the cerebrum, and it may be aroused by the sight of a woman, contact with a woman, or by caressing, "spooning," erotic literature, or through any of the senses, and in numerous other and different ways. Once the libido is aroused, and the man is prepared for normal coitus, an impulse is sent from the cerebrum (C) to the erection center (R) in the lumbar enlargement of the spinal cord. This center sends impulses through the dilator nerves to the penis, as a result of which impulses the penis becomes engorged with blood and erection occurs as previously described. As the penis enters the vagina, the friction of the glans penis (P) sends additional impulses to the erection center (R). The erection center (R) is also getting impulses from the distended seminal vesicles (V). In the normal condition of affairs, it is only when the erection center (R) has been completely filled up with these impulses from the cerebrum (C), the penis (P) and the seminal vesicles (V), that it sends out impulses to the ejaculation centers (E_1 and E_2) and allows ejaculation to take place. In other words, the erection center (R) has two functions: first, to receive impulses from the cerebrum (C), the penis (P) and the seminal vesicles (V); and, secondly, to hold back these impulses till the proper time and then send them to the ejaculation centers (E_1 and E_2), so that ejaculation should come just at the proper time and not too soon.

I have gone somewhat minutely into this diagrammatic description of the nervous mechanism of normal coitus because it is only by having a clear idea of this mechanism that we are enabled to understand the pathology of impotence. We will now take up the various etiological factors, and show how they

cause impotence, by disturbing one or more of the functions of the above factors of normal coitus, or by disturbing the relationship of the various factors. The various etiological factors to be discussed will be: acute impotence from excessive coitus, coitus interruptus, (withdrawal), masturbation, sequelæ of gonorrhea, ungratified sexual excitement (prolonged spooning, etc.). The pathology of many of these etiological causes will be found to be very similar.

PATHOLOGY OF FUNCTIONAL IMPOTENCE

PATHOLOGY OF IMPOTENCE FROM EXCESSIVE COITUS

This is the simplest form of functional impotence and consists in an exhaustion of the erection center (R). If, shortly after a completed coitus a repetition of the act is attempted, stronger excitation is necessary to accomplish erection, and still stronger and more intensive to produce ejaculation. With every repeated attempt at coitus, the necessary increase in excitation rises in proportion with the number of attempts. This can be readily appreciated from our diagrammatic scheme. After one or several attempts at coitus, the seminal vesicles are empty, and the erection center (R) thus receives no impulses from them (V), the friction of the glans penis during coitus is also less and less powerful, and so few impulses come from there (P), and the erection center (R) must therefore depend almost entirely upon the impulses it receives from the cerebrum (C) in order to cause erection and also in order to get enough impulses to become distended so that it can send them out to the ejaculation centers (E_1 and E_2) for ejaculation to take place. The erection center (R) is now in a state of absolute exhaustion, and needs a certain length of time to recuperate. After this recuperation, everything is normal again. This is the acute form of impotence in a normal person. Finally the most intensive excitations fail to cause an erection and naturally also an ejacu-

lation. The oft-repeated acts or attempts at coitus also have the effect of exhausting the center (R) itself.

It must be distinctly understood, however, that the number of repetitions of the act of coitus necessary to exhaust the center varies greatly in different individuals and also at different ages and under different circumstances. This is especially true in many cases where, on account of extreme excitement or other reasons, the first attempt at coitus is rapidly concluded, thus not completely emptying the seminal vesicles. In many of these cases it will be found that another attempt within a very brief space of time, will be actually more successful and prolonged. As an extreme instance I may mention the case of a very young man who took his girl on a trip on one of our well known night boats, occupying a state room, and who indulged in coitus with her 16 times in that single night.

PATHOLOGY OF COITUS INTERRUPTUS

In the normal condition of affairs, as soon as the libido has been aroused, and the impulse has been sent from the cerebrum (*C*) to the erection center in the lumbar enlargement of the spinal cord (*R*), thus arousing it into activity, there occurs a normal working hyperemia of this center. This working hyperemia is being increased during coitus by continuous stimulation of impulses from the glans penis (*P*) and seminal vesicles (*V*). As soon as this center has been stimulated to its maximum, it sends its impulses to the ejaculation centers (E_1 and E_2), ejaculation takes place, and with this event there results a diminution and final disappearance of the hyperemia of the erection center. Normally, there now ensues a condition of rest for several days, and the center has plenty of time to recuperate. Sexual intercourse is not generally indulged in for several days, and the erection center is not bothered with stimulating impulses from either the cerebrum, seminal vesicles, or

other sources. (In this description I leave out of account the increased sexual activity which follows the first months of wedded life.) Normally, also, the same condition holds good in the end-organs. During coitus the seminal vesicles, which were distended, empty themselves more or less completely, the prostatic urethra, which during coitus is also hyperemic, becomes deplethorized with the normal act of ejaculation, and the parts soon regain their normal condition of blood-supply.

What is the condition of affairs in coitus interruptus? The following description of the pathology does not apply to one single act of withdrawal, but only to those cases where the practice had been kept up for a long time, months or years.

With the interruption of the act of coitus, ejaculation is incomplete, the erection center (*R*) is not thoroughly deplethorized, on account of the incomplete ejaculation. It thus remains more or less hyperemic. The seminal vesicles do not so completely empty themselves as in normal coitus, and they consequently become distended much sooner than after a normal coitus, and the desire for coitus is thus experienced much earlier than after a normal coitus. The hyperemic condition of the prostatic urethra, which under normal conditions disappears with the complete ejaculation, remains more or less in part, and after the practice had been kept up for a long time, a condition of chronic congestion of these parts supervenes. The frequent distention of the seminal vesicles leads to increased desire for coitus, and increased coitus still further keeps up the hyperemic condition of the erection center, leaving less time for it to recover itself. The chronic congestion of the prostatic mucous membrane has the effect of continually sending impulses to the sexual centers, even in the absence of coitus, and thus the hyperemic erection center is being constantly bombarded with impulses until it is at first in a state of hyperirritability and finally of exhaustion. While in a state of hyperirritability, the

slightest impulse it receives from the cerebrum, at the very commencement of coitus, causes it to respond so rapidly that it at once sends the impulse to the ejaculation centers and ejaculation takes place at the very commencement of coitus, just as the penis has entered the vagina (rapid ejaculation), and in a later stage, even before the penis has had an opportunity to enter the vagina (premature ejaculation). In other words the center has lost its power to hold back the impulses till the proper time. This is graphically illustrated in Fig. 4. Finally, the center becomes completely exhausted, and fails to respond to any stimulus either from the cerebrum or other sources; it refuses to send out any impulse at all, and thus we get as a final stage, not only no ejaculation, but also absence of erection.

There is still another very important reason why the interruption of the act of coitus in withdrawal or in spooning disorganizes the entire mechanism of coitus and finally leads to impotence. We must remember that the entire mechanism is under a very delicate muscular, nervous, and valvular control. As heretofore stated, one could not urinate into the female during coitus, even if he so desired. The valves, muscles and nervous arrangement are such, that during the act everything is so directed, that the semen flows or is expelled from the vesicles, etc., into the urethra and out through the meatus. They are so arranged that the opening to the bladder is closed off, to prevent urine from escaping during coitus; nor can the semen go into the bladder during the act, although in some rare *pathological* conditions this latter phenomenon actually has occurred, leading to sterility. When everything is set for the semen to be so expelled, and the patient suddenly holds back the entire system is disarranged, and we can easily see why in time the entire mechanism of coitus is completely disorganized.

It is very interesting, if we take a careful history of one of these cases, how the symptoms follow exactly the pathology just described. We first get a history of rapid ejaculation, less and less time is consumed in the coital act, the erections may however still be strong; then we get premature ejaculation, next a weakness in the erections, the patients at this stage complain that the organ "just about gets stiff," but ejaculation takes place at once with an immediate decline of the erection, and finally, as a last stage, they can neither get erection at all nor any ejaculation. We note that there is nothing mysterious about all this, and that it is exactly what would occur in any other end-organ under similar conditions.

It must not be imagined, however, that every case goes on to the final stage. The process may be stopped at any stage by proper treatment and a discontinuance of the practice. The length of time necessary to reach each stage varies considerably in different individuals. I have seen the final stage reached after but six months of withdrawal and, on the other hand, have seen patients indulge in this practice for many years, before any ill-effect was noticed.

PATHOLOGY OF IMPOTENCE FOLLOWING MASTURBATION

As a matter of fact, masturbation is very seldom an etiological factor in impotence, especially when we consider the frequency of masturbation. The man who has never suffered from gonorrhea and finds himself impotent is very apt, influenced by quack literature, to blame it on his youthful errors, errors which may have been committed ten or more years previously. I will not deny, however, that the confirmed, untreated masturbator, who marries with the idea that sexual intercourse will cure his masturbation, may find himself impotent.

The pathology in these cases is similar in many respects to that of withdrawal. There are lacking, however, the impulses from distended vesicles, for the confirmed masturbator does not give his vesicles a chance to become distended. The chief cause of the exhaustion of the erection center (*R*) comes from the terribly congested prostate and prostatic urethra, which has been for years bombarding the center with reflex impulses. There are in addition two other factors which contribute toward the production of impotency in these cases. One is that the frequent manipulation of the penis has so hardened that organ that the ordinary friction of coitus (even if he is able to get his penis into the vagina) is not sufficient to arouse the more or less exhausted sexual centers. Another factor comes into play where psychic masturbation has been the predominant type. Here, also, the sexual centers have been so dulled that it is only the most vivid picture that the imagination can conjure up which will be sufficiently strong to arouse them into action, and the ordinary acts of coitus are not sufficiently powerful to arouse either the desire or the ability for coitus.

PATHOLOGY OF THE SEQUELÆ OF GONORRHEA AS A CAUSE OF IMPOTENCE

While most German authorities lay great stress upon the sequelae of gonorrhea as a cause of impotence, and many American writers follow their example, from my professional experience, I cannot at all subscribe to this opinion. Here again, we must take into consideration that gonorrhea is such a very common disease, that, in proportion to its frequency, impotence is a very infrequent complication. It might be better were it otherwise. If every man attacked with gonorrhea would become impotent, for a while at least, it would not only greatly limit the spread of the disease, but would also be a most powerful deterrent of illicit coitus.

As a sequence of severe and especially ill-treated gonorrhea, there often remain granulations, ulcerations, vegetations, and areas of congestion and erosions in the posterior urethra, especially in the region of the verumontanum. Sometimes, there is also present a chronic inflammation of the prostate and seminal vesicles, which are found to be distended with purulent and other secretions. As a result of these pathological conditions, the erection center is being reflexly bombarded with impulses from these parts, and irritability and exhaustion of the center may result. The treatment of the posterior urethra, and of the prostate and seminal vesicles, generally brings about a cure.

One must be careful, however, in interpreting the results of treatment in these conditions. It often happens that the most gross pathological conditions which are seen through the posterior urethroscope are *not* the cause of the trouble, while the insignificant areas of congestion and erosions are. Very often, by removing the gross pathological lesions, we also cure by the same application or cauterization the insignificant lesions, and are thus apt to consider the cure due to the removal of the gross lesions. As a matter of fact, however, the most gross lesions may be seen through the posterior urethroscope without in any way giving any symptoms, sexual or otherwise; whereas, in other cases, a very small area of congestion in the region of the verumontanum may be the cause of the most marked nervous and sexual symptoms.

PATHOLOGY OF UNGRATIFIED SEXUAL EXCITEMENT AS A CAUSE OF IMPOTENCE

Ungratified sexual excitement comes into play as an etiological factor in impotence, only if it has existed for a relatively long period of time. Under this heading comes especially the temporary impotence following long engagements, in which the parties see each other very frequently and do much "spooning,"

and this goes on for a period of one or more years. Very often the man is continent, and often this continence is put down by some authors as a cause of impotence. As a matter of fact, the man in this case is not all continent, in the scientific meaning of the term; he only abstains from the coital act of intercourse. We must remember that, scientifically, the act of intercourse begins with the first caresses and flirtations, and that coitus is but the final stage of intercourse and not the whole thing. The man in this case really goes through all the preliminary stages of intercourse, stopping just short of coitus. In many of these cases, the man works himself up in his passion till the point of ejaculation, but this he psychically inhibits till the erection goes away, and then he starts in again. It is in this way the man can keep up the spooning process for hours at a time.

As a result of this practice kept up for a long time, we get a chronic congestion of the posterior urethra, just as in masturbation, but in addition we have the presence of an almost continuous state of distention of the seminal vesicles, unless they are relieved by an occasional pollution. As a result of all this, exhaustion of the erection center must take place in time, in the same manner as has been described in the previous condition. This condition is represented in Fig. 3, showing the double arrows (excessive strong impulses) coming from *C* and *V*.

Finally, as etiological factors in functional impotence, we must mention a group of cases in which the pathology is obscure. To this group belong impotence from diabetes mellitus, acute febrile conditions, various forms of acute and chronic poisoning, chronic debilitating conditions, and some authors include herein such conditions as obesity and chronic nephritis.

Concerning chronic nephritis as a cause of impotence, Blum remarks, in the *American Journal of Urology,* October, 1912, as follows:—

"We find in many textbooks *impotentia coëundi* noted in the symptomatology of chronic nephritis. A specific inhibition of the cerebrosexual center might be exerted by the urinary poisons retained in the blood, in analogy with other chronic intoxications. I myself have been obliged in many cases, in which the patient complained of diminution or extinction of the sexual need, to declare chronic nephritis to be the cause. It is one of the fundamental rules of diagnosis, that we examine the urine in every case of impotence; we often come in this way, to the great and painful surprise of the patient, to an explanation of the fatal symptom."

I doubt very much whether ordinary nephritis causes impotence. As a matter of fact I know of many men with undoubted chronic nephritis who are not in the least impotent. I have in mind at present a young man of 21, who when a child had a severe attack of diphtheria from which he almost died and which left him with a chronic nephritis, with very high arterial tension, etc., but who is very passionate sexually and not in the least impotent. Another case is that of a man of 55 with very bad kidneys, who still enjoys to the full the use of his sexual apparatus. The author quoted above cites cases where the patient complained of impotence, and where a urinary examination showed the presence of nephritis which had been unknown to the patient. He therefore concludes it to be the cause of his impotency. Yet time after time has it occurred to me, as well as probably to most physicians, that patients came for entirely different complaints, and a routine urine examination disclosed an unsuspected nephritis, in which there was absolutely no suggestion of impotence present. When we take into consideration that chronic nephritis is not by any means a rare disease, we must not be surprised that we find it present in a certain percentage of our impotence cases. Of course, in the last stages of nephritis with marked cachexia and

uremic symptoms, this condition may cause impotence just as in the case in any other debilitating disease, but I am convinced that ordinary cases of nephritis are not responsible for impotence. Blum himself seems to correct his first too general statement when he adds at page 551: "It is not surprising that in the advanced stages of nephritis with severe uremic phenomena and outspoken cachexia, as well as in diabetes, sexual impotence should occur, when the exhaustion of the patient has reached a high degree." This is an entirely different state of affairs from that of an apparently healthy man coming into the office for impotence, and in which a routine uranalysis discloses nephritis. In diabetes, however, it is different. Here the disease itself seems to be the direct cause of the impotence.

Many authorities put down oxaluria as a cause of impotence. I have paid particular attention to this and have had the urine of all of my impotence cases examined, not only in the routine manner, but especially for oxalates. My experience shows, however, that oxaluria is only very infrequently found in impotence.

SYMPTOMS OF FUNCTIONAL IMPOTENCE

The symptoms of impotence may be divided into local and general.

LOCAL SYMPTOMS

I have previously remarked that, for normal coitus, there must be a certain sequence of events, which must proceed in perfect harmony and proper relationship of one to the other. There events are the libido, the erection, the ejaculation, and the orgasm. In impotence there may be either an absence or weakness of any one of these factors, or a disturbance in the relationship among them. We may therefore systematically discuss the symptoms of impotence as they affect the factors just mentioned:—

(1) Disturbance of the Libido.—This will be considered under Psychic Impotence.

(2) Disturbance of Erection and Ejaculation: For purposes of treatment it will be necessary to consider these two factors separately, though it is more convenient at present to consider them together. The symptoms have partly been discussed in giving the pathology. It must be remembered that the patient may come to us at any stage of the disease, and that, for a proper understanding of his condition, we must go into his past sexual history most minutely in order to appreciate the proper sequence of events.

In the classic type, as illustrated by the impotence of withdrawal, the patient first notices that the time consumed in coitus is not as long as it previously was. His erections are perfectly strong, he can enter the vagina, the penis remains erect for the necessary length of time, but the time between intromission and ejaculation is less. Often the penis remains erect for some time after ejaculation and may even come out in the erect condition. This must not be interpreted as an increase in the strength of erection, but as a normal erection with an abnormal or shortened period of ejaculation. The erection appears longer only in proportion to the ejaculation. Gradually the length of ejaculation becomes shorter and shorter, at the same time as the period at which ejaculation commences after intromission also becomes markedly diminished; so that at a later stage, although the penis is erect, and enters the vagina, the ejaculation takes place immediately after intromission, or at the very moment of intromission. The patient now notices that not only is the ejaculation very rapid, but the erection itself does not last as long as usual. He will tell you that he has the desire, his penis becomes erect, but just as soon as he enters the vagina, ejaculation takes place at once with the decline of the penis. "The whole thing is over in a minute" is a common expression. As

the disease progresses, at the very commencement of sexual excitement, the penis becomes erect, but before he can enter the vagina (often while putting on a condom) ejaculation with immediate decline of erection ensues. Finally, the penis becomes only partially erect but goes down at once without any ejaculation at all. Later on, although libido is present, there is neither erection, ejaculation nor orgasm.

It must be remembered that the patient does not of his own accord tell us the classic history as just related, but if the physician knows what symptoms to expect, he will, by proper interrogations, get a complete history from the patient, depending upon what stage he is in. It must also be remembered that the first symptoms may come on some time after withdrawal has been stopped, and while the patient is indulging in natural coitus. He may not consider withdrawal as an etiological factor, and will not mention it, or even deny it, unless properly questioned in this regard. He may even tell you that previously, while indulging in withdrawal, his coitus was better than at present. The reason for all this is easy to understand from a consideration of the pathology. It takes some time for the centers to become exhausted, and every act of coitus, even natural coitus, aids in the exhaustion process, once the pathological conditions previously mentioned are forming. So that, while he was practising withdrawal, the process had not yet reached the final stage. As long as he remains untreated, especially while irritating the parts by even natural coitus, the pathological processes will progress to complete exhaustion and impotence.

It has been customary to classify functional impotence as either paralytic on the one hand, or due to irritable weakness on the other. The general idea seems to prevail that they are separate and distinct conditions, and represent a directly opposite condition of affairs. My experience, however, in carefully investigating the sequence of events, as well as a consideration

of the pathology of impotence, has long ago convinced me that this classification is improper, and that the two conditions are but different stages of the same disease. If we carefully question patients who are suffering from so-called paralytic impotence, we will find that this condition was preceded by a stage of so-called irritable weakness. In other words, before they became totally impotent, they suffered from rapid and premature ejaculations. The pathology just gone into also explains this fully; we get, first, irritation of the erection center, and finally exhaustion. It is very important to bear in mind, for purposes of treatment, that both so-called irritable weakness and paralytic impotence are one and the same.

The statement is repeatedly made, that irritable weakness should be treated by sedatives such as bromides, while paralytic impotence requires stimulants such as strychnine. Later on I will show, under the heading of treatment, the fallacy of this method, and prolonged clinical experience likewise proves this method of treatment to be fallacious.

There is, however, a form of rapid ejaculation which is entirely different from the form just mentioned, and which can be readily distinguished from it, if we go carefully into the sexual history. Under this heading belong those cases of healthy adults who, with no history of neurasthenia, no history of excessive masturbation or other sexual excesses, yet, after a long period of continence, have such strong sexual desire that the entire process of coitus takes but little time. They have normal libido, normal erection, normal ejaculation, and normal orgasm. The whole picture represents *power,* not *weakness.* It is simply an intense desire for coitus in a powerful man, who goes at it so powerfully that he is quicker than under ordinary circumstances. The condition may be likened to a swift race-horse which can outrun all his competitors. The picture is entirely different from that of a man with feeble, rapid ejaculation,

diminished libido, and lack of satisfaction from the act. In this case there is intense satisfaction from the coital act. Many men get into this condition every time they have coitus with a new acquaintance.

(3) Disturbance in the Orgasm: The exact seat of the orgasm is not known, but, for various physiological reasons, it is believed to be due to the squeezing of the fluid through the ejaculatory ducts into the posterior urethra, through muscular action. In rapid ejaculation the orgasm is either diminished or may be entirely absent, for the following reason: When the erection center sends its impulses too rapidly to the ejaculation centers, the impulses which are sent out by the ejaculation centers are also weaker than normal. Therefore, the squeezing out of the fluid through the ejaculatory ducts becomes less intense and the orgasm is either diminished or absent. It is the rapid and forceful passage of the semen through the *narrow* ejaculatory duct openings, which give the sensations of orgasm. This is proven by the absence of orgasm at coitus if a small quantity of cocaine solution or other anesthetic is instilled into the posterior urethra one-quarter hour before coitus. The patient obtains no pleasure from coitus, and his partner also suffers on account of the too short time of friction for her to get her orgasm. It is very often that this lack of experiencing the orgasm is the chief reason why the patient seeks medical advice.

Besides the symptoms mentioned above, there is an important group of cases whose symptoms cannot consistently be classified with any of the preceding groups—cases where there is an entire diminution of the whole process of coitus. To this class belong men who are otherwise healthy, never suffer from neurasthenia, but in whom the sexual functions appear very late, and last only a short time. They rarely masturbate, rarely have pollutions, have very slight libido, and easily remain continent. They sometimes marry for economic or other reasons,

and are impotent, but do not worry very much about their condition. These men would never seek a physician, were it not that they are driven there by their wives.

I cannot emphasize too strongly the necessity of recognizing the etiological basis of this condition. There is a congenital lack of sexual desire and power, which is the cause of the easy continence and the impotence in these cases. It must be recognized that these cases are *born and not made,* and that the continence is due to the same lack of sexual vigor as the impotency. I emphasize this fact, because some authorities, reasoning entirely from the previous history, but in a superficial manner, desire us to believe that the long period of continence is the cause of the impotency. I believe with Sturgis and many other prominent authorities to be mentioned later, that continence is never a cause of impotence. By continence, however, I mean not only abstinence from sexual coitus, but also abstinence from any of the factors which arouse the sexual passion (spooning, dalliance, caressing, etc.). Absolute abstinence from all such factors is perhaps an impossibility, especially in large cities, which abound in erotic literature, erotic shows and moving pictures, etc.; but even in these cases of relative abstinence, impotence never occurs. It is only in those cases heretofore described (page 131) where, on account of long engagements, a man will fondle a girl for hours, and keep this up every night for months at a time, that *temporary* impotence might result.

Besides the local symptoms just mentioned, due to and part of the impotence itself, there is a series of local symptoms which are generally mentioned in connection with impotence, but which have really nothing to do with it. In most of the cases the same pathological condition in the posterior urethra, the prostate and seminal vesicles, which is responsible for the impotence, is also responsible for the other symptoms. It is just as logical to consider the lancinating pains of locomotor

ataxia to be due to the impotence which is also present in locomotor ataxia, as to consider the symptoms about to be described as symptoms of impotence. In both cases, both are simply due to the same underlying cause.

But, while appreciating that such symptoms are *not* symptoms of, but only symptoms often accompanying impotence, it is well that they should be mentioned here, and for the following reasons: After all, we are called upon to treat the patient rather than the disease. Very often the patients complain much more about these accompanying symptoms than of the impotence. Very often, also, these accompanying symptoms precede the complete exhaustion of the sexual centers for a long time, and by bearing these facts in mind, and going into the history in detail, we may sometimes arrive at a diagnosis of incipient impotence, and be able to treat the same, before the patient has really appreciated the gravity of his condition. Sometimes, too, these accompanying symptoms give us a clew to the pathological processes at work which not only cause them, but which also cause the impotence.

Prominent among these symptoms may be mentioned *frequency of urination* and also *burning on urination,* as well as *pain, mostly at the end of urination. Vesical tenesmus, incontinence of urine* as well as *difficulty in starting the stream of urine,* and *dribbling* after urination are also occasionally met with. All these symptoms are due to the congested and irritated condition of the mucous membrane of the posterior urethra, as well as to the general hyperemia of all the pelvic organs which is found after a long period of withdrawal or masturbation. *Pollutions,* either nocturnal or diurnal, as well as defecation and urination spermatorrhea are very often accompanying symptoms of impotence, but as these will be discussed in a separate chapter, no further mention will be made of them here.

GENERAL SYMPTOMS

There is a long train of symptoms, too numerous for description, which is common to all forms of impotence from whatever cause, and which may be described under the general term of sexual neurasthenia. Of this character are pains in the legs, pains over the eyes,—in fact, pains in any and every portion of the body. General weakness, headache, vertigo, and almost any kind of or combination of symptoms is met with. As a practical point in interpreting these symptoms, care must be taken not to blame everything on the sexual neurasthenia, but to look out for possible errors in refraction, or errors in digestion, etc., as their cause.

Besides the above constitutional symptoms, there is another long list of *psychic* symptoms which has been very graphically and artistically described by German and French authors. They point out that when we consider what a tremendous evolution the sexual impulse calls forth, how the whole nervous system is affected with the greatest excitement, how everything vibrates, how the intense tension awaits relief by the final setting free of the kinetic effect, how one even may use the similé "an electric high tension" as describing the whole organism, then, one may estimate what a depressing influence the impossibility to indulge in the sexual act must have for the impotent.

I will not attempt to give here a graphic description of the miseries and psychic emotions of the impotent man. An excellent description of such condition is given by Reti, as quoted from Rohleder:—

"When a man and a woman, deeply in love with each other have married; when the wife, entranced and overcome, wants to give herself entirely to the embraces of the loved man; when in such a tense moment, of which the bride possesses only uncertain, veiled ideas, the husband becomes cognizant of his impotence, and, in spite of his intense libido experiences no erection, and when the bride, surprised and astonished, recog-

nizes the weakness of the Lord of Creation who, like a poor sinner, has to lower his glance in mortification, then the husband reads in each facial expression of his bride unlimited ridicule, deep contempt and even if this is not the case, even if the bride in her innocence cannot form a judgment of the condition, the husband feels like an annihilated, broken man."

I do not care to amplify the above description, but will simply state that this condition is at times the cause of the most extreme unhappiness, and not infrequently leads to suicide. In fact, it has been pointed out by those who have investigated the subject, that not a few of the mysterious suicides, committed by apparently happy and contented men shortly after marriage, were due to their discovering that they were impotent.

But it is not only the recently married man who suffers embarrassment on account of his impotence. In fact, I have known recently married men, who for a while after marriage, acted very poorly in this regard, but got away with it for the reason that their brides were absolutely ignorant of what was supposed to take place and did not notice the husband's embarrassment. In many cases such men improved under treatment or otherwise finally became absolutely normal, while their wives were none the wiser.

It is the man who visits his lady friend, perhaps a married or divorced woman with experience, who suffers the greatest embarrassment when he falls down in this regard after he had taken some pains to overcome his partner's scruples. At present it is not only the married woman who knows about these things, but very often the single girl as well. One of my very young patients informed me that after an awkward coitus with a girl friend of only eighteen years of age, she remarked, "Can't you do any better than that?"

There is no doubt that the enjoyment of perfect sexual potency is one of the most prized and important physical functions in the man. Only recently a patient from South America

informed me after he had been cured and was about to return to his native country, that he did not tell any of his friends that he had gone to be treated for impotence, but had told them that he was making the trip to be cured of an old gonorrhea. From a strictly moral and ethical standpoint, it certainly is much more of a disgrace to suffer from gonorrhea than from impotence, but most men do not so consider it.

In some of the lower animals, as the spider for instance, it is well known that the female will very often devour the male after connection. But, though the male is aware of this fact, so powerful is the sexual instinct that he cannot resist it and is willing to take the risk. Many will say that this is due to brute instinct, yet it is not at all uncommon for a great diplomat, a famous professor, a prominent army officer, or even the head of a family to risk his entire career or even life itself in order to satisfy his sexual desire.

DIAGNOSIS

For a proper diagnosis of functional impotence, it is necessary to take the entire sexual history of the patient into consideration. It is not sufficient to say that the patient is impotent; he knows that himself; but we must diagnose whether it is the erection center that is at fault, or the ejaculation center, the libido or a combination of all of them. It may even, at times, be necessary to interview or even examine the wife. This is especially important in the newly married. If a man tells you that at his marriage he had strong and persistent erections, and yet has been unable to penetrate his wife's genitals, the fault, almost without exception, is with the wife. In one case that came under my observation, where a patient had been under treatment by several other physicians for some time for impotence, an examination of the wife by me revealed the fact that she was suffering from vaginismus, for which reason the hus-

band could not enter, in spite of fairly strong erections. Sometimes other malformations about the female genitals prevent the penis from entering, until the unfortunate man finally becomes discouraged and may be rendered temporarily impotent from his ineffectual efforts.

In every case of impotence, we should examine for locomotor ataxia or other nervous condition which may cause it.

PROGNOSIS

The prognosis varies considerably in the different conditions. It is generally good in men below 45 who have been able to perform normal coitus before their present impotency. It is very poor in cases of congenital lack of sexual desire and vigor. Wherever a man has always been sexually weak from the very commencement of his sexual life, and has superimposed upon this congenital weakness the evil influences of withdrawal or excessive masturbation, the prognosis is unfavorable. It is very important to have the history on this point perfectly clear for purposes of prognosis. It must be remembered that while it is comparatively easy to enter the vagina of a married woman or a prostitute, it takes a very strong and persistent erection to get into a virgin. Therefore, if your patient assures you that his wife was a virgin at the time of his marriage, but nevertheless he was able to penetrate, it shows definitely that he must have been practically normal at the time. It is also not essential that a complete penetration should have been accomplished at the first attempt at coitus or even during the first night, as in many perfectly normal men and women this may not be accomplished for several days.

The prognosis is not good in men with a neurasthenic history to which the evils of sexual neurasthenia have been added. It is very good in those acute forms of impotence due to overindulgence in coitus, as well as in impotence from ungratified

sexual passion, and in the ordinary cases of impotence from withdrawal or excessive masturbation in which there is no underlying condition of general neurasthenia. The prognosis is naturally poor in the confirmed sexual invert.

TREATMENT

In order to properly treat the condition under consideration, we must have a clear conception of the pathological state of affairs and the causes which produced them. What then is the condition of affairs in the ordinary case of functional impotence? There are hyperirritated or exhausted sexual centers, depending upon the stage of the disease, and a chronically inflamed posterior urethra with congested or inflamed seminal vesicles and prostate. The first indication is absolute sexual rest in order to give the exhausted centers time to recuperate, and to remove every cause of irritation, which includes the treatment of the diseased posterior urethra and prostate and seminal vesicles, for, as has been shown heretofore, these diseased organs are constantly bombarding the sexual centers with impulses, even in the absence of sexual intercourse.

REST

The serious mistake made by many physicians in treating a patient suffering from sexual weakness is to resort at once to stimulating treatment with the desire to increase the strength of the erection. Nothing could be more irrational than this procedure. If a patient has an inflamed joint, the doctor at once puts it at rest either by splints or plaster of Paris bandage, but if the inflamed joint be allowed to be jerked about, as the penis is during attempted coitus, we would not expect the joint to get well either. Nature is trying her best to cure the patient, it is not good for the patient to indulge in coitus in this condition, therefore, she takes away his ability to do so; just

as where it is inadvisable to put food into the stomach, nature would take away the appetite. We certainly should consider this hint on the part of nature in our therapeusis.

If physicians would only understand that the organs making up the sexual apparatus respond physiologically and pathologically just like other organs in the body, the treatment of impotence would not be the mysterious or foolish method so often prescribed. What would a throat specialist advise a patient who was suffering from hoarseness due to a highly congested condition of the vocal cords? What would a surgeon advise a patient who was unable to move his elbow as a result of a highly inflamed condition of that joint? Would not both these specialists, in entirely different fields, advise immediate rest of the respective organs to get rid of the acute congestion, before making any attempt to induce the organ to perform its function? This is plain common sense. Would we not laugh at a throat specialist who would advise such a hoarse patient to talk as much as possible, on the theory that exercise of the muscles involved would tend to strengthen them, and thus restore the voice? This again is common sense.

But when we come to the treatment of impotence, we find just such a foolish method of treatment advised by many practitioners. For some reason the opinion seems to have become prevalent that the muscles, bloodvessels, nerve centers, etc., involved in the functions of the sexual apparatus, work in some mysterious manner, entirely different from those in other parts of the body.

The poor patient who has become impotent as a result of extreme congestion of the prostate and prostatic urethra, has one aphrodisiac after another thrown into his system, local stimulating treatment applied, until finally the entire sexual apparatus becomes completely exhausted, and refuses to respond to further stimulation, and the patient is left totally impotent.

Considering the entire subject of impotence from a rational point of view, the overstimulation of tired exhausted muscles and nerve centers is contrary to laws of physiology and pathology, yet this is the method employed by many practitioners, because, as stated above, the belief is prevalent that the muscles, nerve centers, and circulation of the sexual organs are for some mysterious reason different from muscles, nerve centers and circulation in every other part of the body.

What is the clinical result of all these congestions? Exactly like congestions in any other portion of the body. A congested nose will sneeze at the slightest current of air, a congested eye will blink at the slightest amount of light, and a congested larnyx will cough at the slightest particle of dust, or at the slightest use of the voice. While in normal coitus, it takes a certain amount of friction before orgasm and ejaculation are reached, in the congested condition of the parts the reflex centers are so irritable, that the slightest friction of the penis is sufficient to cause orgasm and ejaculation. In extreme cases, ejaculation takes place even before the penis has entered the vagina (premature ejaculation) while in others immediately or shortly after entrance (rapid ejaculation).

We must constantly bear in mind that our object is to *cure* the patient, so that practically always he may be able to indulge in normal coitus. It is *not* our purpose to cause a temporary erection so that he may once in a while be able to have coitus. I said above that practically always our cured patient should be able to indulge in coitus, and I have purposely qualified the statement for the reason that a perfectly normal man may once in a while (on account of worry or other indisposition) fall down in this regard. I always inform my patient in this regard so that if several years later, he should happen to fail to get an erection on one occasion, he need not worry and imagine that his original trouble is returning.

Another fact which I impress upon the patient, is that all we can do is to make him normal; we cannot put him in such a condition that if he misuses his sexual apparatus, by coitus interruptus, excessive spooning without coitus, etc., he will not get into trouble again. This advice would be considered obvious in any other specialty, but from long experience with my sexual patients I find it absolutely essential to warn them in this regard.

Reason For and Means of Abstinence

The first indication is met by not only abstaining from coitus, but from every act which might excite the sexual passion. The husband should not sleep in the same room with his wife if possible, certainly not in the same bed. He should especially be cautioned against spooning, for, if not told, some men have the impression that they may indulge in any sort of sexual play, as long as they omit actual coitus. The length of time he should abstain from coitus varies in different cases. As a general rule it may be said that young and vigorous men should be kept continent for from three to six months, while men past 45 should be allowed coitus much sooner, for fear of a complete dying out of the sexual impulse.

Besides the abstinence from coitus, the patient should also abstain from all alcoholics, as well as from tea, coffee, eggs and oysters, for all these stimulate the sexual apparatus and centers.

At this time nothing is so useful as the internal administration of the bromides in large doses. At least 15 grains should be given three times a day well diluted after meals. The object of this is to quiet the irritated centers, and at the same time to remove all sexual desire for the time being. This should be given even in the paralytic stage of the disease, and not reserved for the cases of irritable weakness only. The large doses of the bromides should be kept up for at least two months in

young persons and for one month in older patients, and then gradually reduced. It has been said that the administration of bromides may lead to impotence. Possibly the prolonged administration for years which may be necessary in epilepsy or other chronic nervous affections may have this result, but certainly for the limited time given above no such result can occur. The patient should be fully informed of the object of the treatment, or else he is apt to be discouraged and tell you that his condition is getting worse instead of better. He will inform you that before he started treatment he had some sexual desire, while now he has none. As a matter of fact, this is just what is wanted, and is the main object of the administration of the bromides. The patient should therefore be informed of these facts at the very start.

At the very commencement of treatment, in fact at the first examination, we should inform ourselves of the condition of the prostate, seminal vesicles and urethra, especially the posterior urethra. For this purpose a routine genitourinary examination should be made, including a search for stricture and endoscopic examination of the entire urethra. A routine urine examination should be also made to rule out diabetes as a possible etiological factor. In many of these cases we will find areas of congestion or other pathological conditions in the region of the verumontanum. The prostate and seminal vesicles will also often be found enlarged and sensitive.

1. *TREATMENT OF PATHOLOGICAL CONDITIONS IN THE URETHRA*

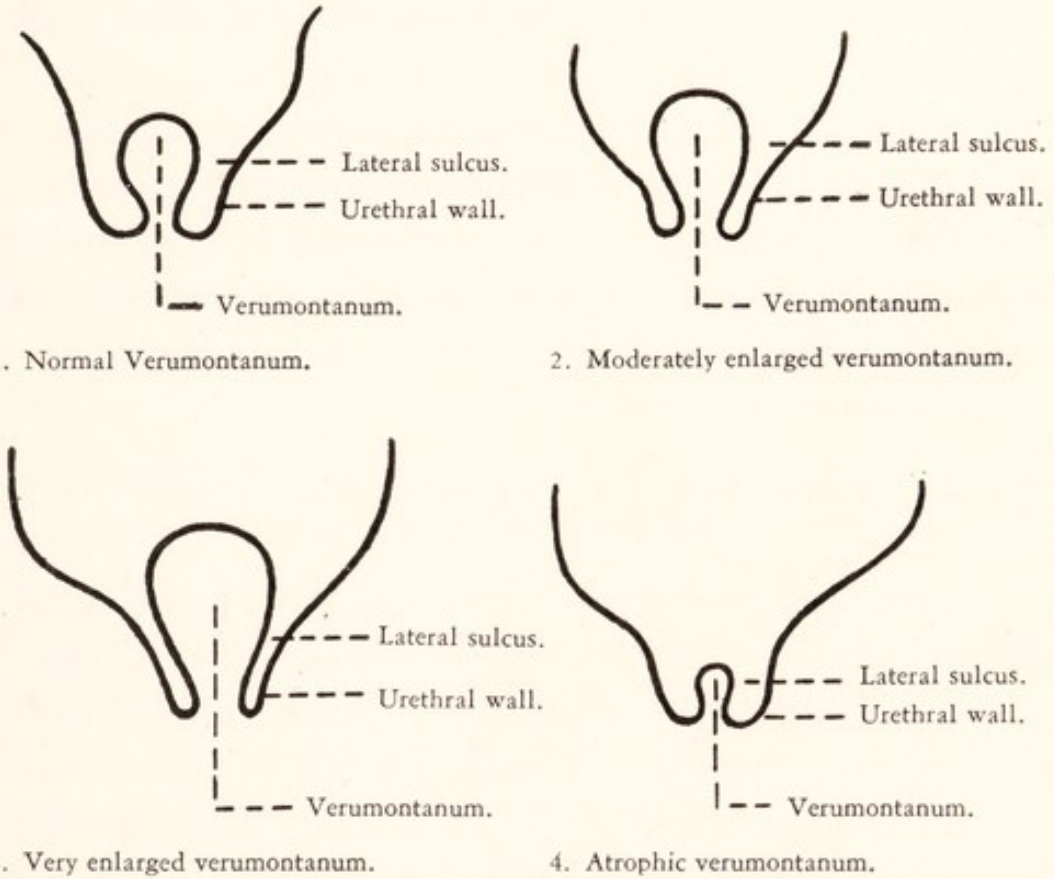
For the treatment of these pathological conditions in the posterior urethra, nothing succeeds so well as the instillations of *weak silver-nitrate solutions* with the Bangs' sound syringe, just as in cases of masturbation. The instillations are given every five days, starting with a 1:3000 solution and increasing to ½%. The size of the sound is also increased till the largest

possible can be taken. Should there occur, at any time, too much irritation from the instillations, as evidenced by urethral discharge or very intense burning, the strength of the silver solution should be reduced. It must be remembered that we desire the tonic and not the antiseptic action of the silver nitrate. I always tell my patients that the application of silver nitrate to relieve the congestion in the prostatic urethra, is analagous to that of the throat specialist in applying silver nitrate to a congested condition of the vocal cords. Of course if the endoscope reveals any gross pathological condition in the posterior urethra, such as cysts, vegetations, or similar conditions, these should be removed either by puncturing or other intra-urethral operation, which is very feasible through the modern posterior urethroscope. After the very acute condition of congestion has been removed by the above instillations, a few direct applications of very strong silver solution (10% to 20%) can be made advantageously to the diseased areas.

I have often been asked how the application of silver nitrate to the verumontanum could possibly cure impotence. To this I must answer that the application of silver nitrate to the *normal* verumontanum can only do harm, but he who has looked through the modern endoscope and has seen the pathological conditions present can readily understand how the removal of these conditions can have a beneficial effect upon the coital act. I desire especially to emphasize the fact that the treatment is not psychic, although the introduction of the lighted endoscope cannot help having a psychic effect on the patient. The treatment and the good results of the treatment are due solely to the removal of the pathological conditions present. The indiscriminate application of strong caustics to the verumontanum, practised years ago as a cure for impotence, has deserved the severe censure which it has received, but the rational treatment of

the diseased areas which can be so distinctly seen through modern instruments is of distinct benefit to the patient.

One must have considerable experience in posterior endoscopy, however, before he can recognize what is pathological and what is normal. The verumontanum, like the trigone of the bladder, is *normally* redder than the surrounding parts,



1. Normal Verumontanum.
2. Moderately enlarged verumontanum.
3. Very enlarged verumontanum.
4. Atrophic verumontanum.

Diagrammatic pictures of normal and diseased verumontanum.

and the inexperienced observer is likely to consider the normal verumontanum to be congested or inflamed. The same holds good also concerning its size. We must remember that the normal verumontanum varies greatly in size and shape in different individuals. In the colored race, for instance, where all sexual organs are markedly developed, I have noticed that the verumontanum is much larger than in white persons. I have evolved the following rule as a guide: we must not be guided by the absolute size of the verumontanum, but by its size in relation

to the posterior urethra in which it is found. In other words, a verumontanum, which almost completely fills the prostatic urethra, showing little if any signs of lateral sinuses, that is to say, if it almost touches the walls of the urethra on either side, is to be considered considerably enlarged. One can easily appreciate how such a verumontanum must keep on tickling the walls of the prostatic urethra even in the absence of coitus, and also how irritating it must be when rendered more congested during the coital act.

It must be remembered that the posterior endoscope only shows the pathological condition of the posterior urethra, and that similar pathological states are found in other conditions such as masturbation, satyriasis, etc. In other words, *one cannot make a diagnosis of impotence by merely looking through the endoscope.*

2. *TREATMENT OF PATHOLOGICAL CONDITIONS OF THE PROSTATE, ETC.*

At the same time that we are treating the pathological conditions in the posterior urethra, we also treat the enlarged, congested and sensitive prostate, and seminal vesicles, by *gentle* massage every five days. *Gentle* massage is an art which requires much practice to obtain. It is a pity that any manipulation of the prostate is designated by the term massage. This is really a mistake. When we manipulate the prostate in cases of gonorrhea in order to get out its secretions for diagnostic or therapeutic purposes, we are justified in using quite hard pressure, but this process ought really to be called *expression* instead of massage. Such procedure is entirely different from what the one now under consideration should be. It must be remembered that the object of the manipulation is not to squeeze out every drop of secretion from the prostate, but to relieve the congestion and to help the exhausted muscles of the prostate to regain their tone. In other words, massage in the

same sense in which that term is used when applied to other portions of the body. Using powerful pressure on the inflamed and sensitive prostate is no more massage of that organ than punching a man in the belly would be considered massage of the abdomen.

This combined treatment—to wit, abstinence, restricted diet, bromides, intra-urethral treatment, and prostatic massage—should be kept up for several months, depending upon the age of the patient, the stage of the disease, and also the reaction to the treatment. During this time his general health should receive the closest attention. A liberal and easily digested diet, largely made up of cream and other fats, should be ordered. Constipation must be relieved, as it tends toward interference with the return pelvic circulation and thus makes for local congestion. Tonics and outdoor exercises should be ordered where feasible. A very useful adjuvant is cold baths or cold spinal douches. These are to be taken only in the morning and never at night. Hot baths are positively injurious.

If at any time frequent pollutions occur, we must at once suspend massage of the prostate; otherwise this procedure is to be kept up at increasing intervals, until that organ is no more congested and its sensitiveness is gone. One must have some experience, however, in deciding these points, as we can always squeeze hard enough, even on a normal prostate, to cause pain.

SEXUAL STIMULANTS

When we have decided that the sexual centers have fully recuperated, and observe that the posterior urethra as well as the adnexa are normal, we stop the bromides and turn to sexual stimulants. I have tried most of the drugs recommended, but have gradually narrowed down my medical armamentarium to two drugs, namely, strychnine and yohimbin. Strychnine nitrate is to be preferred, although where this is not obtainable the

sulphate acts almost as well. I have become convinced that those who have not obtained good results from this drug have not administered it in the proper way or dosage. Many years ago, that great clinical observer, Abraham Jacobi, stated that the dose of this drug for children is generally put down as much too small, and I have come to the same conclusion in regard to its use in adults. Where coitus is indulged in during the night, I order $\frac{1}{20}$ grain of either strychnine nitrate or sulphate to be taken at 5 P.M., 7 P.M, 9 P.M., and 11 P.M. Although the patient thus gets gr. $\frac{1}{5}$ in six hours, I have never noticed any bad effects from it. At first there may be some headache, but this soon passes off, and the patients frequently tell me that they sleep much better than before. It should be stated here, that strychnine has no direct effect upon the sexual desire. All it does is to make the penis stiff so that it can enter the vagina and remain in the erect condition during coitus. Frequently the penis even remains stiff after coitus is completed, and comes out in an erect condition also.

But by far the most certain and most efficient stimulant to the weakened sexual muscles, is electricity when *properly* used. I employ the sinusoidal-faradic current of moderate rapidity and as strong as the patient can bear without any pain. One cable is connected with a rectal electrode while the other with a wet-sponge electrode and is applied to the perineum and the current allowed to pass for about ten minutes. The only guide to the strength of the current is the patient's sensation. I always tell the patient that the most important factor about the treatment is that *it must not hurt.* It is important to impress this upon him, otherwise some patients, believing that the stronger they can stand it the better it will be, may allow you to give them too strong a current and bear it without a murmur. As a matter of fact, if the current is too strong, that is if it hurts, it actually does harm.

Given in this way, every second, third or fourth day, depending upon the weakness of the muscles, the results are very gratifying, and few patients fail to respond. I cannot help repeating here that this procedure as well as any stimulating treatment, must *not* be employed until we have completely removed the congestions from the prostate and prostatic urethra; in other words until the parts have become normal.

It will be seen, therefore, that the treatment for functional impotence above outlined is exceedingly rational and exactly the same as would be applied to any other set of muscles or organs in other parts of the body. As long as there exists any inflammation or congestion, we order rest to the parts, and employ means to remove the congestions by gentle massage of the prostate, the use of silver nitrate solutions as above outlined, and the internal administration of the bromides. Many patients become well as soon as the parts have become normal. In many others, however, after the prolonged misuse of the muscles (in many cases for a period of years) these have become weakened and need stimulation. We then employ the sinusoidal-faradic current in the manner just described together with the internal administration of strychnine.

PSYCHOANALYSIS

I believe that this would be a proper place to discuss the use of psychoanalysis as a therapeutic measure in impotence. Lest I be misunderstood, however, I will state at the outset that no one has greater respect for the theory of psychoanalysis than I have. No one appreciates more than I do the great value of psychoanalysis as a therapeutic measure in certain conditions. I have the highest admiration for Prof. Freud and his followers.

But the great trouble with so many psychoanalysts, whom I have met, seems to be that they are entirely oblivious of the

fact that there exist in every human being, besides the brain, sexual organs which have a profound influence upon the individual. For them, prostate and testicles might just as well be absent, while everything and every symptom is considered to be entirely and exclusively due to the brain or psychic. It never occurs to them to examine or to have examined the prostate or other parts of the system, which I have previously shown bear such an important relationship to the patient's condition.

Within the last few years the subject of endocrinology has been developed to an enormous degree, and yet, with all this development, the surface barely has been scratched. Our imagination is keyed to the utmost concerning the new truths and new conceptions of the entire psychic and sexual makeup of human beings of both sexes, which will be elucidated when we will have made further advance in the chemistry of the endocrine secretions and in the general physiology of the endocrine glands.

In view of the above, what becomes of the psychoanalyst's conception and treatment of such conditions, as homosexuality for instance, and all the various forms of inversion, when modern research has demonstrated the Manoilow Reaction* in the blood of some of these cases, when the female sex hormone, greatly in excess of the ordinary normal condition, has been found in some of these males, and when on operation or autopsy, even ovaries or portions of them have been found in some of them, showing definitely that their sex characteristics were not due to some peculiar or abnormal mental or psychic

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* The reaction of Manoilow is not a reaction based upon the presence or absence of sex hormones but is based upon metabolism. It is known that metabolism is different in the male and female and by an examination of the blood with this reaction we can determine whether the blood came from a male or female. The reaction is influenced by outside factors. If these factors are taken into consideration and we get a female reaction in a male person, it might explain the cause of his contrary sexual feelings without the aid of psychoanalysis. There is, however, quite some difference of opinion among endocrinologists as to the exact value of this reaction.

condition, but to the presence of the female endocrine hormones? I am fully aware that some of these reactions have not been *absolutely* established as yet and that in some cases there is a difference of opinion among the endocrinologists themselves concerning their value. I am merely pointing out which way the wind blows.

Again, whether we believe in the Steinach operation for so-called rejuvenation or not, we cannot close our eyes to the remarkable animal experiments made by him and his co-workers as well as by other scientists. These scientists have definitely proven that they can absolutely change the entire sexual desire of an animal of either sex, by removing the normal sexual glands of the animal and transplanting into it the sexual organs of the opposite sex. Yet psychoanalysts seem to ignore these experiments entirely.

There are very many other scientific experiments, such as the bringing on of puberty and sex desire in immature animals by pituitary and other gland implantations, which leave not the shadow of a doubt concerning the influence of the endocrine glands on sex life entirely independent of the function of the brain. But enough has already been said to show the errors of psychoanalytic treatment in many of these conditions.

As heretofore stated, I have the greatest respect for the entire subject of psychoanalysis, not only as a theory, but as a valuable therapeutic agent. I believe, however, that it should be used in the manner that its originator employed it. I understand that Freud does not treat any particular case by psychoanalysis until the patient has been examined by a trained urologist in order to rule out any possible organic disorder. I myself have from time to time sent cases to psychoanalysts for treatment, and these *selected* cases have generally been cured by their treatment for the very reason that they were cases in which the need of local treatment could be excluded.

IMPLANTATION OF TESTICULAR GRAFTS

I will now briefly discuss two other procedures which have been employed in the treatment of impotence. I refer to the implantation of testicular grafts either from men or animals, and to the Steinach operation. I am discussing them both together because they are both employed on the same theory, namely, the absorption of hormones from the testicles into the blood. In the first instance, portions of testicle are directly implanted into human testicle by special technic, or implanted in various other parts of the body, or as recommended by Stanley, portions of testicle are crushed up and injected with a large size syringe. In all the procedures just mentioned, the object is to introduce new testicular grafts with a view that they may either replace the hormone, which is not supplied in sufficient quantities by the patient's own testicle, or by their presence stimulate the undeveloped or atrophic testicles of the individual.

The Steinach operation consists in tying off one or both vasa, with the object of increasing the interstitial portions of the testicle and thereby increasing the supply of hormone to the body. It is intended to be an improvement on the method of injecting manufactured testicular hormone into the blood, by supplying a continuous absorption of the patient's own hormone.

I have no personal experience with the first procedure, namely that of gland transplantation, but have very carefully followed the literature on the subject and have also conferred with those who have performed the operation. As far as impotence is concerned, the general opinion seems to be that the operation has been a failure in most cases. There are reports of a general renewal of activity, an improvement in the patient's general physical and psychic makeup, a stopping of the oncoming symptoms of senility, and in some cases an actual rejuvena-

tion of the individual, thus actually restoring him to what he had been ten or twenty years earlier. With this general improvement there has sometimes been a temporary increase in the libido and ability to perform the sexual act. As a rule, however, these favorable conditions continue but a short time, and in the vast majority of cases the graft finally atrophies and the patient reverts to his former state. A very remarkable exception is reported by Walker in his recent work, where a young man of twenty-nine had one testicle completely destroyed and the blood supply of the other so damaged by a shell wound received during the war, that it atrophied a few months later. In that case a testicular implantation had not only brought back his secondary sexual characteristics, but had actually, and apparently permanently, cured his impotence. Other cases reported by Walker did not have the same happy results, and even where there had been favorable physical and psychic improvements from the operation, they were not always permanent.

Coming now to the Steinach operation, I have performed it several times and have followed up some of the cases performed by my confréres. All my own cases were young men and the operation performed solely for the purpose of relieving the impotence. Only in one case was this accomplished. In all my other cases as well as those of others which I have followed up, there was absolutely no improvement in this regard. It seems to be the opinion of those who have frequently performed this operation that more success may be expected in the case of very old patients than in very young ones. Like so many other facts connected with the Steinach operation, this conclusion seems to be difficult to explain. Theoretically one would expect that there would be more hormone produced by the testicle of a young person than by that of an old man, and that as the result of the operation, therefore, more hormone would be absorbed into the circulation of a younger than of an older

person. Theoretically, we might also conclude that the Steinach operation would do no more than the pathological occlusion of the vas does in the case of a gonorrheal epididymitis and yet I have never seen a case in which the sexual powers were benefited by an attack of epididymitis.

Lest I be misunderstood, however, I wish to emphasize that I am not referring to the acute stage just following an acute attack of epididymitis, but to the condition of affairs years later, when all the acute symptoms have subsided long since and when all we note is the thickened condition generally at the tail of the epididymis which tells the story of a previous epididymitis. It is true that Hagner remarks, without giving any statistics, however, that he had never found a case of impotence in a person who had had an attack of epididymitis. Were this correct in the majority of cases, it would be a wonderful argument in favor of the Steinach operation.

This startling statement, coming as it does from one of our foremost urologists, led me to investigate my own cases of impotence in this regard. I therefore examined the histories of the last 200 cases of impotence in my private practice and found evidences of an old epididymitis in over 11 per cent. of them. My own experience, therefore, not only refutes that of Hagner, but seems to show that a previous epididymitis actually is more frequent in the impotent than in the rest of humanity, since I do not believe that even if we examined 200 males without selection we would find signs of a previous epididymitis in 11 per cent. of them.

With a view of definitely and scientifically determining this latter fact, I have made strenuous investigations, but have unfortunately not been able to find statistics which could tell me the percentage of a previous epididymitis in the general run of mankind. It would be obviously unfair to examine dispensary or hospital cases, as we would then only be considering

the sick. Genitourinary statistics would be even more fallacious, as we would then be considering only a class of patients among whom a venereal history would be very common.

To overcome these difficulties, I consulted the reports of the draft board during the late war, and also wrote to officers who had been connected with it, but found that the presence or absence of a thickened epididymis had not been noted in the general physical examination. This is easy to understand as it is obvious that a recruit, who years previously had suffered an attack of epididymitis and had completely recovered with the exception of an occluded vas, would not be incapacitated from serving his country as a soldier. I also wrote to the military authorities at West Point in order to ascertain the percentage of old epididymitis in applicants to that institution, but was again informed that the examination of applicants does not include this condition. With the same object in view I wrote to the Life Extension Institute, in New York City, but was likewise informed that such conditions were not coded in their statistics.

Taking all facts concerning the Steinach operation into consideration, I do not believe that it is justifiable to perform this operation on a *young* man, with the doubtful hope of curing his impotence, while at the same time rendering him absolutely sterile on that one side. As I have shown in previous pages, the vast majority of young men can be cured by certainly safer methods. Concerning the more recent modifications of the Steinach operation, which do not render the patient sterile on that side, adequate statistics are not as yet available. It is interesting to note that Benjamin, who has probably performed more Steinach operations in this country than anyone else, makes the following statement:

"Anyone who would operate too freely in cases of impotence will surely experience great disappointment. The symp-

tom of premature ejaculation, especially, is hardly ever favorably influenced by vasoligation. . . . . To repeat once more, cases of functional impotence which are not due to premature or physiological senility, could form an indication for the operation, if gonadal deficiencies are apparent, but I would advise in all those cases psychotherapy in addition. Patients with the probable diagnosis of a psychic impotence should not be operated on, unless the operation is considered an ultima ratio, after thorough psychotherapeutic measures have failed to accomplish results."

After such conclusions it appears rather preposterous to still regard the Steinach operation as a "sexual operation." The only sexual element in the procedure is the point where the impetus is given: the sex gland. Decidedly better results, as far as impotence is concerned, are obtained where the impotence is one of the symptoms of approaching age, either premature or physiological. Here naturally the latter and not the impotence was the indication for the operation.

ORGANIC EXTRACTS

I now wish to say a few words concerning the use of organic extracts, especially those from the testicle, in the treatment of impotence. The remarkable results sometimes obtained in the female for various gynecological conditions of extracts from the female sex glands, held out the hope for similar results in the male. I have tried almost all the preparations on the market, with practically no result. It is really remarkable how enthusiastic some of our prominent German sexologists seem to be regarding one or the other glandular product, as gathered from the advertisements of the particular preparation under consideration. And yet, when the preparation is tried on an American under apparently ideal conditions, no result is obtained.

In one of my articles, written many years ago, I compared the extract from the male glands with those from the female

glands, and stated that somewhere in the preparation of extracts from the male sexual glands something seems to occur during the process of manufacture which destroys the active principle, while this does not happen in the preparation of female gland extracts. I was led to this opinion particularly by clinical observations which proved that we not only get effects from the use of female gland extracts, but that we sometimes get alarming and even dangerous symptoms if these extracts be given in larger doses than required. In the male extracts, on the other hand, we not only get no results whatever, but there are no bad effects even if such extracts are given in comparatively enormous quantities.

While the above explanation may be partially true another reason has been recently given for the indifferent results in the male, and this, theoretically at least, appears quite rational. It has been pointed out that while the testicles undoubtedly form the male sex hormone, they do not store it, but it is immediately absorbed into the blood.

An extract made from the testicle itself, therefore, whether human or animal, must of necessity contain only so minute a quantity of hormone as to be entirely negligible from a therapeutic standpoint. Acting upon an entirely different principle, but taking the above facts into consideration, an effort is now being made to prepare an organic extract which shall contain sex hormone in sufficient quantity to be of therapeutic value. Whether this new experiment will turn out successfully must be left to the future.

USE OF TINCTURE OF CANTHARIDES

I desire to record here some experiments I have made with tincture of cantharides in cases of impotence. It is well known that this drug, if taken in large enough doses may cause priapism, for which reason it had often been given for the purpose

of bringing on erection. The drug is, however, a very powerful irritant to all mucous membranes. If taken internally, in sufficiently large doses, it causes a gastroenteritis, a nephritis, and an intense inflammation of the mucous membrane of the bladder and urethra. It is by causing this inflammation of the genitourinary mucous membrane that the erections are brought on, and death has at times resulted from its use for this purpose.

Several years ago it occurred to me that if cantharides has this effect, what is the necessity of administering it in poisonous doses, thereby causing gastroenteritis, nephritis, and cystitis in order to bring a sufficient quantity of the drug into contact with the mucous membrane of the urethra in order to cause erection, when by means of the endoscope or with the syringe the drug may be applied directly to the urethral mucous membrane? Accordingly, I started my experiments with very weak solutions, and gradually increased the strength, until it became evident that about a 50 per cent. or at most a 75 per cent. solution of the tincture of cantharides was as strong a dosage as could be given by instillation. I even made direct application of the pure tincture of cantharides to the verumontanum, and, while irritation was produced, as shown by a sense of burning and frequency of urination, there was never the slightest indication of erection. No harm resulted to the patients from these experiments. Cantharides given internally may possibly be excreted with the urine in some peculiar chemical combination, or may form some chemical combination in the blood, which is excreted in such a form as to irritate the erection center and thus cause the priapism. A search through medical literature for some explanation as to how cantharides is excreted threw no light upon the subject. To those who have access to physiological laboratories, it might be interesting to work out this problem, or the experiment may be tried by giving rabbits or other animals poisonous doses of cantharides, and then collect-

ing their urine, to ascertain what effect this urine may have if applied directly to the posterior urethra.

The treatment of those cases in which there is a congenital lack of sexual vigor is very unsatisfactory, and all we can do is to conserve whatever power they have, by warning them against excessive coitus and withdrawal.

It is very important to impress upon patients that the best we can do is to get their organs into normal condition, but that we cannot so educate their organs that they can abuse them without coming to grief. In other words, if we have succeeded in curing the impotence, which was caused by *coitus interruptus,* the patient must be made to understand that if he resumes the practice he will surely relapse, and the same is true of the other etiological factors.

CHAPTER V

AN UNDESCRIBED CAUSE OF IMPOTENCE IN THE MALE

THE recent tendency has been to see to it that the young female should know more of sexual matters before marriage than has been the rule heretofore. This is perfectly proper. It seems to be taken for granted, however, that no such instruction is necessary for the male, because most men are supposed to have indulged in sexual intercourse before their marriage and therefore do not need it.

I have had several recent cases, however, in which the only reason for the supposed impotence was due to the fact that neither the husband nor the wife knew how to perform the coital act. It, therefore, has been my custom for some time past to request every patient who had been continent up to marriage, and who complains of impotence, to lie down on the couch and demonstrate the position which his wife assumes during the act. Thereupon the patient lies down with both legs fully extended and parallel, just as in the ordinary sleeping posture. I ask him particularly whether the wife had her knees flexed and thighs abducted during the act, but generally am assured that this was not the case. It easily can be seen that it would be impossible for coitus to take place in such a position, and that if such unsuccessful attempts are continued for a long period of time, real impotence may result.

It may seem absurd that instruction should have to be given in this regard, but I must emphasize that having seen quite a number of cases in which the condition had lasted several years, and where the patient had been treated for the supposed impotence by sounds, electricity, prostatic massage, instillations, etc., the importance of this investigation becomes evident at once.

In some of my cases the patient had been under the care of prominent and excellent genitourinary surgeons as well as neurologists, but the doctors had never guessed the real cause of the condition. In one case the patient had been indulging in normal coitus with a prostitute for many years before marriage, but had never noticed the position she had assumed. He was greatly surprised, therefore, when he could not have proper intromission with his wife after marriage. Strange to say, I even have had two medical men, each recently married and each continent before marriage, where the above mentioned cause was the real reason for their failure.

It is very gratifying indeed to be able to cure the conditions with a few words of explanation, especially in those cases where other specialists had failed, and the condition had lasted for several years. The recently increasing tendency towards continence in young men will undoubtedly increase the number of such cases, and it therefore behooves every practitioner to be on the lookout for the cause above mentioned.

CHAPTER VI

PSYCHIC IMPOTENCE

DEFINITION

PSYCHIC impotence is that condition in which the impotence is caused by inhibitory influences from the higher centers. While in organic impotence the trouble is with the end-organs, and in functional impotence it is generally the sexual centers which are at fault, in psychic impotence there are healthy end-organs and healthy centers, but the actions of the centers are interfered with by inhibitory influences. Groag justly calls attention to the fact that the term has been very unhappily chosen, inasmuch as some of the other forms of impotence are also partially psychic, and he therefore suggests the term "inhibition impotence" instead.

ETIOLOGY

Any act or factor which can influence the imagination may be the cause of sexual inhibition. Among the more common factors may be mentioned fear of venereal disease, fear of pregnancy, fear of being caught in the act, fright, disgust of the partner, fear of being impotent on account of youthful masturbation, etc. Among the unusual causes may be mentioned joy, as in a case reported by Roubaud, where a man became impotent on hearing that he won a large sum of money in the lottery; marital indifference, as in a case mentioned by Sturgis in which the wife considered the conjugal act to be vulgar and indecent, and during coitus indulged in running comments upon the performance; superstition is reported in a case by Hammond, where a man believed his wife had given him a certain glance to make him impotent while away from home; the celebrated case men-

tioned by de Caux, in which a mathematician was always diverted from coitus by a certain geometric problem coming up at the psychic moment.

PATHOLOGY

In ordinary coitus, as soon as the libido is aroused, an impulse is sent from the cerebrum (*C,* Fig. 1, page 123) to the erection center (*R*) and erection occurs. In the condition under consideration the libido is normal, and may even be very powerful, but inhibitory impulses are sent from other cerebral centers to *C*, preventing it from sending impulses to the erection center (*R*). In those cases where erection has already commenced, the inhibition is transmitted further from *C* to *R,* thus stopping the forming erection.

SYMPTOMS

There are two forms of psychic impotence: (1) misdirected libido; (2) inhibited libido.

1. *Misdirected Libido.*—(*a*) Sexual perverts. Normally the libido of a mature man is directed toward a female. If, however, the libido is directed toward any other source, the person is a pervert. Sometimes such men marry for social or economic reasons, but the presence of the wife does not excite in them the libido, and they are impotent.

It generally has been considered, heretofore, that the various forms of inversion and aversion were due to some abnormal condition in the cerebrum or to some abnormal psychic makeup. Modern endocrine studies, however, seem to indicate that they are endocrine in nature. Steinach and his co-workers were able to change the entire sexual libido in animals by removing their normal sexual organs and transplanting in them the organs of the opposite sex. Steinach, also, claimed to have found in the testicles of homosexual individuals, certain cells which resem-

bled the luteal cells of the female rather than the normal male interstitial cells.

While it is true that this latter observation of Steinach has not been confirmed by other workers, we do know that in some of these homosexual individuals portions of the opposite sex have sometimes been found in various portions of their anatomy either on operation or at autopsy. In the blood of some of the male inverts, also, more female sex hormone has been found than in normal men.

Another point against the psychoanalyst's conception of certain forms of inversion is the fact that Weil, after taking bodily measurements of many homosexual individuals, came to the conclusion that the bodily proportions of male and female inverts generally resemble those of eunuchoids rather than those found in normally developed men and females. Lichtenstern, Pfeiffer, and Mühsam have succeeded in curing this condition by grafting normal testicular tissue, but as a rule the operation is not successful. On the other hand, Stekel, who is certainly a very enthusiastic and experienced psychoanalyst, had to confess that he had never witnessed a complete cure of homosexuality by psychoanalysis. Other forms of sexual inversion, such as sadism, masochism and fetishism, etc., may be left to the alienist and psychoanalyst.

(*b*) Impotence of the roué. On account of too frequent coitus, these persons find no longer pleasure in normal coitus, and therefore seek for stronger and stronger methods of excitement in order to cause erection (Moll's excitement hunger). According to our diagrammatic scheme, the impulses from *C* (cerebrum) to *R* (erection center) are too weak during normal coitus to excite *R*, so that a strengthening of the impulses, through the addition of new psychic excitements, is necessary.

(*c*) Relative impotence. Under this heading may be mentioned those cases where the husband, after many years of mar-

ried life, becomes impotent with his wife, though perfectly potent with other women. To this class also belong those curious cases, where men are potent only with certain types of women, either blondes or brunettes or other physical characteristics, and are impotent with all other types of women. Also those cases in which the man can only indulge in coitus if the woman has a certain kind of dress on, or her hair done up in a certain way. Groag rightly remarks that the term has been very unhappily chosen, as the two previous kinds of impotence just described are also cases of relative impotence.

The three forms of impotence due to misdirected libido just mentioned are sometimes classed under functional rather than psychic impotence.

2. *Inhibited Libido.*—The symptoms have already been partly described with the etiology. The person has normal or even intense libido, but just at the exciting moment either the erection fails to occur or if it has started it suddenly ceases. At each further attempt the same thing occurs, and may even be worse. The same train of neurasthenic symptoms may follow this condition, as has been mentioned in the other forms of impotence. As far as the patient is concerned, he is just as unhappy as if the impotence were caused by the most pronounced organic or central lesion.

DIAGNOSIS

The diagnosis can only be made by a careful consideration of the patient's history, together with a most careful genito-urinary examination, as well as a general examination. Cases which at first blush seem to be obvious cases of psychic impotence may, on careful examination, turn out to have a definite organic or functional etiology. The most important points in the diagnosis are the presence of normal libido, the absence of organic defects or diseases, the absence of a history of *coitus*

interruptus or other unnatural sexual excitation, and the presence of a definite psychic history.

It is just in this form of impotence that the psychoanalytical diagnosis is of great importance. I cannot impress the fact too emphatically that the diagnosis should be made by an expert medical psychoanalyst, and that the so-called lay psychoanalyst should be avoided.

In these cases the psychoanalyst may discover the origin of the inhibition. This sometimes goes back to some psychic trauma, which may have originated many years before or even before adolescence, during the psychic sexual development of the patient.

PROGNOSIS

The prognosis is generally excellent.

TREATMENT

The treatment is entirely psychic, but this does not mean that the patient should be neglected. It is a grave mistake to tell the patient there is nothing the matter with him, or even to laugh at him. For this reason as well as for proper diagnosis it is well to carefully examine him, because the thoroughness of the examination impresses the patient and helps toward the cure. Endoscopic examination, in which the patient sees the lighted instrument enter the canal and appreciates that the physician can see everything inside, is especially impressive. Electricity has here its greatest value. It is this form of impotence that has been cured by anything varying from a bread pill to Christian Science. Psychoanalytic treatment is of the greatest value in many of these cases. Hammond has been successful by giving the patient some indifferent pills, telling him that he may sleep with his wife, but under no circumstances indulge in coitus until all the pills have been taken. Very often the

patient breaks the rule and finds himself potent. It may be necessary to instruct the wife and have her assist in the coital act, and by her common sense in many ways also. In the case of the mathematician above referred to his wife cured him by making him partially intoxicated before coitus. A change of scene or even different lodgings has resulted in a cure.

CHAPTER VII

IMPOTENCE IN THE FEMALE

DEFINITION

Impotence in the female may be defined as that condition in which the entrance of the male organ for copulation is impossible.

ETIOLOGY AND PATHOLOGY

We may recognize two forms of impotence: (1) obstructive and (2) non-obstructive or neurotic.

1. *Obstructive Impotence.*—Here there is some mechanical obstruction to the intromission of the penis, or an absence of the parts. Passing from without inward there may be present such conditions as *abnormality of the hymen* in which this organ is of excessive strength and rigidity; also imperforate hymen; *adhesions between the labia majora or labia minora,*—these adhesions may either be congenital or acquired; *excessive size of the labia majora,* as in elephantiasis; *new growths* about or in the cellular tissues of the external genitals; *Hottentot apron,* or hypertrophy of the nymphæ, is occasionally met with; *hypertrophy of the clitoris* has also been found to attain such enormous dimensions as to interfere with coitus; *absence of the vagina, stricture of the vagina,* either acquired or congenital; *irregular ligamentous bridges* sometimes form in the vagina as the result of tears on opposite sides of the vagina; *tumors of the vagina; duplication of the vagina; extreme narrowing of the vagina* sometimes accompanies marked pelvic contraction. In rare cases the vagina may be occupied by a markedly elongated and hypertrophied cervix, by inversion or prolapse of the uterus, by uterine polyp, and by cystocele or rectocele. These latter deformities must be extreme to interfere with coitus, as

I have seen very marked cases of all these latter deformities without however interfering with coitus.

In addition to the conditions just mentioned there are certain orthopedic conditions which very often seriously interfere with normal intromission. Among such conditions are deformed pelvis, dislocations of the hip, arthritis, and similar conditions which prevent the woman from spreading her thighs wide enough to allow the male organ to enter the vagina.

The importance of examining the wife in cases of impotence in the male, especially in the recently married male, cannot be overestimated. Moreover, I would suggest to the orthopedist that whenever he encounters a condition in one of his female patients, which might later on interfere with coitus, he should insist upon relieving the condition, even if there exists no other indication for operation. If the orthopedist is in doubt in the case of a young girl, he should ascertain whether she can properly flex and abduct her thighs, without of course letting her know the purpose of the examination. In other words, he should place her in the coital position. As above stated, if he finds any impediment, he should insist upon its immediate relief and not wait until the girl gets married, as such impediment may lead to all kinds of tragedy, including annulment and even suicide.

There is just one more caution in this class of cases. Many believe that with proper adjustment, the parties may be able to get together and so avoid an operation. I have seen a book dealing with sexual matters in which the writer says he knows of 82 different positions which may be used for coitus. There is no doubt that in some very minor disabilities, adjustment between the parties may be accomplished, but in the vast number of cases such adjustment is not practical. I have had many cases of males who have become impotent by having been compelled to indulge in coitus in abnormal positions. In the majority of

cases, however, the husband soon becomes disgusted with the abnormal procedure and seeks his pleasure from other sources with all the serious possibilities. I therefore again would urge my orthopedic friends not to treat this condition too lightly, to think of the complications that may arise in every girl in this condition, and not to rely upon a possible adjustment after marriage.

2. *Non-obstructive or Neurotic Impotence.*—In this class of cases the male organ can enter the vagina, but causes such extreme pain or calls forth such violent spasms of the muscles that coitus is impossible. Under this heading may be mentioned vaginismus, dyspareunia and all the etiological factors which are mentioned under these conditions (see chapters on Vaginismus and Dyspareunia).

SYMPTOMS

The only symptom is the inability of the male organ to enter the female genitals: there may be other symptoms present (see Dyspareunia and Vaganismus), but these are due to the pathological condition and not to the impotence. As a general thing, impotence in the female does not bring with it the long train of neurotic symptoms which have been described in the male.

DIAGNOSIS

The important thing is to diagnose the cause of the impotence.

PROGNOSIS

Prognosis depends upon the ability to remove the cause.

TREATMENT

The treatment of the obstructive form is mainly surgical. Even complete absence of the vagina has been cured by forming an artificial vagina from the surrounding tissues, with the help of skin-grafts. For the treatment of the neurotic forms see the chapters on Dyspareunia and Vaginismus.

PART III

MASTURBATION

Introduction

Chapter VIII. Masturbation in Girls and Boys Before Adolescence.

Chapter IX. Masturbation in the Adult Male.

Chapter X. Masturbation in the Adult Female.

CHAPTER VIII

MASTURBATION IN BOYS AND GIRLS BEFORE ADOLESCENCE

INTRODUCTION

MASTURBATION, or Onanism, is the production of the sexual orgasm either by manipulation of the genitals by the hand, by friction of the thighs, by the use of various implements, or by the imagination (psychic masturbation). Neither of these terms is strictly correct, as masturbation, from its derivation, presupposes the use of the hand for the excitation of the orgasm, which is frequently not the case, and Onanism, the sin of Onan, will be seen, from its Biblical description, to be really withdrawal and not masturbation. But long and common usage compels us to retain these terms.

Masturbation is the most widespread of all sexual diseases, not even excepting gonorrhea. Indeed, so common is it, that some German authorities consider it physiological, and one author states that the boy or man who says that he had never masturbated is still masturbating.

In the following pages I will only discuss masturbation as it occurs in practically normal individuals, and will not discuss the disorder as it is found among idiots, the insane, or sexual perverts. I will state at once, that it is my firm belief, based upon an extended experience with primarily normal individuals, that masturbation, no matter how severely indulged in, never leads to idiocy, insanity, nor sexual perversion. The disease is so widespread that it is no wonder that we find such a large percentage of masturbation in the histories of these latter conditions; nor can we conclude from this fact that the latter conditions were caused by early masturbation, for we would get the same percentage in the histories of perfectly normal individuals as well. I will discuss (1) masturbation in boys and girls before

adolescence; (2) pseudo-masturbation in infants; (3) masturbation in the adult male; (4) *masturbatio interrupta;* (5) *masturbatio incompleta;* (6) *impotentia masturbationis;* (7) masturbation in the adult female.

Masturbation is not at all uncommon in the very early months of childhood, but I believe that the theme has been much confused by such authorities as Lindner, Hirschsprung and others, who include under masturbation any state of voluptuous excitement, even when the excitement is brought about not by direct irritation of the genitals; and these authors include under this heading such acts as sucking movements with the lips, sucking the fingers, picking the nose, and many like acts. While from a purely Freudian standpoint these acts may be reasoned out to be sexual in origin, I do not consider them in the following pages as acts of masturbation.

ETIOLOGY

According to Pfandler and Schlossmann, in cases occurring during the first months or years of life, *that is,* before there is even a suspicion of sexual feeling, the condition mentioned is caused by some organic pathological condition about the genitals. Very frequently we find intertriginous processes, especially about the vulva. Often, too, the irritation is caused by worms. The pleasurable relief from the itching which is at first the only result of scratching or rubbing the vulva, and pressing the thighs together, soon engenders a habit which is persisted in on account of the voluptuous sensation which it excites. In infant boys, the irritation caused by retained smega due to a tight or long prepuce leads at first to scratching for relief, and, if the cause is not removed, later to the manipulation of the penis for the newly discovered voluptuous sensation produced thereby. Sometimes irresponsible nurses quiet crying children by titillation of the genitals, and thus start the habit very early in infancy. Irritation caused by highly acid urine may also start the trouble.

Jacobi has long ago called attention to the fact that in the young boy the prolonged handling of the penis for purposes of urination is in itself a cause for the commencement of the habit. He says: "The young child is but clumsy and the reverse of adroit. It takes him time to disentangle the organ. Frequently in the streets and gardens have I seen sympathizing little friends, mostly of the other sex, and then somewhat older, or servants, busy with rendering the required aid in the emission of the urine."

In older children, especially those that attend school, certain exercises in which the legs are frequently rubbed together may be the origin, while warm feather beds and spanking may often be the starting point. But, in a large number of cases that develop for the first time among school-children, the practice has been actually taught them by older boys; indeed, in some cases, the practice has developed into a veritable epidemic. During school-life, the condition is much more common among boys than girls, although by no means uncommon among the latter.

PATHOLOGY

In the vast majority of cases occurring at this time, no organic changes have as yet taken place, nor has such a vicious circle been produced as will be presently described as occurring in the adult male. There is simply a local irritation of the genitals present, with as yet no permanent change in the urethral mucous membrane. In the majority of cases at this time, if the habit can be abolished by removing the local irritant which started the trouble, and adding thereto moral suasion to be presently described, everything returns to normal without any special treatment. There are some very precocious cases, however, that develop so rapidly as to cause, even at this stage and at this early age, the same local and central irritation which is found in the confirmed adult masturbator. The pathology of

these cases, being the same as in the adult (only having developed before adolescence), will be described later on under the caption of Masturbation in the Adult Male.

SYMPTOMS

The *local* symptoms consist simply of redness, and sometimes a slight swelling of the prepuce in the male, and of the vulva in the female. Sometimes a slight vaginitis exists in the latter.

The *general* symptoms in very young children are sometimes very hard to recognize. In them masturbation consists mostly of thigh friction or of rubbing the genitals against some article of furniture. Almost endless varieties of methods are employed in the habit.

The symptoms in older children who indulge the habit are quite characteristic. They are generally more bashful, more retired, more dreamy, more easily embarrassed than normal children. They complain of headaches, are easily fatigued, are generally anemic and run down. They do not play with other children and frequently avoid their society. Boys are as a general rule more cowardly and timid, and are frequently praised by their teachers for their quiet and orderly disposition. Some pediatricians claim to have noticed cases of functional heart disease due to masturbation.

DIAGNOSIS

In some cases the diagnosis is quite easy, while in others, unless we are on the lookout, the disease is often not suspected for a long time. As in the case of so many forms of sexual neuroses, the patients do not come to us, saying that they are suffering from sexual neuroses, and have such and such symptoms, but, on the contrary, complain of the most varied symptoms (*vide supra*); sometimes only headaches, loss of appetite, and general nervousness, etc. Often they do not complain at all, and this is the regular thing with very young children, until

the mother notices something is wrong with the child. Most of the symptoms in such cases are often thought to be due to errors in digestion, overwork at school, etc., without the real cause being suspected. It is of no use to ask a boy directly if he masturbates, as in the vast majority of cases he will positively deny it, and it often requires the greatest tact on the part of the physician to get at the truth. The most important point in the diagnosis of this condition is to bear in mind the possibility of such a disease in all cases of inexplicable nervous or psychic symptoms. Teachers in school and parents also should be taught to be on their guard, and should know of the frequent existence of this neurosis so as to be able to detect it at the earliest possible moment. The physician should not neglect an examination of the genitals in any suspicious case, and very often the local symptoms will tell the tale. In young boys, after an examination of the genitals by the physician, whether he finds anything there or not, it is often advisable for the physician, if he is reasonably sure of his ground from the general symptoms, to immediately tell the boy, after the examination, that he masturbates. The boy, being taken off his guard, if guilty, will imagine that the physician can tell by the examination, and will often admit the truth at once.

COURSE AND PROGNOSIS

The earlier the habit is discovered and attended to, the easier it is to cure. In very many cases children themselves notice the evil consequences of the habit and stop it voluntarily, without any special treatment whatever. But even cases of very long duration can be cured, if not by the method presently to be described, by the method of treating adults, which they really are. The very fact that almost every man or boy has at one time or another masturbated for varying lengths of time, and that we can get a history of masturbation in almost every normal

person, even among the great geniuses of the world, shows that it is not the terrible disease which quacks find it to their interest to make it out to be. At the same time, it is sufficiently serious to command the earnest attention of every conscientious physician and teacher. While under its baneful influence, the entire psychical and physical condition of the child suffers. He can attend to his lessons, but does so under a greater amount of nervous tension and energy. And so, while recognizing that it is a curable disease, and a very common disease, and that, in the vast number of cases, it leaves no permanent bad results, we should nevertheless not consider it beneath our dignity to treat it, if for no other reason than to keep the child away from the baneful influences of quack physicians, and because of the extreme importance of early recognition and treatment, so that the child can develop both physically, mentally, and psychically with the least expenditure of nerve energy.

TREATMENT

1. PROPHYLACTIC

Parents should be very careful to remove anything or any cause which might produce irritation of the genital regions, or which might create a tendency for the children to handle these parts. A tight prepuce should either be loosened or circumcision be performed. A long prepuce should be removed either entirely or partially. Worms and intertriginous processes about the genitals should be removed and cured. Boys should not be allowed to associate with much older boys, for fear of being taught the habit. According to German authorities, boys in school should always have their hands on the desk or otherwise exposed to the view of the teacher, so as to give them as little opportunity as possible to handle their genitals. They also recommend, on this account, that young boys' trousers should be made without side pockets, as these pockets are frequently

used by boys for purposes of masturbation. Gymnastic exercises in which friction of the thighs might frequently occur should be avoided. Parents should be careful in the employment of nurses, as unscrupulous nurses often employ this method to quiet the children. Children should not indulge in tea or coffee, and alcoholics are to be particularly avoided. Older boys should be instructed to empty the bladder before retiring, not to sleep with too many covers on, and to rise early and empty the bladder at once. For, sometimes even at this early age, a distended bladder and warm bed-coverings may cause an early erection.

GENERAL TREATMENT

The first thing to do is to search for and remove the cause which started the trouble. It is not necessary to repeat the various etiological factors, as they have been mentioned in the etiology. The prophylactic treatment just outlined is even of more importance when the habit has already been indulged in, and should be strictly adhered to. In very many cases, especially if the habit has just been commenced, the mere removal of the cause of the genital irritation, together with the prophylactic treatment, is sufficient for a cure. Spanking is especially to be avoided, as in some children the act of spanking arouses erotic impressions. Older boys should be spoken to in very plain but tactful language, and their sense of manhood be appealed to. The object of treatment is to direct the child's interest into other and more natural channels. At this time the parent should obtain the child's confidence and every method be employed to strengthen his will-power and help him break the habit himself.

It is of very little use to try to treat the patient by employing some one to watch him continually; I believe the method is, in reality, harmful. The methods employed by the masturbator are so numerous, and the opportunities for committing the act

so easy, that no matter how careful the watching, it will be of no avail. I have had under treatment a young boy of exceedingly wealthy parentage. Before he was sent to me the parents had employed two male nurses who were with him both day and night, who went with him, even when he had to go to the toilet, and yet the boy boasted to me that he could masturbate while both nurses were watching him. The little fellow, when he came under my care, was already a confirmed masturbator, in whom the pathological processes had already advanced to the same degree as that which we find in the adult male, to be presently described, and he was treated in the same way as an adult, and was cured and remained cured by the method to be described later on under that caption. I believe constant watching not only useless but harmful, because it constantly keeps the boy's mind reminded of his genitals. Every time he sees his watcher he thinks of his sexual apparatus, and that is the very worst thing for him. Besides this it lessens his will-power, and is almost an incitive to see if he can be shrewd enough to deceive his guardian.

Except in very exceptional cases, I do not believe in restraining apparatus. In some cases they have done good, but in the vast majority of cases they not only do no good but positive harm. In the first place they also concentrate the child's attention on his genitals, but, and what is even more important, they stimulate the child's inventive genius in many cases, to substitute one form of masturbation for another. Thus, boys who have been masturbating by manipulating their genitals with their hands, and who have their hands tied together, or so tied that they cannot reach their genitals, very often invent a method of masturbating in which the hands can be dispensed with, such as thigh friction, pillow masturbation, etc. Such method of treatment may even be the starting point for psychic masturbation. There have also been reported severe injury not only to

the skin, but even to the genital organs, from either badly fitted restraining apparatus or from the effort of the patient to masturbate with the harness on. In short, except for the very bad cases, the best method of treatment is, first to remove the cause of the local irritation, and then to appeal to the child's will-power and manhood, with a full and tactful explanation of the trouble. At the same time, the child's general health should be improved by tonics and well-directed outdoor exercises, and an effort should be made to direct the child's mind into other and more natural channels by finding objects of special interest. The bad cases, the young boys who are confirmed masturbators, are really precocious in this respect, and, as regards their sexual and psychic make-up, are actually adults, having the same pathology as adults and are to be treated as such.

PSEUDOMASTURBATION IN INFANTS

Rachford, in his Presidential Address before the Nineteenth Annual Meeting of the American Pediatric Society, calls attention to a condition which he calls "pseudomasturbation in infants." He says that it has been previously described under the titles of "Thigh Friction" and also "Infantile Masturbation," and describes it as follows:—

"It is commonly accomplished with the child lying on its back; the thighs are flexed, crossed and pressed tightly together, closely embracing the external genitalia; in this position the infant makes a wriggling or up-and-down body movement and rubs its thighs together. In other instances the genitalia are rubbed with the hands or feet or against some piece of furniture or other foreign object. These movements are apparently attended by a pleasurable excitement; the face is flushed and there is a marked increase in the general nervous tension. Following this act, which continues for a few minutes only, there

is a general relaxation, accompanied by mild perspiration, quiet contentment and, in some instances, sleep."

The etiological factors are exactly the same as in true masturbation; the treatment is exactly the same; it takes about two years to cure the child of the habit, and in some exceptional cases the disease runs into true masturbation.

The author lays stress upon the point that while the external genitals, as well as the bladder and rectum, are almost fully developed at birth, the internal genitals, especially the uterus and ovaries, are almost rudimentary and do not undergo any development till about the tenth year. From this he argues that there can be no real masturbation, except in exceptional cases (which he reports) during the early years of infancy.

I confess, however, that I cannot at all agree with this author. Any one reading the above description in connection with an older child, would unhesitatingly pronounce it to be masturbation pure and simple. The fact that a child may be cured of this habit during infancy, and then later on, through a repetition of the same or similar causes, or through bad companions again contract the vice, is by no means an argument that the first condition was not a true case of masturbation. The sexual sense is not entirely dependent upon the internal genital organs, and the fact that these organs lie apparently dormant for about ten years, is no proof whatever that they may not be exerting through some internal secretion, perhaps, an influence on the sexual sense. The modern theories of Freud and his followers seem to show that the sexual sense is not by any means absent in young children. Furthermore, I can see no use in further complicating the nosology of the subject, by inventing a special disease, and calling it pseudomasturbation instead of masturbation, particularly if it has the same etiology, the same symptoms, the same treatment and the same prognosis as the condition we all recognize as masturbation.

Chapter IX

MASTURBATION IN THE ADULT MALE

IT IS a pity that this subject is made so much of by the medical quacks and their advertising literature, and so little attention paid to it by the regular physician. "Of what use," says Vecki, "to a man who suffers from weakening pollutions is a physician, who, following the example of renowned clinicians, laughs at him and sends him home, with some insignificant and useless prescription?" The same may be said of masturbation. It is no wonder that the patients go to the quacks, when the average physician does not care to bother with him or always treats the condition as a mere neurosis. I know of one physician who sends his patients to the mountains for masturbation, treating it as a neurotic condition. At the other extreme, I have spoken to the head keeper (not a physician) of one of our largest public reformatories, who told me that he "treated" this condition by placing the culprit in a dark cell for a week, where, besides the total absence of light, he receives only one meal in the twenty-four hours, consisting of a loaf of bread and a pitcher of water. "But so bad are the boys," he added, "that even this treatment does not cure them." Comment is unnecessary.

This, on the one hand, is one conception of the subject. Unfortunate, it is true, but we may console ourselves in a way that this conception is held by unethical quacks; and even if held by ethical physicians, it is only by those who have not made a study of the subject.

But it is far more serious when opinions are held by a group of physicians, who claim to have studied this subject, and when those opinions are directly at variance with our experience

based upon the examination and treatment of hundreds of cases studied with minute detail and followed over a very long period of years. I refer here to the doctrines and advice given by those who practice psychoanalysis. Certainly these gentlemen (I refer here only to those psychoanalysts who are members of the medical profession and absolutely ignore all laymen who pretend to practice psychoanalysis) ought to understand sex in all its details, as this forms the essence of their theory. If, in the following pages, I may appear extremely severe concerning their views on the subject of masturbation, it is because of the great influence wielded by these medical men on the medical profession and, to a larger extent on the lay public. It is absolutely essential that a plain and dignified discussion of the subject be in order.

Only recently, at a medical society meeting, a neurologist complained that many psychoanalysts have not the proper neurologic training and frequently treat organic nerve conditions by psychoanalysis, where such treatment cannot possibly do any good and where valuable time is often lost to the great detriment of the patient. At this meeting, a leading exponent of the Freudian theory in America, rejoined that it has been a condition of the American Psychoanalytical Society to admit to its membership only those who have had a thoro general neurologic training. This is certainly as it should be and is very commendable but is far too narrow in its application. The great mistake which I have found in both these specialties is that its members consider only the neurologic or psychic aspect of the condition and entirely ignore the fact that, aside from the brain, there are in the body, sexual organs, which have a marked influence on sexual symptoms. Let me ask in all fairness what does the average psychoanalyst know about a congested prostate or prostatic urethra? For them no such organs exist, everything is in the mind.

What I am now going to say applies not only to their conception of masturbation, but also to their conception of impotence, pollutions, and similar sexual conditions.

Within the past few years the subject of endocrinology has been developed to an enormous degree, and yet, with all this development, the surface has barely been scratched. Our imagination is keyed to the utmost concerning the new truths and new conceptions of the entire psychic and sexual make-up of human beings of both sexes, which will be elucidated when we will have made further advance in the chemistry of the endocrine secretions and the general physiology of the endocrine glands.

In view of the above, what becomes of their conception and treatment of such conditions, for instance, as homosexuality and all the other various forms of inversion, when modern research has demonstrated the *Manoilow reaction** in the blood of some of these, when the female sex hormone greatly in excess of the ordinary normal condition has been found in some of these males and even on operation or autopsy, ovaries or portions of them have been found in some of them, showing definitely that their sex characteristics are not due to some peculiar or abnormal mental or phychic condition, but to female endocrine hormones. Of course, I am fully aware that some of these reactions have not as yet been *absolutely* established and that in some cases there is difference of opinion among endocrinologists themselves about their value, but I am merely pointing out which way the wind blows. May it not be

* The reaction of Manoilow is not a reaction based upon the presence or absence of sex hormones but is based upon metabolism. It is known that metabolism is different in the male and female and that by an examination of blood with this reaction, we can determine whether the blood came from a male or female. The reaction is influenced by outside factors. If these factors are taken into consideration and we get a female reaction in a male person, it might explain the cause of his contrary sexual feelings without the aid of psychoanalysis. There is, however, quite some difference of opinion among endocrinologists as to the exact value of this reaction.

possible, therefore, that in cases where the psychoanalyst lays such great stress upon the importance of what he calls infantile fixation, that some endocrine disturbance may be the cause of such fixation, in which case we would get an entirely novel conception of this phenomenon. Lest I be misunderstood, I wish to emphasize that this latter presumption is merely a suggestive theory and should not be taken up as an argument against my main premises.

Again, it is immaterial whether we believe in the Steinach operation for so-called rejuvenation or not, we cannot close our eyes to the remarkable animal experiments made by him and his co-workers as well as by other scientists. These scientists have definitely proven that they can absolutely change the entire sexual desire of an animal of either sex by removing the normal sexual glands of the animal and transplanting into it the sexual organs of the opposite sex. Yet psychoanalysts seem to entirely ignore these experiments.

There are very many other scientific experiments such as the bringing on of puberty and sex desire in immature animals by pituitary and other gland implantations, which leave not a shadow of doubt concerning the influence of the endocrine glands on sex life entirely independent of the function of the brain. Enough has been said, however, to show the errors of psychoanalytic treatment in many of these conditions.

I certainly do not expect that the psychonalyst or neurologist should go to the trouble of familiarizing himself either with the feel of a normal or abnormal prostate, or that he should be able to introduce a urethroscope and become familiar with the appearance of the normal or abnormal prostatic urethra.

In this connection I wish again to state emphatically that I have the greatest admiration for the entire theory of psychoanalysis, but I believe in its application only in the manner that its originator employed it. I understand that Freud does not

treat any case by psychoanalysis until his patient has been examined by a trained urologist in order to rule out any possible organic disorder. I myself have from time to time sent cases to psychoanalysts for treatment, and generally these selected cases have been cured by their treatment for the very reason that they were cases in which I could exclude the need of local treatment. Many years ago, thru the far-sightedness of one of our prominent neurologists, Dr. I. Abrahamson, of the Mount Sinai Hospital, I was permitted to make a urologic examination of all those neurologic cases, in which he thought there might be a sexual origin for the neurosis, and this resulted in a very happy combination and was of great advantage to the patients as well as to all concerned.

Let us now come back to the subject of masturbation and see to what conclusions the psychoanalysts have come. I will quote only from the works of one of the leading modern psychoanalysts, Dr. Wilhelm Stekel, the extracts being taken from the latest edition of his well-known work, published as recently as 1923. He says that all the bad effects attributed to masturbation, exist only in the imagination of the doctor. All the evil effects are artificial products brought about by the physician. I will have occasion to refer again to this remarkable statement when discussing the symptoms of masturbation, but will only remark here that any physician with only a moderate experience in the management of these cases will appreciate how disgusted some of these patients feel after indulgence in the habit, even tho they had never consulted a physician.

Stekel further concludes "that there are some people who are afraid of contracting venereal disease and others who for religious or ethical reason abstain from coitus before marriage, and that it is for both these classes that masturbation comes in as a great help to preserve their continence." He also says, "that masturbation has an important social function. It is in a certain

sense the protection of society against men with powerful sexual passion. If masturbation were suppressed, the number of cases of crimes against morality would enormously increase."

Many years ago I voiced my objections against these and similar theories and practices, and now after many more years and much larger experience I cannot help to voice my most strenuous objections with all the power that is in me to this Freudian conception of the subject.

The psychoanalyst does not believe in a cure for masturbation; in fact, he says that masturbation should not be cured. Stekel expresses the general opinion of psychoanalysts in a very definite manner when he says, "According to my observations, the nervous effects of masturbation only occur if the person stops the masturbation. The neurasthenic symptoms are then falsely ascribed to the previous masturbation, whereas they are due to the giving up of the habit." Further on he again voices his opinion as follows: "As before said there are many people who could not live without masturbation. If we were to take this habit away from them, life would lose all charms for them and they would be tempted to commit suicide. In other words, masturbation is for these persons irreplaceable, as no other satisfaction can replace this habit."

There is still another and very important reason why the subject of masturbation should be thoroughly discussed and understood. Many a young man enters into illicit connection and becomes infected with venereal disease, because he believes that coitus is the only relief for masturbation. There are physicians who advise "careful" coitus to patients who masturbate, and there are also physicians who advise patients to relieve themselves by masturbation when they have strong sexual feeling, yet do not wish to violate the Seventh Commandment because of religious or other scruples.

With very few exceptions, masturbation is not a nervous disease. It is not a disease of the imagination. It is a real disease, and no amount of talking, whipping, or laughing will cure it. Those who say that the patient should be talked to, his will-power and self-restraint cultivated, his general health improved by tonics, outdoor sports, etc., have very little experience with this disease. *When masturbation has been firmly established you can no more talk your patient out of masturbating than you can talk a child suffering from scabies out of scratching. The latter is caused by an irritation in the skin and the former by an irritation in the prostatic urethra.* On the other hand, so definite is the disease, so specific is the treatment, and so positive is the cure, that it is not even necessary to obtain the patient's confidence or co-operation, from a purely therapeutical point of view. In the treatment of the disease no demands are made upon the patient's will-power or self-restraint, because we recognize that the patient has little say in the matter; it is not a question of self-control. Also, the application of restraining apparatus is worse than useless, for in the first place it concentrates the patient's mind on his genitals, and, in the second place, to return to our comparison with the child suffering from scabies, this method of treatment would be similar to tying the hands together to prevent it from scratching. It would not scratch, not because it has been cured of its scabies, but because it is mechanically prevented from so doing. In treating this disease we should recognize that we have a definite pathological condition to treat, and not an imaginary disease, and the treatment should be undertaken in the same spirit as that of a surgeon when he undertakes the treatment of a fracture in an otherwise healthy person; if he gets the fragments in correct apposition and keeps them so by plaster-of-Paris or other splint for the necessary time, that bone will knit and the

limb become normal, *whether the patient has confidence in the treatment or not.*

PATHOLOGY

The pathology of masturbation is quite simple and directly in harmony with the prognosis and treatment. It shows that there is no new element introduced, but that it is simply an exaggeration of a perfectly normal process. As pointed out by Bangs, with every irritation of the urethra, there is a corresponding irritation of a certain portion of the brain, which irritation excites the person to increased sexual desire; this increased sexual desire leads to masturbation and further increases the local hyperesthesia in the deep urethra. A vicious circle is thus formed. We thus see that the entire pathology is essentially and in the beginning but an exaggeration of what takes place in normal sexual intercourse. At the beginning, the child manipulates his penis; this act sends an impulse to his brain, which sends another impulse to his muscles of erection, etc., and also causes a congestion of the deep (prostatic) urethra. So far the condition is like normal coitus. But this act frequently repeated leads to a hyperesthesia of the prostatic urethra, so that impulses are constantly sent to his brain, which again in response sends impulses to the prostatic urethra, still further increasing its hyperesthesia, and thus the vicious circle is formed. In other words, there is in time formed such an irritation in the deep urethra that the patient is compelled to masturbate. The difference between masturbation and normal coitus is, in the first place, that it is initiated in the young person at or even before puberty, when the sexual apparatus is still in an imperfect and developmental state, when the brain-cells appertaining to this function are also being developed, are immature and more irritable and, in short, when the whole body is undergoing profound chemical, physical, and psychological changes, and in the second place that the act is repeated

much more frequently than normal coitus could be. It is this combination that causes the dire results. Even if a normal adult with fully developed normal sexual organs were to attempt coitus as often as some of these children masturbate, the result would also be a final inability to perform the act; but when we consider that the act is accomplished with immature and undeveloped organs, with an overirritable brain, and at a time when all the energy is needed for body development not only in this particular field, but in every function of the body, we can easily understand why the results are so profound. We can also understand how a dose or large amount of bromides cannot cure the trouble, as it begins at the wrong end. It does not cure the hyperesthesia of the prostatic urethra, but simply dulls the brain-cells, so that they cannot receive impressions from the deep urethra. It is analogous to dosing a child suffering from scabies so that it cannot feel the bites of the insect and is thus less liable to scratch. As long as the insect is not removed, we have not cured our patient, even if we prevent it from scratching. We can also see how useless it is to appeal to his self-control. It must be understood that in this chapter I am only referring to the adult confirmed masturbator. It is true that at the beginning, when the child first begins to masturbate and before there has been formed the hyperesthesia of the prostatic urethra, the child can be coaxed to stop the habit; but in the adult, when there has already been formed the vicious circle above referred to, with the marked hyperesthesia of the prostatic urethra, no amount of self-control can have any effect upon this hyperesthesia, just as no amount of self-control can remove *Acarus scabiei* from the scabietic. We can also see why coitus cannot cure the confirmed masturbator. Masturbation being due to a congestion of the prostatic urethra, anything that increases the congestion must be harmful. This fact I have often noticed clinically,—that many of these patients who

attempt coitus, even if successful in the performance of the sexual act, still continue to masturbate.

In psychic masturbation, the pathology is as follows: Either as a result of previous or recent experience, an impulse is sent from the higher parts of the brain to the sexual centers. These in turn send impulses to the vessels and glands of the genitals just as in normal coitus or ordinary masturbation. If this is frequently repeated not only do the sexual centers, which have not had a chance to return to a physiological rest as in normal coitus, become hyperritated, but the genitals themselves remain hyperemic. This has been definitely demonstrated in the male, where hyperemia and congestion of the posterior urethra have been seen by Frank through the posterior urethroscope in pure cases of psychic masturbation. As a result of the hyperirritated condition of the sexual centers, and the local chronic congestion of the genitals, a vicious circle is set up, and the habit is more and more indulged in. Later on the sexual centers become more and more exhausted and it takes stronger and stronger mental images to arouse them into activity. The nervous drain upon the higher centers can easily be imagined. The above pathology of psychic masturbation applies alike to males and females, to adults and adolescents.

Blum says: "The masturbatory act supposes a much greater activity of the imagination; the immediate erotic impressions and sensations, which come spontaneously in coitus, must be replaced in masturbation by increased mechanical stimuli and by excessive demands upon the erotic conceptions. All these powerful accessories to sexual activity, which we receive in normal cohabitation from visual impressions, tactile sensations, kissing, sensations of smell (perfume) and of hearing, all these immediate perceptions must be replaced with the manual masturbator by the power of the imagination—truly an excess of mental effort, a waste of valuable nervous substance."

SYMPTOMS

As stated before, it is a pity that because so many medical quacks have, for their own personal interest, so exaggerated the symptoms of masturbation in the "literature" which they scatter broadcast, many regular physicians consider themselves bound, in order to offset this bad influence, to deny any importance to the subject, which seems to have just the opposite effect on the patient,—to wit, it has the tendency to drive the patient to the very quacks who ought to be avoided. On the other hand, we must not believe with the Freudians that all the symptoms exist only in the imagination of the doctors. As before stated, I have seen patients who have never consulted a physician and who have never read any quack literature on the subject, and yet they felt pretty miserable after a prolonged indulgence in the habit. For the same reason we cannot subscribe to the Freudian statement that the nervous symptoms only come on as a result of the patient's cessation of the habit. From clinical experience, based on prolonged observations of very many cases, I have noted and shall again refer to this fact under the caption of "Course and Prognosis" that after the habit has been stopped by proper treatment, there is a wonderful change in the entire psychic of the patient. His whole character changes and from a morose, ill-natured man, he is changed into a jovial, good-natured fellow full of the spirit of life, and taking interest in female society.

In giving the symptoms of masturbation it is hard to take the middle course and avoid the exaggerations of the quack on the one hand and the indifference of many physicians on the other. There are some physicians, however, especially among the Germans, who seem to be so carried away with the importance of the subject, that in their enthusiasm they outdo the quacks and refer every ailment under the sun to the evil results of masturbation. Listen, for instance, to Steinbacher, who gives

in his work as the results of masturbation the following ailments: Insanity, blindness, indigestion, melancholia, hyperchondriasis, squint, sleeplessness, headache, dizziness, itching, abnormities in the senses of taste and smell, stuttering, angina pectoris, palpitation of the heart, a dry cough that may be mistaken for tuberculosis, asthma, pains in the feet, knees and hands, epilepsy, chorea, spasms or paralysis of the muscles of the bladder, impotence, etc.

Those who have studied the subject from every possible point of view can understand how a reputable physician and an author can obtain this long list of dire complaints as a sequence to masturbation. I have elsewhere already pointed out the mistakes in these authors, but this particular point is so important that I may be pardoned for repeating it here. Masturbation is so very common in early childhood that if we take, for instance, the histories of a large number of cases of insanity or chorea, or almost any other trouble, we shall find a very large percentage of early masturbation, but this by no means indicates that masturbation *per se* was the cause of insanity, etc. It is in this way that enthusiasts allow themselves to be betrayed into blaming every defect on masturbation. I am certain that if we were to take the histories of 100 of the greatest geniuses we would find in over 90 per cent. of them a history of masturbation.

Again, in taking the histories of these cases there is still another error which we must be careful to avoid. We must not suggest any symptom, but allow the patient to tell his own story without interruption. We will then often find that he repeats them by rote as he has read them either in the advertisement of some quack in public newspapers, or from one of the many books that are so freely distributed in the city. It will therefore be evident that the symptoms just heard in such a case cannot scientifically be put down as the symptoms of masturbation,

and it is to detect this possible source of error that I never interrupt my patient, so that I may be able to recognize the symptoms suggested by what he has been reading.

After deducting all these exaggerations and sources of error, we will still have certain symptoms and conditions and sequelæ of masturbation which are genuine and real, and not the result of imagination or suggestion. I cannot help repeating here that the symptoms and sequelæ of masturbation actually exist, and it is harmful to imagine that they can be talked out of the patient and are only imaginary. I shall now attempt to describe them calmly and without exaggeration as I have actually seen them in my clinics and in private practice.

The patient, as before stated, according to our arrangement is first seen by the neurologist. It is significant in itself that he picks out the neurological rather than the genitourinary clinic. He presents himself complaining of various nervous symptoms, very often not knowing or suspecting what the cause is. Doctor Abrahamson informs me that the symptoms which make him suspect, in the absence of other causes, masturbation as the etiological factor, are those of cerebral exhaustion,—to wit, delayed or at times incoherent associations; difficulty in recalling names or things; inability to express themselves as well as before; frequent loss of the thread of thought, and incapability of continued effort. The feeling tone is changed and they are disagreeably affected by slight and insufficient causes.

The most prominent of these is *loss of memory.* There are few masturbators who, if they complain at all, do not complain of it. I have often made a psychic investigation of this very common symptom and have come to the conclusion that, strictly speaking, there is really no loss of memory whatsoever, but that the events are crowded out of the brain by the day-dreams or self-consciousness of the patient. The masturbator is essentially a dreamer, and in using this term I do not at all wish to

use it in the spirit that the term "dreamer" is often used; I do not mean the word "dreamer" as it is often applied to men of great ideals, but I mean it in its literal sense. The masturbator is shy and bashful, exceedingly self-conscious; he thinks everyone can read his condition, becomes a recluse, and he compensates for the loss of outside society by self-communion,—in other words, by day-dreams. This introspection absorbs his entire attention, and outside events pass him by hardly noticed, or receive slight attention. It is for this reason that he thinks his memory at fault, but the real reason is not that he forgets, but that he does not observe, or pays too little attention to things outside of his self-thoughts. That there is no real loss of memory is proved by the fact that the masturbator can remember if he wants to. I have had many cases of masturbation among college students and upon inquiry have found that they rank just as high in their work as the average,—in fact, some have received honors and prizes for their work, whereas if there were any loss or serious impairment of memory they could not have got along at all. As a matter of fact, masturbation is not incompatible with great genius.

Another symptom that many complain of is *pain* or *weakness* in the muscles of the thigh and legs. Still another common symptom is *pain in the eyes,* also *headache* and *dizziness.* One must be careful to interpret these symptoms correctly, or else harm may be done. For instance, while there are very many masturbators who complain of eye pains and dizziness, so that these can often be ascribed to the disease under consideration, we must not so ascribe them, in any individual case, until the eyes have been examined by a competent ophthalmologist to exclude errors of refraction. And so it is with all the symptoms complained of; before we blame them on masturbation we must be certain that there is not a more real organic basis for them. As stated before, it is just a neglect of this precaution that leads writers into the error of ascribing a long list of ills to mastur-

bation. It must be remembered that the masturbator is exceedingly introspective and likes to blame every trouble he has on his "youthful sin." If he is constipated, or has distress after eating or anything else, he is sure to blame it on masturbation.

Coming now to the symptoms of the genitourinary tract, we find first and foremost a marked hyperesthesia of the entire urethra, and especially of the prostatic portion. This condition is always present and is almost pathognomonic of masturbation. I have in the course of many genitourinary examinations examined many urethræ, but in no condition of the urethra, whether due to the presence of a foreign body, to the irritation of a very strong injection, to a tight stricture or what not, is the sensitiveness as evinced by the pain it caused to be at all compared to that which we find in the chronic masturbator. This sensitiveness is very important not only from a symptomatic point of view, but also from a therapeutic and prognostic point. The sensitiveness is our most important guide to the frequency of treatment, to the strength of solution to be used, and also to the cognizance of cure or cessation of all treatment.

Hand in hand with this hyperesthesia of the urethra, and dependent upon the same cause is the hyperesthesia of the prostate gland as examined *per rectum.* Here again the hyperesthesia is extreme, even if the gland is not markedly enlarged. I have made it a point for many years to examine the prostate *per rectum* as a routine in every genitourinary examination. I have thus made many examinations in acute and chronic urethitis, in acute and chronic prostatitis, in prostatic abscess, etc., but in none of these conditions is the prostate as sensitive as in cases of masturbation. As a general thing the prostate is enlarged, but not necessarily so, and it is *always* hyperesthetic.

It is a very common error to consider that masturbation is always accompanied by pollutions, using this latter term in a general popular sense, without distinction whether spermatozoa

are present in the discharges or not. I cannot, however, too emphatically state that masturbation and pollutions are entirely distinct conditions and have nothing to do with each other. While some masturbators also suffer from pollution, still in a very large number of cases patients may masturbate without ever having had pollutions.

It is also a mistake not to think of masturbation because the patient is a married man. In a small percentage of cases married men masturbate in addition to performing sexual coitus. I have one patient who is so passionate that during the time his wife is indisposed he relieves himself by masturbation. There are also married men who experience more pleasure from masturbation than from regular sexual intercourse. There are also masturbators who get married or practice illicit connection, upon advice, medical or otherwise, with the idea of curing their masturbation; but this does not succeed and they continue their practice in addition. This is a very important point and will be again referred to under treatment. There are also married men who, while their wives are temporarily absent, practise masturbation.

Again, it is a mistake not to think of the possibility of a chronic gonorrhea in a case of masturbation. This is also important, for, if we do not recognize it, we may, by treating the patient for masturbation, light up his old gonorrheal infection and make matters worse. There are masturbators who, as previously stated, think of curing their trouble by coitus and thus acquire gonorrhea.

But all these special symptoms, which we have tried to analyze in detail, give but a poor and inadequate picture of the confirmed masturbator. The confirmed masturbator is apt to be a physical coward, a man who will stand all sort of insult, who will run away rather than fight or stick up for his most obvious rights. All the spirit of manhood seems to be crushed

out of him. He is very often praised for his gentleness, for his saintlike demeanor, his humility, etc., but if we carefully study the individual, if we dive into his thoughts and make a psychical study of them, we will find that these traits are not virtues. We will find that he feels his wrongs as keenly as another, that he makes plans of revenge in his mind which he would fain carry out, but which he has not the energy to undertake and is too much of a coward to attempt. He is good, not because of any virtue, but because he is too much of a coward to be bad.

As before mentioned, the masturbator is essentially a dreamer, that is, he is very much occupied with his own thoughts and is very shy and bashful in his relationship with the outside world. He is especially bashful in the presence of females. He feels his condition keenly. Sometimes he attempts coitus with a view of curing his condition, and is often unsuccessful. Frequently, instead of masturbating with his hands he masturbates with his brain,—that is, he calls up vivid pictures (psychic masturbation) and so causes erection and ejaculation. These cases of psychic masturbation are the most difficult cases to cure, and the psychic form lasts for some time after the regular form has been abandoned.

And so he continues year after year; the number of times he masturbates varies greatly with the individual, but it is astonishing sometimes to hear how many times a day and for how long a period he can keep it up. It is this frequency and the fact that he needs no special preparation or place of convenience that constitutes one of the great differences (but not the only one) between masturbation and normal coitus.

It is really remarkable how much insult the sexual apparatus will stand before it rebels. If coitus were practised nearly as often as some of these patients masturbate, the result might possibly be much more disastrous.

But after a while he comes to that stage where he masturbates, not because he likes it, but because he *has* to. He has that awful irritation in his deep urethra, and he simply must masturbate. The periods of previous excitement (pleasure) become less and less, as does also the amount of fluid ejaculated. Then there comes a time when he *cannot* masturbate. He has the irritation, he has the impulse to masturbate, but, no matter how he manipulates his penis or how he excites his brain, he can neither obtain an erection nor an ejaculation. He is indeed in a most wretched condition.

But long before this stage is reached his nervous system has been severely affected. He has tremor of the hands, excessive perspiration, pains all over, various mental symptoms (*vide supra*),—in fact, the amount of reflex nervous disturbance is most varied. His digestion suffers; he becomes morose and inattentive. He tries coitus and finds himself impotent, but may however contract venereal disease. He has tried many times to break himself of the habit, but invariably fails. He may have made the rounds of the various advertising quacks and found no relief. He then falls into despair and thinks there is no remedy for him and that he is doomed to perpetual suffering. It is useless to talk to a confirmed masturbator of self-control, because he *cannot* control himself.

I have attempted to describe without exaggeration the course of masturbation as I have seen it in dispensary and private practice. It is, however, not every case that goes on to this very last condition. The disease may be halted at any stage by treatment. I have attempted to give a general description, but no one description will fit every case. The number of reflex phenomena are as numerous as the various functions of the nervous system.

COURSE AND PROGNOSIS

Here again my experience is directly the opposite of that of the Freudians. All through their literature we find a remark-

able unanimity of opinion to the effect that masturbation should not be cured, that it cannot be cured, that it has a distinct social function, that if stopped the most dire consequences will result and that the crimes against morality would be enormously increased. I have already quoted some of their observations, but cannot refrain from stating that they claim that the evil effects are produced not by masturbation, but by the stopping of the habit by the physician and again, that there are some people who could not live without masturbation, and if we got them out of this habit we would deprive their lives of its chief charm and may even drive them to suicide, etc.

With all the power that is in me, I would most emphatically protest against this conception of the subject. My experience is based upon the treatment of hundreds of cases which have been followed up for years, and I cannot state too emphatically that I have never witnessed any of the dire results mentioned by the Freudians following such a cure. As will be stated presently, the cure has resulted in nothing but good to the patients and in some cases, especially in the long-standing cases, the results have at times been little short of miraculous.

As a general thing, between the time of the first and second treatments, the patient experiences once the desire to masturbate, but is able to resist the desire. Already after the second treatment the patient does not even experience the desire to masturbate. The prognosis is therefore excellent. The psychic form of masturbation continues somewhat longer, but that too yields after a few treatments. It is wonderful how patients, who for years have had that terrible pressing need to masturbate, will, in only the small space of one or two weeks, indeed, already after the first treatment, do entirely without it. But of even more importance than the genital effect of the treatment is the effect on the character of the patient himself. His whole character changes. He now finds delight in the society

of women. To take a morose, underfed, ill-natured man and transform him in a little while into a jolly, good-natured fellow, full of the spirit of life, is indeed something to be proud of. But this is not the exception; it is the rule. The only reason for keeping up the treatment for a few months is not so much for fear of a relapse, but that it takes that time fully to restore the prostatic urethra to its normal condition.

It is advisable from the very beginning of treatment to explain to the patients the dangers of illicit sexual intercourse, and this warning should be repeated again and again, especially as the patient is getting well. As the patient is getting well, his new enjoyment of life, his new interest in the society of women, his greater general intercourse with society, theatre, dances, etc., often beget in him a normal desire for sexual intercourse, which can easily be restrained by a few words of advice. It has already happened that patients have been cured of masturbation, only to come back to the dispensary with a gonorrhea, which some seem to be especially proud of their ability to obtain.

TREATMENT

Before commencing treatment for the disease proper, it is necessary to determine, or have determined by competent authority, if some or most of the reflex symptoms are due entirely to masturbation or are caused by some other, possible more important organic condition. I remember a good many years ago seeing a patient who had been treated by one of our advertising "specialists" for "lost manhood" and whose chief symptoms were loss of weight and energy and marked perspiration, but who, in fact, although a masturbator, was well advanced in pulmonary tuberculosis, which was the real and more important cause of his symptoms. In the same way pains over the eyes and headache may be due to errors of refraction, palpita-

tion of the heart to organic heart disease or tobacco, etc., or the patient may be a psychopath or neurasthenic.

It is also advisable, if there be a history or suspicion of gonorrhea to examine the entire urinary tract, using the anterior and posterior endoscopes if thought necessary to determine if there exists any pathological condition of the canal. Where there is absolutely no suspicion of gonorrhea, the use of the endoscope as well as all unnecessary instrumentation of the canal had better be omitted. Needless to say, the urine should be examined as a routine matter in every case.

The treatment of masturbation proper which I have employed for many years with excellent results is as follows:

The patient always presents himself with a full bladder; this is important for two reasons,—in the first place so that the patient can urinate immediately after his prostate has been massaged and so expel the mucus that has been expressed from the follicles, and, in the second place, it is better to have his bladder empty after the injection presently to be described has been given, so that he may refrain from urinating for some time after the injection. Again, if the bladder is not full it is also harder to reach the prostate and more difficult to massage it, and in addition we also get an entirely wrong idea of the size of the prostate if palpated *per rectum* with the bladder empty. So that if the patient presents himself with a full bladder, it is easier to palpate his prostate, easier to massage it, and easier for him to empty his bladder after the massage. The patient then stands with his buttocks toward the physician, and the index finger, protected by a finger cot, is carefully and slowly introduced into the anus till the prostate is reached, and the prostate is then *gently* and slowly massaged. The prostate will be found at the first examination to be exquisitely tender and must be handled very gently, remembering that the object is *not* to squeeze out every drop of mucus from the prostatic follicles,

as we attempt to do in certain cases of chronic gonorrhea, but the object is to massage it. The first *séance* should only last a few seconds, and on subsequent visits the prostate will generally be found less and less sensitive, and the length of time of massage, as also the pressure employed, should be greater. The amount of pressure employed, as well as the length of time of massage, is entirely regulated by the sensitiveness of the organ. As soon as the prostate has been massaged the patient is directed to urinate, but he will have some difficulty in starting the stream. This fact is noted whenever the prostate is massaged for any condition whatsoever,—that the patient with a full bladder, which is just bursting to pass water, will, after the massage, not be able to pass it and have little desire to urinate. It may be necessary for the physician to leave the room or else have the patient go to a regular toilet before he is able to start the stream.

After the patient has emptied the bladder, he lies down upon the table, the meatus is cleaned, and with a Bangs' sound syringe a 1:3000 silver-nitrate solution is instilled into the deep urethra. These sound syringes come in sizes corresponding to the regular sounds. There are some who recommend, instead, the passage of a cold ordinary sound. I have tried both methods, and have found the sound syringe so far superior to the cold sound that I have given up the latter many years ago. The sound syringe must be lubricated with some substance that will not interfere chemically or mechanically with silver-nitrate; by mechanically I mean it must not coat the walls of the urethra with an impervious substance. Vaselin is absolutely useless for this purpose. I use preparations of Irish moss. As little as possible of the lubricant should be put on the instrument. The instrument should be introduced *gently* and *slowly* into the urethra till its tip is well within the prostatic urethra. The urethra, especially the prostatic urethra, will be found very sensitive. Those who have not learned the art (and

it is a great art) of introducing an instrument *slowly* into the urethra, had better not make their first attempt on patients who have masturbated; let them first practise on some old insensitive stricture case.

You cannot go *too* slowly. When the instrument is in place, a few drops of the solution are deposited in the deep urethra; there is absolutely no harm if some of the solution should get into the bladder; then the instrument is withdrawn a trifle and a few more drops are instilled, and so on. Most of the contents of the syringe are instilled into the prostatic urethra, but as the instrument is being withdrawn, a little is injected all along the anterior urethra also. This is all that is done. The patient is told to retain his urine as long as possible after the treatment and to report in five days. He is cautioned to avoid tea, coffee, beer, all alcoholic drinks, also eggs and oysters.

At first a very small size sound syringe is used, as well as a very weak solution of silver nitrate. As the case progresses, larger size sound syringes should be used till we get it as large as the meatus will stand. The strength of the silver solution is also increased as follows: 1:3000, 1:2500, 1:2000, 1:1500, 1:000, and 1:500. Our chief guide as regards the size of the instrument used, as well as the strength of the silver solution, is the sensitiveness of the urethra as judged by the amount of burning and reaction produced by the last injection. I never make it stronger than 1:500. Those who have little experience in genitourinary therapeutics will be surprised to discover what power exists in *weak* solutions of silver nitrate.

The patient is seen every five days if possible, until we have reached the strongest solution of the silver nitrate and the largest size sound syringe, then once a week, once every two weeks, once every three weeks, once a month, and finally two or three months are allowed to elapse without treatment, and if nothing happens he is pronounced cured. The entire treatment,

including the long intervals, takes about six months, but the number of visits made by the patient is very small, as toward the end the intervals of treatment are very long and take up most of the six months.

There are some physicians with whom I have spoken who, while admitting the good results of the treatment, aver that the treatment is merely psychic. Even if this were so, it would be no argument against the treatment. But I am certain that the treatment is not psychic for the following reasons: In the first place, the hyperesthesia of the urethra actually exists, as can easily be demonstrated by the passage of instruments. And in the second place, many of these patients had been previously subjected to treatment which would have had a greater hold on their imagination than the treatment above outlined, but without any result whatsoever. Many, for instance, have had electricity applied to various portions of their genital tract, including the deep urethra, without any benefit. Some have had purely psychic treatment, even including hypnotism, Christian Science, and the like, without benefit. I must repeat that I am referring only to the confirmed adult masturbator, and not to the child that has just been taught to manipulate his penis. As stated before, the latter can, before any hyperesthesia of the deep urethra has been produced, be simply coaxed out of the habit, but the confirmed masturbator is uninfluenced by any talking or psychic treatment.

CONCLUSIONS

Masturbation is a real disease, causing real discomforts, and is not an imaginary condition.

Do not blame every symptom the patient complains of on his masturbation, as they may be due to pathological conditions in other organs.

Masturbation and pollutions are distinct conditions, although they may coexist.

Masturbation is dependent upon a pathological condition of the prostatic urethra and not upon imagination on the part of the patient.

Coitus will not cure masturbation and is a dangerous experiment.

Masturbation is to be treated by removing the pathological condition in the prostatic urethra, and not by punishment or talking it out of the patient or appealing to his self-control.

Masturbation is a curable condition.

MASTURBATIO INTERRUPTA

Rohleder was the first, I believe, to call attention to this form of masturbation. It only occurs in the male. This is a condition in which the patient masturbates, but voluntarily interrupts the procedure just before ejaculation. In ordinary masturbation, orgasm and ejaculation is the object of the masturbator, but in this condition there is neither orgasm nor ejaculation. It bears the same resemblance to ordinary masturbation, that *coitus interruptus* bears to ordinary coitus. It is, however, not analogous to *coitus interruptus,* for in the latter we have both orgasm and ejaculation, while in this condition they both are absent. *Masturbatio interrupta* may be compared to that rare form of *coitus interruptus* in which the penis is withdrawn so early, that after its withdrawal it becomes flaccid and no ejaculation takes place, whereas in the ordinary cases of withdrawal ejaculation does take place, but outside of the vagina. *Masturbatio interrupta* is one of the severest forms of sexual neuroses, and has for its consequences the evil results of masturbation plus those of *coitus interruptus.*

I have myself seen young adults who, upon being caught in the act, voluntarily suspended the procedure until the observer went away, and then continued. Other boys, also, have voluntarily stopped just before ejaculation, so as not to

stain the bed-linen and so avoid detection. Some persons seem to have the notion that it is the ejaculation that is the weakening thing about masturbation, and stop just before ejaculation.

MASTURBATIO INCOMPLETA

This is a rare form described by Rohleder and is characterized by a precipitate orgasm, before ejaculation. In other words, there is a feeling of satisfaction which takes place early in the manipulation and which ends the procedure and no ejaculation takes place or is necessary, as the patient has already had his desired orgasm. As soon as the patient has experienced his feeling of satisfaction (orgasm) he stops just as if an ejaculation had taken place. This condition is the result of many years of masturbation, which causes an irritable weakness in the end-organs with the result of a precipitate orgasm.

IMPOTENTIA MASTURBATIONIS

By this term, I desire to describe a final stage or rather severe result of many years of ordinary masturbation. In it, although the patient has the most intense desire to masturbate, yet in spite of the most prolonged manipulation of his genitalia or of the most intense attempts at psychic masturbation, no ejaculation can be brought forth. It is but an extreme case of ordinary masturbation.

The pathology and treatment of all these last three forms of masturbation are the same as that of the ordinary variety in the adult male.

CHAPTER X

MASTURBATION IN THE ADULT FEMALE

ETIOLOGY

Any of the conditions mentioned in the etiology of masturbation in the young girl may also cause the trouble in the adult. In some cases the condition simply goes on from childhood and continues uninterruptedly into adult life, and it has even been known to persist into the climacterium.

Besides the above-mentioned factors, there are certain special conditions which are the cause of masturbation in the adult female. These etiological factors may be divided as follows: (*a*) in unmarried adults; (*b*) in married adults.

1. ETIOLOGY IN UNMARRIED ADULT FEMALES

Temperament and mode of life are very decisive elements in determining a predisposition to masturbation. Girls of a passionate temperament, whether this temperament has been inherited or has been artificially produced by early mixture with the young of the opposite sex, are especially prone to fall into the habit. The reading of erotic literature, instruction and so-called enlightenment on sexual matters from older females, suggestive plays and moving-picture shows are all conducive to the formation of the habit. According to Howard "long marriage engagements, during which the parties have seen much of each other alone, and finally break their relations, have been the cause in some of my cases. Such women have been under constant sexual excitement; when the disappointment comes the result is a great psychic shock, restraint no longer holds or controls them, and the culmination is a catharsis of passion which is certain to be fed in an unnatural way. This is what Hall calls

short-circuited sexual indulgence, because all the routes of approach—anticipation, embraces, and other natural stimuli to the secondary sexual organs—have been jumped."

It is a sad commentary upon the censorship or decency of our journals and newspapers that certain apparently innocent advertisements, skillfully worded to avoid the law, yet suggestive enough, should be allowed to come to the attention of respectable girls and perhaps, through curiosity, prompted by a teasing sexual temperament, arouse in them the habit of masturbation. "Rubber Goods," "Hygienic Pads," "Guides to Happiness," "How to be Happy though Unmarried," etc., each accompanied by sensual descriptive literature, are but a few examples of the various methods employed to attract the attention of the innocent. There are stores that manufacture articles to be used for masturbation by the female, and use the above methods to bring their goods to the attention of the sex.

2. *ETIOLOGY IN MARRIED ADULT FEMALES*

The same etiological factors which determine masturbation in the unmarried may at times cause it in the married female. As has been already mentioned, the habit which has been started in girlhood, may continue uninterruptedly during married life, in spite of or, rather, in addition to normal sexual intercourse, and may remain uninfluenced by either coitus, pregnancy, lactation, or even the menopause. As a matter of fact, the chronic female masturbator, if she marries, experiences little if any pleasure from coitus, and certainly more pleasure from masturbation than from coitus. This is due to the fact that, on account of the oft-repeated manipulation of the clitoris and urethra, she has rendered these parts so exquisitely hypersensitive that the sensation produced by the ordinary act of coitus (the friction of the penis against the vaginal walls, etc.) cannot compare with that of the masturbatory manipulations of the sensitive

external parts. In other words, the impulses of normal coitus are insufficient to arouse the sexual centers.

But besides the above etiological factors, which are common to both the unmarried and the married female, we have two very important factors which come into play only in the married. These are rapid or premature ejaculation on the part of the male, and also *coitus interruptus*. Both of these factors act in a similar manner, and their action will be discussed under the pathology.

METHODS EMPLOYED IN MASTURBATION

Besides the ordinary methods of manipulation of the genitals with the hands, and thigh friction, the methods employed for the purposes of masturbation are too numerous to be mentioned. It should be remembered that the sexual sense is more developed in the female urethra than in any other portion of the external genitals, not excluding the clitoris. Hence it is that this portion of the anatomy is so frequently irritated by all sorts of implements, and that so often foreign bodies, such as hair-pins, knitting-needles, etc., find their way through carelessness into the bladder. Pencils are also inserted into the urethra. Among the more common methods may be mentioned pillow masturbation, the insertion of a key or other instrument (especially in the married) into the vagina. Artificial penes have been invented and are sold for this purpose by certain firms. Tallow candles are also very frequently used. Bananas, cucumbers, and similar fruit have been used as well.

Talmey states as follows: "The Japanese women, according to Ellis, use two hollow balls about the size of a pigeon's egg; one is empty, the other contains a small, but heavy metal ball, or some quick-silver, so that if the balls are held in hand side by side there is a continuous movement. The empty ball is first induced into the vagina, in contact with the uterus, then

the other. The slightest movement of the pelvis or thighs causes the metal or mercury-ball to roll, and the resulting vibration produces a prolonged voluptuous titillation, a gentle shock, as from a weak electric inductive apparatus. The balls are held in the vagina by a tampon. The women than delight to swing themselves in hammocks or rocking-chairs, the delicate vibrations of the balls slowly producing the highest degree of sexual excitement."

Coming now to the other method of producing Onanism without the use of the hands or any implements whatsoever, we have the psychic Onanism. In this method the orgasm is produced solely by central stimulatory representations. Lascivious trains of thought, sometimes, though by no means always, the results of previous experience, are recalled. There is almost as much variety here as in the manual or instrumental method. Schrenk-Notzing records the case of a female Onanist who induced orgasm simply by hearing music or while regarding paintings that displayed nothing of a lascivious character. As in the male, these are the worst forms of the malady and the strain upon the nervous system and upon the imagination is exceedingly harmful. It is just this form which is more deleterious in its results than normal coitus could be, even if coitus could be indulged in as often as masturbation.

PATHOLOGY

In those cases due to a local irritation, there is at first, as in the male, a local hyperesthesia of the parts from which impulses are sent to the sexual centers in the brain. It is obvious that as long as the local irritation is not removed the impulses are constantly being sent to the centers. If the habit has been persisted in for a long time, from the purely mechanical effects of the continued pulling and manipulation of the external genitals, these parts remain hypersensitive, even though the original irritation has been removed. These parts then become

more sensitive than the mucous membrane of the vagina, and so, if such patients marry, the stimulation of the latter parts by ordinary coitus is not sufficient to excite the sexual centers sufficiently, and orgasm does not occur except with the aid of self-friction. The same condition of affairs may be said to exist in psychic masturbation. Here, on account of the very frequent repetition of the act, the sexual centers become exhausted or dulled, and more and more psychic stimulation is necessary to arouse them. As a result the amount of psychic stimulation necessary to arouse the sexual centers is greater than stimulation of these centers by normal coitus, and so, again, we see why normal coitus in these chronic cases will not lead to orgasm, or produce the desired effect, and why the patients prefer masturbation to coitus.

When we come to cases in which masturbation was first started during married life, after a period of normal coitus, due to withdrawal or impotence on the part of the husband, we have an entirely different pathology. To thoroughly understand it, it will be necessary to describe briefly the physiology of normal coitus in the female, for here, as everywhere else, pathology is but perverted physiology.

In the woman, with the commencement of coitus, there is a general hyperemia of all the pelvic organs. In a normal coitus with fully developed orgasm, and the expulsion of the secretions from the genital glands, a deplethorization occurs, and the pelvic organs are left in their natural condition.

If, however, the act is interrupted by withdrawal or by rapid or premature ejaculation on the part of the husband, the orgasm in the female either does not occur at all or takes place incompletely and the sexual glands do not adequately empty themselves; in other words, the female does not really "come," the pelvic organs remain hyperemic, and after this state of affairs

has continued for a time a condition of chronic congestion of the pelvic organs takes place, with all its deleterious results.

I would remark, and shall frequently have occasion to emphasize the fact, that in even so-called normal coitus the woman does not receive the consideration she deserves in the vast majority of cases. From a very large experience and study of these cases I have come to the conclusion that very few men know how to perform the sexual act correctly. As a general thing, even in so-called normal coitus, the man only considers himself, and not the woman at all. We find that when the man has an erection he immediately starts coitus, whether the woman has desire or not, and in many cases when she is but half-awakened. As soon as he has completed his part of the act, he stops and removes his penis. As a result, at the commencement of coitus the woman is not fully excited and only becomes half-way excited during the act, but remains excited, and has not nearly completed her part of the act when her husband ceases to perform. In questioning many women, I have been told by them that they experience little pleasure during the sexual act, but become excited afterward. As a result of this lack of deplethorization, and the resulting congestion of the genital organs (made much worse by withdrawal) and the state of sexual excitement after coitus, it is easy to understand how such women easily fall a prey to masturbation to complete the orgasm.

The pathology of psychic masturbation is the same as in the adult male and has been described on page 198.

SYMPTOMS

The symptoms may be divided into local and general.

1. LOCAL SYMPTOMS

The local symptoms are due to the local irritation set up by the manipulation of the parts. In many cases I have made

the diagnosis of masturbation from an examination of the external genitals and have thus compelled a confession on the part of the patient. One of the most characteristic signs, in a case where masturbation has been practised for a long time, is an hypertrophy of the labia minora. On account of the pulling to which these parts have been subjected, they are enormously increased in size, and Howe reports to have found them two and one-half inches in breadth and to look very much like the ears of a spaniel. They are dark-colored, often pigmented and parchment-like, while their base may be red and swollen. There is often intense redness and spots of excoriation near the vaginal entrance and sometimes we find a mucopurulent secretion bathing the external genitals. If the urethra has been used for purposes of masturbation we will be sure to find signs of local irritation within the meatus. As a general thing, in the unmarried, the hymen will be found intact. According to Veit, as quoted by Kisch, we have a chronic vulvitis which is met with, though rarely, as a sequence of masturbation. He gives the following description of this masturbatory vulvitis:—

"As characteristic signs of this we may observe an elongation of the nymphæ, the clitoris, or the *prepuitum clitoridis,* and at the same time, on the inner surface of the greatly stretched labiæ, we may notice a great increase in the sebaceous glands, so that the yellowish spots formed by these structures may be seen beneath the mucous membrane with the unassisted eye. The mucous surface, indeed, may be slightly uneven in consequence of their enlargement, so that they resemble small retention cysts. The mucous membrane of the vulva between the margin of the hymen and the nymphæ is, moreover, often beset with small pointed excrescences, the soft furrow between the clitoris and the external orifice of the urethra being very commonly marked by swelling of the mucous membrane and the presence of these little outgrowths; but sometimes also the

parts lying to either side of the urethral orifice may exhibit similar changes. These small structures differ entirely from pointed condylomata—they do not branch, they occur only upon the vulval surface proper, not upon the parts exhibiting the characters of true skin, and they are non-infecting. More particularly, it must be remembered, we find these changes principally in virgins in whom on account of obscure symptoms an examination of the genital organs has been undertaken, and who suffer in addition from nervous and hysterical manifestations. The hymen, when intact, as it usually is in these cases, furnishes objective evidence that sexual intercourse is not the cause of the patient's trouble, and indeed a distinctly ascertainable cause is hard to find. The patient usually exhibits abnormal sensitiveness and excessive prudery. Veit is of opinion that the association of all these symptoms justifies the diagnosis of masturbation as the exciting cause of the chronic vulvitis; in such cases we may at one time find the mucous membrane pale, but at a later examination fiery red, and we often see a clear, transparent secretion exuding from the ducts of Bartholin's glands."

2. *GENERAL SYMPTOMS*

The general symptoms vary greatly in their intensity in different individuals. They are, as a general thing, more marked in those of a neurasthenic or hysterical tendency. It must be distinctly emphasized, however, that there are cases, and these by no means rare, in which the habit has been continued for many years, and in which the patient experiences no ill effects whatsoever. Upon this point Herman remarks: "My impression as to the effect of masturbation in the adult is that in the frankly sensual pagan woman, who gratifies her impulse and thinks no more about it, masturbation does little harm. The patients who suffer from it are the very sensitive religious people who think it a great sin, and are continually struggling

against it. It is the struggle, as much, or more than the masturbation, that weakens the nervous system, and keeps attention fixed on the genital organs."

As a general rule it may be stated that the earlier the habit has been started, after adolescence has been established, the worse is the effect and the more severe are the general symptoms. The cases which have begun the habit only after marriage, and have gone into the habit as a result of rapid ejaculation or other forms of impotence or withdrawal on the part of the husband, will very often result in no ill effect whatsoever, especially where the women have for several years experienced normal coitus. Indeed, so mild are the symptoms, if any, in these cases, that so great an authority as Rohleder actually advises titillation of the clitoris by the husband until orgasm is produced after *coitus interruptus* in those cases where both parties do not want to have any more children and by mutual consent practise withdrawal. The reason for this is easy to find. In the unmarried, the female has to draw very largely upon her imagination to produce an orgasm in psychic masturbation, while in one who has already experienced coitus, especially if practised during coitus or after *coitus interruptus,* the strain on the imagination is practically *nil*. Those practising purely psychic masturbation, especially if unmarried, have the worst general symptoms.

Taking it all in all, the symptoms are similar to those just described in the adult male, though not nearly as severe. In some cases, however, they are very intense. The young unmarried female adult is shy and retiring, and does not seek or enjoy the company of the opposite sex. She is easily embarrassed, and morbid blushing is often a very prominent symptom. Her sexual character is often entirely altered. If she marries, after she has practised masturbation for a long time previously, she gets no enjoyment out of the sexual act. The cause for this has

already been explained on page 220. Very often normal coitus is not sufficient to bring her to the orgasm, and she has to resort to titillation of the clitoris during or just before or after the act. The reflex symptoms vary greatly and are too numerous to be mentioned, but prominence must be given to vague cardiac symptoms, such as palpitation, and also in some cases a feeling by the patient of blood rushing powerfully through the carotids and a feeling of throbbing in these parts. Very often these patients seek their physician for these cardiac symptoms, and if the latter is not on his guard he may be perplexed or even make a wrong diagnosis of functional cardiac disease. This actually happened with a patient of mine, who consulted a very prominent cardiac specialist, and, although the latter found no organic heart trouble present, entirely failed to realize the real origin of the trouble, and actually had the wedding of the patient postponed for an entire year, sending the patient to the country to rest up. In the above case, the patient entirely recovered without any treatment whatever, as soon as she was married. She remained well for over four years, during which time she gave birth to two children. Then all her symptoms returned, and upon close inquiry I was informed that for several months past she did not allow her husband to have normal coitus with her on account of fear of pregnancy, but only permitted him to insert the penis against her thighs without even touching the external genitals.

This was virtually similar to masturbation. Upon getting her to stop this method of abnormal coitus, all her symptoms again vanished. Should such a patient actually have in addition a real organic heart condition, accompanied by some valvular murmur, one can easily see how much more complicated the position becomes, and how the physician must be on his guard to properly interpret the symptoms.

Among the other more common general symptoms may be mentioned backache and headache. These symptoms, however, are so very frequently met with in women, that we must be careful first of all to rule out other possible pathological factors. It would be very sad to let a woman go on for years with a renal calculus, a retroflexion or other organic trouble and blame the symptoms upon masturbation. Similarly, as in the male, headache is very often due to eye-strain and dizziness, to a catarrhal or stenosed condition of the eustachian tube, causing a retraction of the tympanum. All these conditions must be thought of.

DIAGNOSIS

Just as in other medical conditions, the diagnosis may be very easy if we have the possibility of the condition in mind, and exceedingly difficult if we never dream of such a condition. We must not be led astray by social or other conditions. Just because the female is a college girl, is refined and educated, and an ardent churchgoer, is absolutely no reason for not suspecting masturbation as a possible cause of obscure symptoms. He who considers every case of nervousness in a young girl as due to the development of the menstrual function, overwork at school or college, etc., will never make a diagnosis of masturbation. Again, one must not forget to think of it as a cause because the woman is married and has children, for, as above stated, while it is rather rare for married men to masturbate, it is not at all uncommon in married women. It often requires considerable tact to get the girl or woman to confess, but in the majority of cases we can get the history *if we only think of the possibility of the habit.*

An excellent method, which I have very often found to work like a charm, is to catch the patient off her guard. In married women an examination of the genitals is easy to obtain, and we can often make our diagnosis from that alone. If we are

reasonably sure of our diagnosis, we say to the patient, in a matter of fact way, "Of course you fool with yourself occasionally." No answer to this question, or a delayed negative answer, is as good as a confession. In single girls a genital examination is not advisable as a rule, but the intelligent mother can be instructed what to look for and to watch the girl. A private talk with the young lady, with the above question, especially after a careful general examination of the heart and other organs, will also generally bring about a confession. Many people, especially the young, have a rather exaggerated idea of the knowledge and possibilities of diagnosis by a physician, and so it is not unusual for a young girl to think that a physician by listening to her heart can find out that she practices masturbation. The disciples of Freud have little difficulty in getting at the sexual history of their patients. Whenever a young girl likes to sit by herself, and does not care to mix either in play or study with her companions, and especially if she does not care for the opposite sex, or if she is a dreamer, we should suspect masturbation. On the other hand, as already stated, even if we have correctly made the diagnosis of masturbation, we should not allow ourselves to fall into the opposite error, of blaming all her symptoms upon this habit, but should also consider the possibility of errors in refraction, digestion, assimilation, gynecological, neurological, orthopedic and other conditions being present simultaneously. In practically every case where a foreign body is found in the female urethra or bladder it has been introduced from without and masturbation is the direct cause.

TREATMENT

1. LOCAL TREATMENT

All local irritations of whatsoever nature must be removed. Eczematous and intertriginous conditions about the genitals must be relieved. It makes no difference whether the local con-

dition is the cause or the consequence of the masturbation. Even if not the cause, it serves to keep up the habit, to attract the attention of the patient to her genials, and retards a cure. Gymnastic exercises which might bring into play thigh friction, also sliding down the bannisters and similar amusements should be interdicted. Operations on the genitals do no good unless some distinct condition, aside from the habit, presents itself.

2. GENERAL TREATMENT

"Confession," says Howard Kelly, "however fragmentary, is a long first step toward recovery." For this reason I have laid such great stress upon being upon the alert and upon the lookout for the habit and so getting a confession from the patient, by taking her off her guard. Both as a preventive and as a curative measure, we must positively interdict coffee, tea, and alcoholics. In bad cases we may administer bromides, but for a short period only. We must not rely upon them as a curative measure.

The most important agency in curing the habit is, in the first place, to remove all psychic conditions which stimulate the sexual imagination. Under this heading come erotic literature, impure plays, moving pictures, etc. In the second place, we must substitute some good habit for the bad one. Howard Kelly rightly says that our motto should be: "To replace is to conquer." Any outdoor hobby such as swimming, golfing, and tennis is good. In trying to break the habit, we must use very much tact. We must not talk in vague hints, but place the issue fairly and squarely before the patient. We must help her to help herself. We must try to develop her will-power and self-control. Nothing is so good for these patients as hard work, no matter of what kind, as it keeps them occupied. Any inclination to be by themselves should be discouraged.

Long marriage engagements should be greatly discouraged, for they keep up in both parties a state of sexual erethism which easily leads into masturbation.

Yet one word more in regards to masturbation in adults. Never advise marriage as a cure. The marriage state is too sacred and too serious a condition to be used either as a preventive or as a cure for masturbation. Such vague hints as "Nothing will cure your nervousness as marriage" are both unscientific and undignified from the conscientious physician. Besides, such hints may not be without danger to the weakling. I have heard of at least one female who took to illegal coitus because her physician said that marriage was necessary to her health.

In married women who have taken up the habit as a consequence of unsatisfied desire due to the husband's impotence, withdrawal or any of the other conditions above mentioned, the cure of the husband and his proper instruction in sexual matters is essential. Although Sturgis many years ago called attention to these conditions, they have not received the consideration they deserve. It may seem ridiculous to some physicians to be told that normal men ought to be instructed into the proper method of having coitus, yet to the sexologist nothing is more common than the dense ignorance on this very matter found among so-called "normal men."

Although this subject will be more fully discussed, in describing the evil consequences of withdrawal, a few words may not be amiss in this connection.

The husband is to be made aware of the fact that the wife has a well-marked sexual sense and desire, and her desire and passion should be taken into consideration in his marital duties. He should be informed that sexual intercourse is just as important to her as to him, and the lack of it is just as injurious to her as to him. He should be informed that it is just as necessary for his wife to "come"—that is, to have complete orgasm —as it is for him; and that to simply excite his wife either by withdrawal or too soon removal of his penis, and to leave her

moaning with an excited but uncompleted passion, is sure to lead to trouble.

The husband should be taught that before commencing coitus his wife should be fully awakened and, by all the arts of love and affection, be stimulated into passion, so that during the act she should if possible be as passionate as he is. If he should get through before her, he should not merely consider himself and his own comfort, but leave his organ in her vagina until she has had her orgasm. He should be the true lover and not merely the beast. If suffering from impotence, or rapid ejaculation, these should receive the proper treatment. He should be taught that *coitus interruptus* is not normal coitus, and is sure to react injuriously on both parties. If all men were properly instructed, there would be less complaint of frigidity of the wife on the part of the husband, and also less complaint on the part of the wife that sexual intercourse only results in pregnancies for her.

PART IV

OTHER DISORDERS OF THE SEXUAL FUNCTION

CHAPTER XI

POLLUTIONS

A. POLLUTIONS IN THE MALE

DEFINITION

UNDER this heading I include any involuntary semen-like discharge generally coming out of the penis and not connected with coitus.

I have purposely made this definition a very broad one in order to include all discharges which have been classified as spermatorrhea, involuntary seminal emissions, prostatorrhea, defecation spermatorrhea, urination spermatorrhea, and *urethrorrhea ex libidine sexuale.*

I have done this in order to simplify the subject, which has been unnecessarily complicated by distinctions and pathology which do not exist, except in the case of urethrorrhea, which is distinct from any of the other conditions.

Many authors make a distinction between spermatorrhea and pollutions, but, from both a clinical and pathological point of view, this is erroneous, and unnecessarily complicates the subject. It may be interesting to examine the discharge for spermatozoa, but no deductions can be made therefrom. When we consider that (except in urethrorrhea) the discharge comes into the urethra through the ejaculatory ducts, and that the seminal vesicles are a storehouse for the spermatozoa in the intervals of coitus, we can easily understand that spermatozoa may be found in any such discharge. Even those who try to make a distinction between discharges with, and those without spermatozoa, make the significant statement that many examinations are necessary, and that the absence of spermatozoa from the

discharge does not prove that the condition is not spermatorrhea, as in this condition spermatozoa may be absent for a time. They further admit that in what they distinguish as pollutions, spermatozoa may also be present from time to time.

Pollutions may be either diurnal or nocturnal. Pollutions which accompany defecation are called "defecation spermatorrhea," while a semen-like discharge coming after urination is called "urination spermatorrhea." The term "wet dreams" is often applied to pollutions, especially by the laity, on account of erotic dreams which so often accompany this condition, but such dreams are very often absent. Prostatorrhea is a term which is applied to a discharge which is supposed to come purely from the prostate, but without any inflammation of this organ.

When we consult the various authorities who try to make a distinction between the various conditions above mentioned, we not only find the greatest difficulties in endeavoring to understand the points in differential diagnosis of the various conditions in the writings of any one author, but also the greatest confusion among the various authors themselves. Thus, the very point put down by one authority as the most important differential diagnostic point in any condition is mentioned by another authority as the most important in another condition. From a long and careful clinical observation of these conditions, however, and a careful study of their pathology, I have come to the conclusion that this complication of terms is entirely unwarranted, and, from the standpoint of treatment, entirely unnecessary.

Urethrorrhea ex libidine sexuale, on the other hand, differs from the above, in being purely a secretion of Cowper's glands and those of the urethral follicles and glands, called into action by sexual excitement just as in normal coitus, but without the coitus being indulged in.

ETIOLOGY

Any factor which either causes a distention of the seminal vesicle or irritates the prostatic urethra or the glands of Cowper or the urethral glands may cause pollutions. Among such factors may be mentioned ungratified sexual excitement, *coitus interruptus,* the results of masturbation, excessive horseback riding, excessive bicycle riding, or inflammations of the posterior urethra. Among the rarer causes may be mentioned rectal worms and epilepsy. Hamilton has called attention to the fact that in rare cases a pollution may also be the expression of an epileptic seizure.

A very frequent cause of pollutions, and one to which little, if any, attention has been paid as an etiological factor, is massage of the prostate with stripping of the seminal vesicles. I have very often found pollutions to appear after this procedure, whether done for gonorrhea (expression for diagnostic or therapeutic purposes) or whether done as part of the routine treatment in masturbation or impotence or other forms of sexual neuroses.

Attention should be called to the fact that in giving the etiology I have mentioned the results of masturbation and *not* masturbation itself. As a matter of fact, the patient, while masturbating, rarely has pollutions, for the simple reason that he does not give his seminal vesicles a chance to become distended. It is only after he has ceased the habit, and caused a congestion of his prostatic urethra, that, as soon as his seminal vesicles become distended, pollutions appear. It is often this appearance of these pollutions that frightens the patient, so that he returns to his masturbation or indulges in illicit coitus.

Nocturnal pollutions are perfectly normal if they occur at not too frequent intervals, and are not accompanied by a feeling of marked depression. It is difficult to state how many pollutions a person may have to be within normal limits, for the

reason that the sexual passion and desire varies so much within normal limits. Furthermore, a man accustomed to coitus twice a week, and who for various reasons has remained continent, is entitled to more pollutions than one who has been in the habit of indulging only once in one or two weeks. As a general thing it may be said that as long as pollutions are only nocturnal, and occur with erect penis, not oftener than once in ten days, and are not accompanied by a marked feeling of depression, they may be considered normal. Rohleder considers even two nocturnal pollutions a week normal. In considering the number of pollutions, one must not go by the number in any particular week, but by the average of several weeks. Thus, it frequently happens that a patient may not have any pollution in seven or eight weeks and then have two or three in one week, or even in one night. This condition may still be normal as the average for the eight or nine weeks is within normal limits. Diurnal pollutions, as well as defecation and urination spermatorrhea, are practically always pathological.

PATHOLOGY

In order to understand the pathology of pollutions we must revert to the same scheme of the *modus operandi* of erection and ejaculation which has been given under Impotence.

We have shown (page 122) that the nervous mechanism of normal erection and ejaculation is as follows. As soon as the desire for coitus arises, impulses are sent from *C* (cerebrum) to *R* (erection center in spinal cord), which sends them through the dilator nerves to the penis until complete erection occurs (*i. e.,* dilatation of blood-vessels of penis, etc.).

Now *R* (erection center) receives from *P* (glans penis during friction of coitus) continuous new impulses which serve to strengthen and keep up the erection. *R* has also the additional function of keeping back a part of the impulses it receives until its cells are filled to their utmost tension, and then only

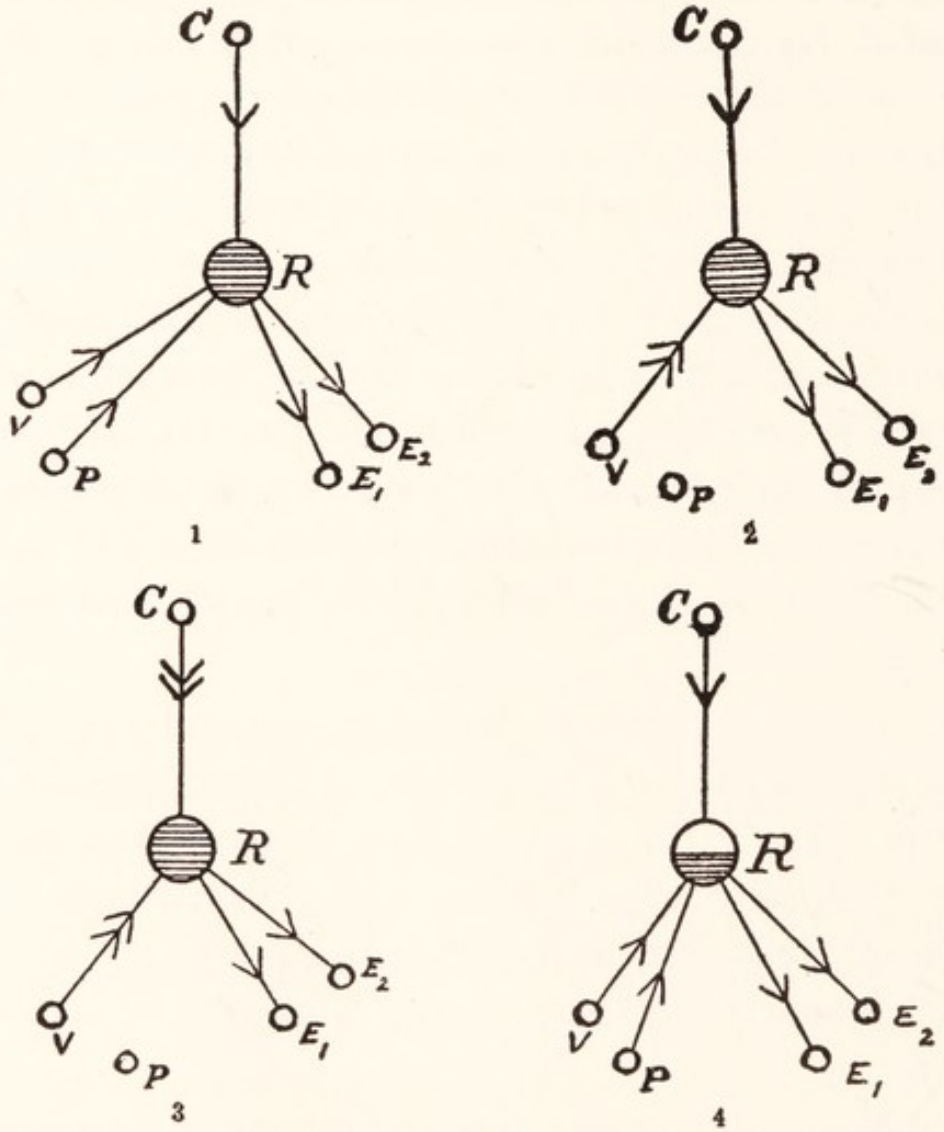
to send these impulses to E_1 (sympathetic ejaculation center, which causes the expulsion of the secretion of the sexual glands) and also to E_2 (spinal ejaculation center which controls the striated muscular fibers). The impulses that come from *P* (through friction of the glans penis during coitus) to *R* may be weaker, in proportion as the impulses that come from *V* (distended seminal vesicles) are stronger. In other words, with markedly distended seminal vesicles we can get normal coitus even if there is less friction of the glans penis, for enough impulses are coming from the seminal vesicles to fill up *R*. As soon as *R* is so filled up (so completely distended) with impulses from *C, P,* and *V* that they overflow to E_1 and E_2, ejaculation takes place. In other words the erection center (*R*) has two functions, first, to receive impulses from the cerebrum (*C*), the penis (*P*), and seminal vesicles (*V*), and, in the second place, to hold back these impulses until the proper time and then to send them to the ejaculation centers (E_1 and E_2) so that ejaculation should come at the proper time and not too soon.

Let us now consider the physiology and pathology of pollutions according to the above scheme. This is graphically illustrated in Fig. 2. The diagrams show that Fig. 2 is the same as Fig. 1 except that the impulses from *P* (glans penis during friction of coitus) are absent, while those from *V* (distended seminal vesicles) are very strong (indicated by a double arrow).

We begin with an overdistention of the seminal vesicles. As a result of this, impulses are sent to the central nervous system and erotic dreams are formed, which are generally made up of the experiences of the patient. As a result of this dream, impulses are sent from *C* to *R* with about the same intensity as in normal coitus (Fig. 2). The impulses from *P* are absent. For this reason, in order to thoroughly distend the erection

center (R), the impulses that run from V to R (very distended seminal vesicles represented by a double arrow) must be *very* strong in order to cause an overflowing of impulses to E_1 and E_2 and allow ejaculation to take place.

So far this may be perfectly normal, if it does not happen at too frequent intervals. If, however, either as a consequence



Diagrammatic scheme of the nervous mechanism of normal coitus, impotence, and pollutions. (After *Groag.*)

C, cerebrum; *R,* erection center; E_1, sympathetic ejaculation center (which causes the expulsion of the secretions of the sexual glands); E_2, spinal ejaculation center (which controls the striated muscular fibers); *P,* glans penis; *V,* seminal vesicles. The single arrow indicates an ordinary impulse; the double arrow, a very strong impulse. The transverse lines in *R,* in Figs. 1, 2, and 3, indicate that *R* sends out impulses to E_1 and E_2 *only after having been completely filled up with impulses,* while in Fig. 4 we see that *R* sends them out before it is completely filled up with impulses.

of masturbation or withdrawal or any of the other conditions mentioned in the etiology, either the cells of the cerebrum or the erection or ejaculation centers become hyperirritable, the whole process takes place at the slightest provocation (just as in rapid ejaculation) and it is not necessary for a distention of the erection center (R) with impulses to allow of ejaculation as in physiological pollution, for R is so hyperirritable that, at the slightest impulse from its various sources, it sends impulses to the ejaculation centers (E_1 and E_2) and immediately ejaculation takes place. The ejaculation centers may also become hyperirritable and go off at the slightest provocation. The cells of the cerebrum (C) may become hyperirritable likewise, and send to the erection center powerful impulses at the slightest suggestion of an erotic thought. Finally, just as in impotence, we may get an exhaustion of all the centers so that they will refuse to respond to any impulse. The pollutions become less and less frequent (without any treatment) and at length stop altogether. The patient considers himself improving and finally well, but, as a matter of fact, he is getting worse. Should such a patient at this stage attempt coitus he will find himself impotent. But this will be considered more in detail in giving the symptoms.

The pathology of diurnal pollutions is similar, and is diagrammically illustrated in Fig. 3. Sometimes in the waking state, in the presence of markedly distended seminal vesicles, strong long-continuing lascivious irritations may lead to strong erection and ejaculation. In Fig. 3 we notice the same condition as in Fig. 2 except that the impulses which come from the cerebrum (C) are exceedingly powerful (represented by a double arrow). Groag considers this condition physiological, but I believe that in the waking state there ought normally to be enough inhibitory impulses present to prevent ejaculation. However this may be, there is no doubt that if, as in the former

class of cases, the centers become hyperirritable, so that, as sometimes occurs, the mere sight of a pretty woman, or the mere touching of a woman in a crowded car, is enough to bring on an ejaculation, such a condition is to be considered markedly pathological.

That the seminal vesicles play the part described in the above condition has been proved experimentally, by Tarchanoff, in frogs. If he squeezed out the contents of the seminal vesicles in these animals, they lost all desire for coitus, but if he distended them with sperm from other frogs or even water, the desire immediately returned.

The local pathology is similar to that found in withdrawal or masturbation. There may be the same local conditions present in the posterior urethra as have been mentioned in these latter conditions. *As stated heretofore, one cannot make a diagnosis of either masturbation, withdrawal or pollutions, by merely looking through the urethroscope.* All that the urethroscope reveals is the pathological condition present in the posterior urethra, and this condition may be the result of widely different causes. Similarly, any pathological condition in the posterior urethra or prostate or seminal vesicles, whether the result of gonorrhea, masturbation, withdrawal, maltreatment of the urethra or any other condition powerful enough to start reflexes to the cerebrum or erection centers, may be the cause of pollutions.

Finally we must state that the local conditions may be absolutely normal, and still pathological pollutions may take place. It has been stated above that for pathological pollutions to occur, there must be present a hyperirritable condition either of the cells of the cerebrum or of the sexual centers, or of the local pathological condition of the genital organs (congestion, etc., in the prostatic urethra). All of these conditions need not be present to cause a pollution, and it not infrequently happens

that with a perfectly normal posterior urethra, as seen through the endoscope, pollutions may occur. As an example of such a condition we may mention cases where the patient has his thoughts continually upon sexual matters, and is constantly reading erotic literature, or seeking the presence of female companionship, while not actually indulging in sexual intercourse. Such a patient can so excite his cerebrum that pollutions will occur from that cause alone. If this continues for a long time, however, there generally results also a local congestion of the sexual apparatus in the same way as in masturbation, withdrawal, and similar conditions.

When we come to the pathology of defecation spermatorrhea, we find a marked difference of opinion among the authorities. The earlier writers claim that it was the result of the mechanical squeezing out of the contents of the seminal vesicles by the passage of the fecal mass. Of late, however, there has been a tendency to discredit this theory. Peyer objects to it from the anatomical position of the seminal vesicles, which, he claims, because of their position between the rectum and the bladder, would be pushed out of the way by the hardened fecal mass, and not be directly pressed upon. Sturgis believes it to be due, not to the pressure on the seminal vesicles by hardened feces, but to the mechanical pressure of the abdominal muscles incident to this act. Rohleder considers the condition to be due to a paralysis of the ejaculatory ducts, and says that defecation spermatorrhea is caused by a mechanical squeezing out of the semen from the seminal vesicles due to weakness and insufficiency of the sphincters of the seminal vesicles and the ejaculatory ducts. He is of the opinion that with normal sphincters the hardest defecation will not be able to cause spermatorrhea. Ultzmann compares nocturnal pollutions to spasm of the bladder, and defecation or urination spermatorrhea to paralysis of the bladder, and says that nocturnal pollutions are really spasms of the seminal vesicles due to overdistention, whereas defecation

and urination spermatorrhea is due to a paralysis of the ejaculatory ducts.

I am inclined to disagree with Rohleder and the other authorities just mentioned, in their conception of nocturnal (or diurnal) pollutions on the one hand, and defecation and urination spermatorrhea on the other. My dissent is based entirely upon clinical experience. If nocturnal pollutions were solely the result of contractions of the muscles of the seminal vesicles, or, as Ultzmann puts it, spasm of the overdistended seminal vesicles, it would hardly be conceivable that they should recur as frequently as they do, for clinically it is not unusual for them to occur two, three, four, or even more times a week, sometimes three a night. One would imagine that after one or two emissions the seminal vesicles would be nearly empty, and certainly not overdistended. Then, if overdistention were the only cause of nocturnal pollutions, pollutions would be more common in married men (unless coitus is very frequently indulged in) than in single men, whereas just the reverse is the case. But to my mind the clinical therapeutical result is of most importance. As will be shown later on, in discussing the treatment of the condition, the most severe cases of nocturnal pollutions yield rapidly to the action of the bromides. I have yet to see a case of nocturnal pollution that did not yield (temporarily at least) to the administration of this drug. If, therefore, nocturnal pollutions were purely due to a spasm of the seminal vesicles, it is inconceivable that a drug which has no effect whatsoever upon local muscular spasm, but acts only by quieting the cells of the cerebrum and possibly the reflex centers in the spinal cord (although many neurologists even doubt this latter action), could so *uniformly* have such good results.

Another clinical observation, which I have made, likewise refutes the theory that a spasm of the distended seminal vesicles is responsible for nocturnal pollutions. In cases of chronic gonorrhea I have very often had occasion to frequently massage

the prostate and strip the vesicles, either for diagnosis or treatment. As an invariable rule, this procedure, if frequently repeated, will bring on nocturnal pollutions where none had previously existed, and will markedly increase the number of pollutions where they had existed only to a physiological degree. If spasm due to distention of these organs causes pollutions, it should naturally follow that emptying them ought to have just the opposite effect.

I have given the physiology and pathology of pollutions heretofore, and pointed out in that connection that the way distended vesicles act is not by a local spasm, but by reflex action alone, namely, by sending normal impulses to the erection center, just as pathological impulses are sent thither from a congested posterior urethra, and that, as a result of these impulses plus other impulses which the erection center receives from various sources (*i. e.*, cerebrum, penis, etc.), this center sends impulses to the ejaculation centers which result in ejaculations or pollutions, as the case may be. In massage of the prostate and stripping of the vesicles, we irritate these parts and send impulses to the erection center in the same manner. This pathology also explains the beneficial effects of the bromides on pollutions.

In defecation spermatorrhea I must likewise disagree with Rohleder, and again on purely clinical grounds. When Rohleder says that, with normal sphincters of the seminal vesicles and ejaculatory ducts, the hardest defecation cannot bring about a discharge from these organs, and when Peyer tries to prove the same thing from a consideration of the anatomical position of the seminal vesicles, the following *clinical* evidence may be presented in direct contradiction: I have had occasion in very many instances to strip the seminal vesicles in cases of chronic gonorrhea, either for diagnostic or therapeutic purposes. In most of these cases, no pollutions or defecation or urination

spermatorrhea was present; and yet, I have never failed to obtain a specimen from the prostate and vesicles for examination. In every case was I able to bring one or more drops (sometimes a large quantity) of the secretions of these organs to the meatus. If, then, in normal persons, with presumedly normal seminal vesicle sphincters, by simple pressure on the seminal vesicles with the finger-tips in the rectum, we can cause a discharge of their contents, why cannot a hard fecal mass in the same place do likewise? Furthermore, it often occurs that, in some cases, the slightest touch on these parts would bring forth a very large amount of seminal secretion (proven so by the microscope) where we would imagine that there must exist a very marked paralysis of the ejaculatory ducts or musculature of the seminal vesicles and its sphincters, and yet these patients have *not* been subject to defecation or urination spermatorrhea or even to nocturnal pollutions. I can neither affirm nor deny that in defecation or urination spermatorrhea there exists an insufficiency of the sphincters of the seminal vesicles, and certainly the *clinical* evidence is not sufficient to sustain this view. Those that uphold it have brought forth no evidence except their own theoretical opinion. To my mind, it is still an open question whether defecation or urination spermatorrhea is due to a reflex action set up by the act of defecation or urination, or whether it is due to insufficiency of the musculature of the seminal vesicles or ejaculatory ducts, or due to the mechanical pressure of hardened feces or to the mechanical action of the abdominal muscles upon the seminal vesicles. In urination spermatorrhea, it is supposed that the muscular action incident to pressing out the last drops of urine also presses on the seminal vesicles and squeezes out part of their contents. As stated above, Sturgis inclines to the view that defecation spermatorrhea is due to the mechanical action of the abdominal muscles incident to defecation, and cites in proof that the same condition

may be produced by such acts as coughing and sneezing, but I have never seen such cases.

Some authors claim to have seen through the endoscope, in cases of pollutions, the mouths of the ejaculatory ducts widely dilated, thus proving the paralytic condition of the ejaculatory ducts. I have for several years made endoscopic examinations of the posterior urethra in cases of pollutions, using both the Wossidlo-Goldschmidt and Buerger instruments, but cannot subscribe to the observations of these writers. I have found the most marked differences in the appearances of the mouths of the ejaculatory ducts, not only in pathological but also in normal cases, and am certain that in pollutions these ducts are found on the average no more dilated than they are in other pathological or even normal conditions. As so often emphasized, *one cannot make a diagnosis of pollutions with the endoscope.*

The pathology of *urethrorrhea ex libidine sexuale* is entirely different from the other forms of pollution. Here there is simply an overactivity of Cowper's glands and those of the urethra. Normally, at the very commencement of coitus, Cowper's glands, as well as the glands and follicles of the urethra, pour out their secretions into the urethra in order to remove the acidity which is generally present there on account of moisture from urine, and which would be inimical to the vitality of the spermatozoa. In cases of urethrorrhea, there is an overactivity of these glands, so that the merest act of flirtation, or spooning, or even erotic thoughts, are sufficient to cause these glands to pour out their secretions, which then appear at the meatus. The condition is simply due to too great a response on the part of these glands to central stimulation.

SYMPTOMS

It not infrequently happens that quacks, for their own selfish purposes, grossly exaggerate the symptoms of *normal*

pollutions. To offset this influence, some reputable physicians have thought it expedient to underrate the seriousness of pathological pollutions, and tell the patients that any pollution is of no importance whatsoever, and that the whole trouble is imaginary. Nothing could be further from the truth. Any one who has seen the marked neurasthenic symptoms that accompany severe pathological pollutions, even in patients with no underlying history of general neurasthenia, and how their general condition improves, and their whole psychic is changed, with the cessation of the pollutions, will appreciate that pollution is a very important condition and sometimes a very serious one, which demands our most earnest attention.

In normal cases the patient experiences during the night an erotic dream, which is accompanied by an erection of the penis and ejaculation. He is generally awakened during the process of ejaculation. Sometimes, however, he continues in his sleep, and upon awakening in the morning discovers that he has had an emission. In some cases no dream accompanies the ejaculation, or at least is not remembered by the patient. *Normally* these emissions do not occur on the average more than once in ten days, and always occur with erection. They are not accompanied by any marked feeling of depression, sometimes, indeed, quite the reverse, with a feeling of contentment.

It often happens that the young man is frightened by this emission, thinking that he is losing his semen, that he will become impotent, and that the condition is due to his "youthful errors" of perhaps very many years before. Sometimes, without consulting a physician, he indulges in illicit coitus, thinking that the onset of the emissions is a sign that coitus must be indulged in. In this way he may become infected with venereal disease.

If he is wise he will consult his physician, who will give him the proper advice. If he is foolish, however, which is more

often the case, he will seek out one of the many advertising quack physicians, who will not only confirm all his fears of impotence, "lost manhood," etc., but will frighten him more, call his attention to a normal sediment in his urine, explain to him that his vital fluid is being sapped out of him, etc., and may, and indeed very often does, make of him a confirmed sexual neurasthenic, watching himself closely, continually, and exaggerating every little pain or ache. I used to get these patients in large numbers at my dispensary clinic, after they have been relieved of all their savings by quacks, and it often takes considerable argument and tact to prove to these *normal* cases that they are not going to perdition.

The symptoms of pathological pollutions are somewhat different. The patients have pollutions two or three times a week, often without erection. After the pollutions they complain of marked nervous symptoms and a feeling of depression to be described hereafter. The pollutions, if untreated, may even increase in frequency, but after a while they diminish and finally cease altogether without any treatment whatsoever. This the patient considers a very good sign, but as a matter of fact it is just the reverse. It means, as explained in the pathology, that the sexual centers have become completely exhausted, and fail to respond to any stimuli. Such patients, at this stage, will find themselves impotent.

The dreams that accompany pollutions, both normal and pathological, are very interesting and instructive. Porosz has called attention to the fact that very often we can tell the course of the disease by the character of the dreams which accompany the pollutions. The dream is frequently an index of the potency of the individual. In normal cases, in persons who have already indulged in sexual intercourse, the dream is often an exact counterpart of the act of coitus. The patient dreams of courtship and spooning with a female, then the retiring, the prepara-

tion for coitus by both parties, the erection, the insertion of the penis into the vagina, the friction, and finally the ejaculation. The time between the commencement of the dream and the ejaculation is a comparatively long one. In pathological cases, as the disease progresses, this time becomes shorter and shorter. The patient dreams of spooning and coitus as above, but the ejaculation occurs at the very first attempts of coitus, and finally the patient only dreams of spooning, and wakes up at once with an ejaculation. Even in normal cases, where two or three dreams occur in one week, the first dream may be a very lengthy one, as the first above described, while the latter ones become progressively shorter.

I have paid particular attention to these sexual dreams, and in many cases have obtained a typical history just like those recited. Often, however, especially in dispensary cases, the patients are too ignorant to give a sensible history of their dreams, and frequently, even in intelligent patients, the patients forget their dreams. The woman in the dream is generally one with whom the patient is acquainted, often the cousin or sweetheart, or it may be some stranger who happens to have made an impression upon the patient. Sometimes the patient does not dream of coitus at all, but of masturbating. Very often, also the patient does not dream of women at all, but of some other object, the sexual nature of which can be explained by those versed in the Freudian theory.

As a practical point, and one which I do not recall having seen recorded anywhere, I have, for some time past, determined the patient's veracity as to his sexual experience by the nature of his pollution dreams. In my clinic I frequently encounter young adults who come for treatment of pollutions, and, upon the routine questionings, tell me that they have never indulged in coitus. Inquiring later on as to the nature of their pollution dreams they inform me that they dream of having coitus with

a woman. In this case I immediately infer that the patient has had experience in coitus, and almost always can obtain his confession in this regard. With the exceptions later mentioned, *one cannot dream of coitus unless he has indulged in coitus.* We must be careful, however, in jumping at conclusions and must go particularly into the history of the dream. For instance, I had one young man who told me that he had never indulged in coitus, but in his pollution dreams dreamt that he had connection with a woman. I asked him to describe his dream, and from his description saw that the man had the most ridiculous notion what the act of coitus consisted of. In other words, this young man, who had really been continent, dreamt of what to his mind was the act of coitus. In another case, upon careful questioning, I was told by the boy that he had seen in the park a couple indulge in coitus, and this picture came to him as a pollution dream. Another young man informed me that he had seen in Paris, at a "private" motion-picture theater, the entire act of coitus portrayed upon the screen. In many cases the boy's impression of coitus comes from the particular literature he indulges in, or from knowledge obtained from older persons, and in his pollution dreams the act of coitus is according to his knowledge of the subject. So that, while the rule just laid down, that one cannot dream of coitus unless he has indulged in it, is generally true, we must go into all the experiences of these patients in order to draw proper conclusions.

Diurnal pollutions I consider to be always pathological. They are most generally present in patients who also suffer from nocturnal pollutions. Indeed, it is rather rare to find patients who only suffer from diurnal pollutions. In these cases the very sight of a woman, or the rubbing up against one in a crowded car, is sufficient to cause an ejaculation of semen. In the vast majority of these cases there is very slight, if any, erection. Sometimes the patient sees fluid appearing at his

meatus every time he looks at it. This latter represents a much more severe type of pollution than either the nocturnal or the diurnal with erection.

In defecation spermatorrhea the patient notices that during the straining incident to defecation a discharge appears and runs out of the urethra. The quantity varies from a few drops to a dram. I must remark, here, however, that the patient's word as to quantity of fluid lost in pollutions of all kinds must be taken with a large grain of salt, as they are generally prone to exaggerate. In mild cases these losses accompany only severe straining efforts, or the passage of very hard fecal masses, whereas in the more severe cases they appear with every defecation, even when the fecal contents have been artificially made soft and watery by mineral cathartics, and are unaccompanied by any straining whatsoever. As a matter of clinical experience, I have frequently noticed these severe cases of defecation spermatorrhea to be the forerunners of the most obstinate cases of impotence, and conversely, in many cases of impotence that come to me for treatment, I have also obtained a history of defecation spermatorrhea.

In urination spermatorrhea the patient notices, after urination, a seminal discharge. Patients with urination spermatorrhea almost always suffer from nocturnal pollutions at the same time, and very often are afflicted also with defecation spermatorrhea. This represents, to my mind, the severest type of pollutions and is, of course, always pathological. As previously stated, it makes no difference whether spermatozoa are found in the discharge or not.

The *general* symptoms of pathological pollutions vary greatly in intensity. They are especially severe in patients with an underlying neurasthenic tendency. While patients suffering from pathological pollutions are very prone to exaggerate the importance of their symptoms, especially if they have read pro-

fusely the quack literature on the subject, we must not fall into the opposite error of thinking that they have no symptoms at all, and that their sufferings are only imaginary. I cannot too strongly emphasize the fact that these patients have real symptoms and that at times their sufferings are extremely severe. As in masturbation, we must here also determine whether the symptoms complained of by the patient are really experienced by him, or whether they are merely being repeated by him from the quack literature he has read.

One of the symptoms most frequently complained of is a peculiar feeling of lassitude, of diminished energy after the occurrence of a pollution. The patient wakes up dead tired, without any ambition, with no inclination for work, and feels as if he has been up all night doing hard work. He is entirely exhausted and fit for sleep rather than for the duties of the day. This peculiar feeling, which it is very difficult to describe in cold print, is very characteristic of pathological pollutions, and is entirely different from the sensations of a chronic masturbator or any other form of sexual neurasthenia.

Headache is another symptom often complained of, but, as in all forms of sexual neurasthenia, we must determine by competent authorities whether the headache may not be due to errors in refraction. In fact, every symptom of the sexual neurasthenic must be investigated, with the possibility in mind of some other co-existing pathological condition being present to account for the symptom. While admitting that the sufferer from pollutions is liable to many and severe symptoms, we must not fall into the error of blaming everything he complains of on his pollutions.

Among the other more common symptoms may be mentioned burning of the eyes, discomfort in the inguinal regions, heaviness of the testicles, a feeling of faintness and palpitation of the heart, excessive perspiration, pain down the spine, and

tremor of the hands. Loss of memory is frequently *complained* of, but upon careful investigation it will be found not to exist. Very often, however, there is a temporary weakness of memory due to indiscriminate use of bromides or an idiosyncrasy for this drug. Exceptionally, we find patients who come for other troubles, and whose history shows that they are subject to frequent pollutions, but apparently have no symptoms therefrom and do not bother about them. I have also noticed patients who have suffered from pollutions for many years, and in whom, at the beginning, the pollutions were accompanied by marked general nervous symptoms, but who, later on, seem to become immune as it were, or callous, indifferent or apathetic and therefore did not suffer much from them.

In ordinary cases of pollutions the sexual powers of the patients do not suffer much, if any; yet, from a careful observation of many cases, I am firmly convinced that finally there occurs an impairment and temporary impotence in quite a number of cases. However, the condition is not nearly as bad as some authors try to make us believe, and I am certain that in many cases these authors have misjudged or have not thoroughly studied the symptoms and history. It is undoubtedly true that many sufferers from impotence suffer from pollutions also; in fact, the two conditions may be due to the same pathological condition or have the same common etiology, but this does not mean that the impotence was the result of the pollutions.

Among the urinary symptoms which often accompany pollutions, but which are often due to the same condition in the posterior urethra which is the cause of the pollutions, may be mentioned frequency of urination, scalding of urination, and a feeling of wishing to pass more urine after the bladder has been thoroughly emptied. Such a condition as mentioned by Sturgis as shrivelled penis due to pollutions, I have never seen.

The list of symptoms just given are simply symptoms which one hears complained of, on going carefully into the history of *many* cases. I do not by any means mean to infer that any *one* patient complains of all or a majority of these symptoms. We may find a few or many of the symptoms in any particular case, as well as any combination of symptoms.

It is interesting to note what symptoms have been put down by some authorities as due to pollutions. Space will not permit me to mention all those which have been ascribed to this condition by one authority or another. The more unusual ones mentioned are: *difficulty in articulation, thickness of speech, burning and tingling at the end of the tongue, impaired taste, epistaxis, catarrhal discharge from the nose, salivation, tinnitus aurium, partial deafness, defective accommodation, temporary hyperesthesia of the auditory nerve, asthmatic breathing; a constant, short, hacking cough; cardiac palpitation, intermittence in the action of the heart and pulse, angina pectoris nervosa,* etc.

In *urethrorrhea ex libidine sexuale* the symptoms are somewhat different. In this condition, as I understand it, there is simply a hypersecretion of Cowper's glands and those of the urethra. The patient, after a prolonged act of spooning, or other unsatisfied sexual excitement, will find some fluid just within or coming out of the meatus. Generally a prolonged period of erection has preceded this event, but there has been no coitus and no ejaculation. There is no force behind this fluid; it simply dribbles out. It is, as a general thing, not accompanied by any feeling of depression or other general nervous symptom unless the patient has been frightened by reading quack literature.

DIAGNOSIS OF POLLUTIONS

The main point is to distinguish between normal and pathological pollutions. The differential points are as follows: Normal pollutions are always nocturnal, whereas pathological pol-

lutions may be either nocturnal or diurnal, and may accompany defecation or urination. Normal pollutions occur on the average not oftener than once in ten days, whereas pathological pollutions occur much more frequently. Normal pollutions always occur with strong erection of the penis, whereas pathological pollutions occur with very weak or no erection at all. Normal pollutions are generally not followed by a marked period of depression, whereas pathological pollutions are generally followed by such a feeling.

It might seem ridiculous to state that pollutions should not be confounded with gonorrhea, but I have seen such mistakes made in not a few cases. In several instances, I have seen careless dispensary physicians prescribe for cases without any examination of the genitals at all, and the mere fact that a patient comes into the dispensary complaining of "running" or "discharge" is sufficient for them, without further examination, to conclude that the patient is suffering from gonorrhea and prescribe accordingly. In my private practice, also, I have had patients come with diurnal or urination spermatorrhea, who had been treated for gonorrhea by some careless physician. As a general thing the secretion which appears at the meatus in cases of diurnal pollutions or urethrorrhea is entirely different in appearance from that of an acute or even chronic gonorrheal discharge, but, aside from this difference in appearance, no physician should treat any urethral discharge without first subjecting it to microscopic examination. Even if no gonococci are found, the other characteristics of the discharge under the microscope are sufficient to differentiate the conditions.

PROGNOSIS

The prognosis of normal pollutions is, of course, excellent. In pathological nocturnal pollutions, the prognosis is very good also. We must not expect to stop the pollutions entirely in every case before marriage, but we can reduce them to normal limits.

We can assure these patients that it is perfectly normal for a continent man to have a pollution once in ten days or two weeks. The prognosis in urethrorrhea is likewise very good under proper treatment. Diurnal pollutions are much more obstinate than the nocturnal variety, but finally yield to persistent treatment. Defecation spermatorrhea is a much more serious condition than the forms previously mentioned, and urination spermatorrhea is the worst of all. Defecation spermatorrhea which is only present on severe straining, or after the passing of hard fecal masses, is hardly more important than nocturnal pollutions, but the variety which comes with every stool, even one watery in character, is very apt to be a forerunner of impotence.

The general prognosis is worse where there is a hereditary tendency to general neurasthenia. It is worse in cases coming on after 50 and accompanied by premature ejaculation or total impotence. The condition represents extreme hyperirritability of the sexual centers, and these centers at this age cannot stand much strain, and the resulting impotence is apt to become permanent.

The more excuse there is for a pollution, the less serious it is. Thus, a man who has been continent for several weeks is entitled to a pollution, and a man who has been spooning with his girl for hours has also a right to expect a pollution during the night. It is only those cases where pollutions occur with little or no sexual excitement, such as merely brushing up against a female in a crowded car, or merely thinking of one, which represent the more serious types.

In considering the seriousness in the prognosis of pollutions, I only refer to the possibility of impotence, and to the persistence of the general neurasthenic symptoms. Pollutions, no matter how severe, never endanger life, and there is not the

slightest evidence that they ever lead to insanity or other serious nervous conditions.

TREATMENT

1. PROPHYLACTIC

Boys approaching adolescence should be told of the probability of the occurrence of wet dreams from time to time, so that they may not be frightened at their appearance and run to the first advertising quack they hear about. It seems to be the opinion among young adults that the appearance of a pollution is a sign that their sexual organs are ripe and demand their exercise in coitus. This opinion should be very carefully warned against.

Every effort should be made to bring up the young man with as pure thoughts as possible, and to keep him away from suggestive literature and plays. It were well if he would abstain from alcoholics, especially beer, for these stimulate the sexual centers as well as the genitals themselves. He should partake as little of tea and coffee as possible. Cold bathing in the morning should be encouraged, but hot baths should be taken as little as possible, especially at night. He should empty his bladder before retiring, and arise as soon as he awakens, so as to diminish, as much as possible, the morning erection, which leads to erotic thoughts.

2. GENERAL

The normal cases should be told, in plain and definite language, the significance of pollutions, their harmlessness if not too frequent, and the measures advocated in the prophylactic treatment just mentioned should be enforced if possible.

In patients suffering from pathological pollutions, the measures just advocated under prophylaxis *must* be enforced. There is little use in treating these cases if they will not abstain from alcoholics, tea and coffee, and all kinds of sexual excitement. Spooning is especially to be interdicted.

The first thing to be done is to stop the pollutions. Nothing succeeds so well here as the bromides in large doses. I prescribe 15 grains of sodium bromide three or four times a day, well diluted after meals. The primary effect is really remarkable; patients with three or four pollutions a week will quickly drop to one in one or two weeks. The psychic effect of this rapid diminution in the pollutions is also well marked. As the pollutions decrease in numbers, the bromides should be given less and less often, until only at bedtimes, and finally should be stopped altogether.

At the same time we must relieve the congestion or other pathological condition in the posterior urethra. For this purpose I have tried various expedients, but have found the instillation of weak silver solution through the Bangs sound syringe to be best of all. The method is similar to that described in masturbation of the adult male (page 210). Very strong cauterization of the verumontanum, as recommended by some German authorities, I have found to be of no use whatever.

Nor have I found the psychrophore of much use in these conditions, but must admit that I have not tried it often enough to give a final opinion. According to German authorities it must be employed every other day from five to twenty minutes at a time. Now, in private practice, I have not been able to induce patients to come every other day when suffering from no other condition than pollutions, and in my dispensary class it takes entirely too much time to give a large number of patients twenty minutes each, every other day for a long period. In the few dispensary cases in which I have conscientiously given it a trial, however, I have obtained no good results from its use, but, as stated above, the experiments have been entirely too few to warrant a decisive opinion. Even the German authorities, who have large experience with this method, say that some cases are made worse by it, and that they cannot tell beforehand

whether it will benefit or harm in any particular case. They also concede that, even in cases where it does good, temporary impotence often follows.

In defecation and urination spermatorrhea, the bromides do not act as quickly or as positively as in the other forms. On the theory (which, as heretofore stated, has not been proven at all), namely, that the condition is due to a weakness of the sphincters of the ejaculatory ducts and of the seminal vesicles, as well as to a weakness of the musculature of the seminal vesicles, I have tried strychnine in small and large doses, but without any result. The main treatment in these cases is to avoid constipation with its accompanying straining at stool, the avoidance of the accumulation of hard fecal masses by proper catharsis, and the treatment of the prostatic urethra as above indicated.

In urethrorrhea it is only necessary to instruct the patients about the harmfulness of spooning, and their discontinuance of such and similar sexual excitements will generally bring about a cure. If necessary, a few silver-nitrate instillations in both the anterior and posterior urethra will usually cure the patient.

B. POLLUTIONS IN THE FEMALE

Pollutions in the female are much less frequent than in the male, and also much less understood than the former variety. The fluid generally consists of the secretion of the Bartholinian glands. The condition in virgins is generally due to masturbation and in married women either to ungratifying coitus (premature or rapid ejaculation in the male) or to enforced abstinence on account of death, absence or impotence in the husband, in the cases of women with pronounced sexual passion.

Just as in the male, the condition may be accompanied by erotic dreams which are different in virgins than in married women, on account of the difference in the sexual experience.

As is well known, there are many erotic zones in different parts of the female anatomy, the stimulation or irritation of any of which may give rise to either libido or pollutions. Just as in the male, these pollutions are the result of stimulation of the ejaculation center, and the impulses may come either from genitals or any other erotic zone, or from the cerebrum. Sometimes these pollutions are accompanied by the same feeling of depression and general nervous symptoms as in the male. The condition is not at all serious, and is relieved by bromides and cold baths.

Chapter XII

PRIAPISM

DEFINITION

PRIAPISM is a persistent erection of the penis, unaccompanied by sexual desire, and usually very painful. Blum defines it as "a stiffening or turgescence of the male organ, which lasts longer than a normal erection, and, instead of producing voluptuous feelings, is often accompanied by most unpleasant sensations of pain."

ETIOLOGY

The condition may be brought on by very many different factors. We may classify the etiological factors as follows:—

PRIAPISM IN CHILDREN

Due to vesical calculus, tight or adherent prepuce or rectal worms.

PRIAPISM IN ADULTS

Due to (1) vesical or prostatic calculus, stricture, cystitis or retention of urine; (2) gonorrhea, and generally called chordee; (3) ingestion of cantharides; this is at present a very infrequent cause; (4) essential priapism (*a*) due to disease of the brain or spinal cord, (*b*) due to injuries of the perineal region, (*c*) due to alcoholic or sexual excesses, and (*d*) due to leukemia.

It should be noted that some authorities limit the term "priapism" to what has just been described as essential priapism, and never consider the other forms by that name. Most modern authorities, however, understand by the term "priapism" any abnormally prolonged erection of the penis, unaccompanied by voluptuous feelings, irrespective of the underly-

ing cause, and it is under this latter interpretation that the subject will be discussed herein.

PATHOLOGY

The pathology varies with the underlying etiological cause. It can, however, be roughly divided into two classes as follows: (1) Causes which act upon the erection center in the spinal cord, either by direct irritation, by reflex action, or by removal of inhibition from the higher centers. (2) Causes which act directly upon the tissues of the penis, either by interfering with its circulation or by mechanical infiltration of the tissues with inflammatory products or with new growths. Often both these factors come into play at the same time.

1. CAUSES WHICH ACT UPON THE ERECTION CENTER IN THE SPINAL CORD

The center for erection is situated in the *conus medullaris,* and any lesion affecting it causes a loss of erection; an irritating lesion, however (a rare occurrence), may temporarily cause priapism, but paralysis soon follows. Priapism mainly occurs in supranuclear lesions of the cord. We may classify the pathology under this heading as follows:

(*a*) By direct irritation of the center.

(*b*) By reflex irritation of the center.

(*c*) By removal of the inhibition from the higher centers.

(*a*) Causes which act by direct irritation of the erection center. In certain cases of injury to the spinal cord, in which the injury is low down, the sexual center is so irritated that it is thrown into a state of chronic excitation. As stated above, this is a very infrequent occurrence and is of temporary duration.

In spinal syphilis mild priapism has been observed accompanying inco-ordination of the movements of the legs, girdle pain and hyperesthesia of the integument of the abdomen and back, all the symptoms being cured by antisyphilitic treatment.

In the early and middle stages of locomotor ataxia priapism may occur, and cease in the later stages of the disease.

Alcohol causes priapism in several ways:—

1. Local irritation and through the urine.

2. Removal of the inhibition of a normal cortex of the brain through psychic pathways.

3. Changes in the cortex, but mainly subcortex, due to the toxic effects of the alcohol; alcoholic periaxillar neuritis of the brain.

4. Effects of alcohol upon the peripheral nerves.

(*b*) Causes which act by reflex action on the erection center. Under this heading may be mentioned those cases of priapism which are met with in children due to vesical calculus, tight or adherent prepuce, and rectal worms, as well as those cases in adults due to vesical or prostatic calculus, stricture, cystitis, or retention of urine.

It is well known that even in normal persons the distention of the bladder during the night causes an early morning erection. It is therefore quite easy to understand how the constant irritation of the causes above mentioned will bring about a constant erection, or, in other words, priapism.

In priapism due to cantharides poisoning, the intense irritation and inflammation of the entire urinary tract acts in a reflex way, in addition to the direct effect upon the tissues in causing the disease.

(*c*) Causes which act by removal of the inhibition from the higher centers. To this class probably belong those cases of injury to the spinal cord high up in the cervical region, as well as those occurring with cerebral or cerebellar hemorrhage. As before stated, certain forms of priapism following alcoholic debauch come under this heading also.

2. PRIAPISM DUE TO CAUSES WHICH ACT DIRECTLY UPON THE TISSUES OF THE PENIS

Under this heading we find the priapism due to very widely different underlying causes, and widely different pathological conditions are present.

In the first place may be mentioned the priapism in acute gonorrhea known also as chordee. Here the condition is due to an edematous infiltration of the corpus spongiosum which becomes less extensible than the corpora cavernosa. When during the night, due to the heat of bedclothes, and the reflex irritation of the acute inflammation present, erections occur, the corpora cavernosa will erect, while the corpus spongiosum cannot enlarge. Thus the penis is curved downward in erection and the painful priapism or chordee results.

There is also another form of priapism occurring in acute gonorrhea which is not chordee, as it is not accompanied by bending or curvature of the penis. In these cases the pathology is as follows: The pain is due to the fact that the congested infiltrated mucous membrane and submucous connective tissue are not able to stretch as they normally do when the cavernous bodies become engorged with blood. When nocturnal erections occur, due to similar causes as those mentioned in connection with chordee, the non-elasticity of the urethra caused by this infiltration of the mucous and submucous tissue gives rise to the intensely painful erections which follow.

Priapism due to alcoholic and sexual debauch is due to the intense swelling and inflammation found to be present not only in the structures of the penis, but also in the perineal and cremasteric region. As a general rule, this form of priapism does not involve the corpora cavernosa and the corpus spongiosum at the same time. In some cases the glans penis and the entire corpus spongiosum have remained unaffected, and cases have been reported in which one corpus cavernosum was intensely turgescent while its mate was entirely unaffected.

Priapism due to cantharides poisoning is due for the most part to the intense inflammation of the urethral mucous membrane caused by the poison.

Under the present heading belong also those cases due to direct traumatism of the penis and perineum. Here the extravasation of blood with its subsequent clotting acts mechanically so as to interfere with the normal distensibility of the parts, thus causing the erections to be painful. For the same reason purulent infiltrations of the mucous and submucous tissues cause priapism.

In cancerous infiltration of the penile tissues the parts become stiff and rigid, and thus mechanically interfere with the normal distensibility of erection, thereby producing priapism.

In leukemia, the priapism is due to the interference with the return circulation, due to the pressure of the enlarged glands, and also to thrombosis of the corpora cavernosa. The organ thus remains more or less permanently engorged.

SYMPTOMS

The symptoms vary with the etiological factors. In children there are present only slight and more or less persistent erections, which are generally painless and vanish with the removal of the cause. The condition can hardly be dignified by the term priapism, but as it fits in with the definition of the term, it has been considered in this connection.

In the adult, the cases of priapism which are dependent upon reflex irritation from vesical calculi, retention, stricture, etc., are likewise very mild and transient in character. The body of the organ is only moderately distended, and except for an uneasy and slightly painful feeling in the glans, little inconvenience is experienced.

In the priapism caused by cantharides poisoning, the inconvenience experienced is due in greater degree to the intense inflammation of the entire genitourinary tract from the kidneys down, than to the priapism. The symptoms of the latter, while in some cases rather severe, are so greatly overshadowed by the more dangerous and sometimes fatal condition of the other organs, as to be entirely negligible.

In the priapism which accompanies acute gonorrhea, whether in the form of chordee or not, the symptoms are very pronounced, and for the time being may eclipse every other symptom of the disease. The attacks come on at night, and the intense pain awakens the patient from his sleep. The entire organ is congested and sensitive, while the pain is so severe at times that patients have tried to break the erection by direct force or pressure applied to the penis, such as a blow with the wrist or from some implement. The result is disastrous, as rupture of the urethra may result. If the attack subsides, and the patient goes to sleep again, he is generally promptly awakened by another attack. His sleep thus disturbed, he becomes restless and awakens in the morning completely exhausted. For the time being at least, this is a very serious complication. Cases are on record in which phlebitis and gangrene has followed the "breaking" of a chordee by the patient, and this has finally resulted in death.

The priapism which depends upon injury to the spinal cord, or upon cerebral or cerebellar conditions, is usually not painful. This particular symptom is borne by the patient with but little complaint. There is often no sexual desire, and the only inconvenience is that caused by the mechanical position of the organ. It is probable that, in comparison with the other symptoms of the very serious condition present, the former is more or less secondary in importance. This, however, is the most persistent of all the forms. Cases of continuous priapism for four or

five months at a stretch have been reported, and Starr, in the *New York Medical Journal,* June 15, 1887, reported a case of meningomyelitis in which the patient suffered from mild priapism for seven years.

The most painful forms of the disease are met with in those cases where the condition follows alcoholic or sexual excesses. Here the onset may be in one of three ways. Either after several mild and frequent attacks of erection, lasting but a few minutes at a time, a condition of priapism finally sets in; or, after coitus, the penis refuses to go down and remains in a condition of priapism; or again the patient wakes up at night without any premonition, and finds his penis in a state of painful erection which persists for a long time. Often the sufferer tries to relieve himself by coitus, but this generally fails and makes matters worse. Even, in those exceptional cases where orgasm and emission are possible, there is absolutely no pleasurable feeling whatever.

During the attack the symptoms are very severe, and one can do no better than to give Taylor's classic description of the condition and symptoms:—

"In its most severe form the organ becomes much enlarged, tense, and comparable to cartilage in rigidity, and the seat of severe pain. The glans may be double in size, much distended, and glistening, as if it would burst. The corpora cavernosa are very dense and unyielding to pressure in their whole length, including their crura. The corpus spongiosum is likewise hard and swollen, and its bulbous expansion is in a similar condition. In some cases the perineal muscles can be felt as dense fibrous bands, and the dorsal vein of the penis seems much distended and feels like a whipcord. In many of these cases attentive examination reveals very painful spots or perhaps nodules in the corpora cavernosa, particularly toward their root or in the crura. Then, again, digital pressure on the bulb and

over the perineal muscles may cause an agony of pain. Spasm of the cremaster muscles may be present, and the testes then are drawn forcibly up to the internal ring. Redness and swelling of the prepuce may be observed as complications. As a rule the integument of the penis retains its normal color.

"In this pronounced condition the sufferings of the patient are very severe, and many authors apply the term atrocious to the pain which is seated in the virile organ. The patients fear the least touch of their linen or of the bedclothes, and jarring of the bed or heavy steps in the room cause them agonizing suffering. They draw up their legs upon the abdomen in order to protect the penis from the slightest touch. This organ may lie rigid against the abdomen, or it may be more or less erect and at a right angle with the body in the horizontal position. Very soon these patients become much worried and apprehensive, and their faces give evidence of anxiety and suffering. In these cases urination may be accomplished with little difficulty, or the act may be painful, slow, and halting, with a small, sputtering stream, or the patient may have to assume the knee-elbow position in order to expel the urine from the bladder."

When we consider that these attacks may last for days or even weeks at a time, during which little sleep is obtained, and that the duration of the priapism with periods of more or less intermission may last from three to six consecutive weeks and even longer, and that in one severe case it has lasted for a period of five months, we can appreciate that the condition is really a serious one. Even when, after a long attack, relief comes at length, everything seems normal and the patient is happy, this relief in the vast majority of cases proves to be only an intermission, and the whole condition returns again in a short time. These remissions may come on at rather long intervals and are frequently brought on by fresh alcoholic or sexual excesses. In some cases, however, exposure to cold or wet.

or severe bodily exertion will bring on a return of all the acute symptoms.

It is not every case, however, that attains this severity, and there are different grades of suffering down to even very mild symptoms.

In the priapism of leukemic origin, all grades of severity occur. Taylor doubts the leukemic etiology in these cases, but most other authorities have no hesitancy in stating that the leukemia is the cause of the priapism.

DIAGNOSIS

The diagnosis is made from the local condition. We must not be satisfied, however, with merely making a diagnosis of priapism. It is imperative to find the underlying etiological cause in order to give the proper treatment. Thus to treat a case of priapism in a child or adult, dependent upon a vesical calculus or other reflex condition, by means of sedative or cold applications to the erect penis, would be the very height of folly. On the other hand, priapism must not be confused with satyriasis, which is an entirely different condition, although the two may coexist.

COURSE AND PROGNOSIS

The prognosis must be guarded, as in some cases gangrene has resulted. Moreover, in a large number of cases, impotence has been noted as a sequela. The prognosis must be particularly guarded in spinal and cerebral cases, being dependent upon the severity of the underlying injury. In leukemic cases, as well as in those of sexual perversion, the priapism is generally very persistent, and even if apparently cured is often followed by relapses. In gonorrheal cases the prognosis is excellent unless the patient does some violence to his urethra. In reflex cases the disease vanishes with the removal of the cause. In traumatic cases the priapism generally disappears after a while, but

the trauma may have permanently injured the urethra. In tabes the priapism disappears as the disease progresses.

TREATMENT

The treatment varies with the etiological cause. In those cases due to reflex irritation from vesical calculus, etc., common sense dictates the removal of the calculus or whatever condition is the origin of the reflex. Wherever there is a history of syphilis or even a suspicion of it, antisyphilitic treatment should be given. In gonorrheal cases I have had the best results from opium and belladonna suppositories, and the local application of ice to relieve the erection. Patients should be especially warned against any violent assault upon the penis to reduce the erection. In traumatic cases, ice to limit the hemorrhage, followed by incisions under absolute asepsis to remove any blood-clots and to allow free drainage of the exudate. The incisions should be made into the most turgid portions of the penis. Early incision is especially important in purulent infiltration.

For the priapism itself, especially for those severe cases following alcoholic or sexual excesses, morphine, chloral, or bromide of potassium may be used during the paroxysm. Either very hot or very cold applications may be employed locally, but chloroform narcosis is generally of no avail.

CLITORISM (KLITORISMUS)

This is a very infrequent condition, and the term has not even found its way into English textbooks or other works on gynecology, nervous diseases, or sexual diseases. It cannot even be found in medical dictionaries.

It was first described by Rohleder, I believe, and is the exact counterpart of priapism. Indeed, it might be called "priapism in the female." Rohleder describes it as a condition of long-continued, painful, recurring erection of the clitoris. In some

cases ejaculation takes place. It is the result of very intense masturbation or tribadism. Hysteria, nymphomania, and excessive coitus are also at times etiological factors. The treatment is that of sexual hyperesthesia, and the primary object is the cure of the Onanism.

CLITORIS CRISES

Köster reported a very rare condition of crisis in the clitoris, occurring in locomotor ataxia, and similar to the other well-known crises which occur in this disease. The few other reported cases come mostly from French and Italian writers, and up to the case reported by this writer it was, I believe, unknown in Germany.

The patient was 49 years of age, and had been suffering from tabes for a period of twenty-one years. Besides the condition presently to be described, she also suffered from laryngeal crises and presented also the classic symptoms of tabes dorsalis.

The crises came in attacks, which occurred every other day, starting about two days before the menstrual period, and lasting during the entire period and even a few days beyond. The nature of the attack was as follows: The patient experienced a peculiar involuntary access of sexual feeling, a sensation of pleasurable tickling, which began in the vagina, travelled down the clitoris and vulva, and culminated in a true orgasm with spasm of the clitoris and ejaculation. Immediately thereafter sharp, darting, lancinating pains were experienced in the vagina, uterus, and back, lasting for several hours.

Like the other crises of tabes they are entirely independent of will, and appear only at night or when half asleep. All efforts on the part of the patient to suppress the erotic feeling are generally without avail. Sometimes, at the very commencement of the attack, however, the patient appeared to abort it by getting out of bed and walking about.

Care must be taken to differentiate these true crises from pseudo-crises. In the latter, owing to peripheral or radicular irritation, clitoris crises may occur, especially during light sleep.

UNUSUAL CASES

In this section I will report a series of unusual forms of priapism, which are commonly not found in urological practice. In these cases the usual etiological causes of priapism are absent. There are no signs or symptoms of lues, leukemia, traumatism, alcoholism, spinal disease or cerebral neoplasm. It will be seen that the psychic components enter largely into many of these histories. I have also advanced a method of treatment which, although for many years in use in other conditions, is not usually associated with the treatment of priapism.

To forestall possible criticism, I will state at the outset that some authorities limit the term priapism to severe and persistent forms of the disease, leaving aside cases where the condition has not reached so severe a stage. These same authorities, however, admit that some of the severe forms are preceded in many cases by these milder prodromal manifestations.

I do not wish to enter into any purely technical discussions as to just how severe or how prolonged the condition must be to place it in the category of true priapism, but will merely state that the cases here reported are certainly within the generally accepted definition of priapism, and in most of my cases were so diagnosed by expert neurologists. The cases were all from my private practice. McKay and Colston state that if the condition has lasted for two days or over, thrombosis occurs in the corpora which is sufficient to keep up the priapism even if the original cause has been removed; this is not borne out by my experience. Hinman also reports a case in which the priapism lasted for about a week and was then permanently cured by an intravenous injection of salvarsan.

CASE I

This patient first consulted me in March, 1918. He was then thirty years old, had been married four years and had always practised coitus condomatus. He denied venereal disease and his coitus had always been normal. His chief complaint was that for the past year he had had attacks of priapism lasting almost the entire night, having all the marks of a wet dream but without ejaculation as a rule. Once every two or three weeks there might be an ejaculation. These attacks were entirely independent of coitus and might come on the same night after it. During the day, he had severe throbbing in the head and bad headaches which he attributed to his attacks of priapism. An ophthalmologist found his eyes negative and stated that the headaches were not due to any errors in refraction. Very often he attributed the priapism to dietary errors, but sometimes they came on without this cause. During the same period he had nocturia once or twice a night but no pollakiuria. The urine was negative. He also complained of an itching in the rectum and a feeling of constriction in the posterior urethra.

The examination disclosed a normal prostate but very sensitive to palpation. The prostatovesicular fluid contained live spermatozoa and no pus cells. An examination of the posterior urethra with the cystourethroscope showed a rather pale sphincter and a congestion of the posterior urethra.

I treated him with deep urethral instillations of weak silver nitrate solutions on the theory that his attacks of priapism were the result of reflex irritations from the congested prostate and prostatic urethra. Internally I gave him large doses of sodium bromide.

The treatments, however, not only failed to relieve his symptoms but he felt much worse. He generally had an attack of priapism lasting all night after each treatment. On one occasion I massaged his prostate in addition to the instillation, with

the result that he had attacks of priapism three nights in succession, each attack lasting the entire night and followed by severe headache during the day.

I stopped the local treatments and, on the advice of a neurologist, gave him five grain tablets of the anterior lobe of pituitary extract, but after a short time had to discontinue them also as his attacks of priapism increased in frequency during their administration. The patient was losing weight and strength as the result of these attacks.

For a period of twelve days he was free from these attacks until he indulged in coitus, when they returned with increased frequency, and were accompanied this time by terrifying dreams, such as having coitus with men and animals.

An examination by a prominent neurologist failed to reveal any organic affection of the brain or cord to account for the priapism. The neurologist suggested epidural injections of sixty c. c. of normal saline solution. I followed this advice and gave him two epidural injections at an interval of twenty days. One week after the last injection he reported that he felt worse, but shortly afterward the attacks of priapism ceased entirely, as well as all the other accompanying symptoms and he remained absolutely well for a period of *eleven* years, during which time he indulged in normal coitus.

The patient returned in June, 1929, that is, eleven years after he had been aided by the epidural injections. As above stated, during all this time he was perfectly normal, indulging in normal coitus, impregnating his wife, who gave birth to a child now nine years old.

Six weeks before coming to me, he again developed exactly the same symptoms, namely, continuous erections, lascivious dreams, a feeling of congestion and irritation in the posterior urethra, which, as before, had all the marks of a pollution but without ejaculation. He could indulge in coitus for an entire

hour. He came to me deliberately demanding another epidural injection. I put him on large doses of luminal for a few weeks with absolutely no result. I therefore gave him another epidural injection with the result that the attacks of priapism immediately abated, but this time the other accompanying neurotic and psychic symptoms did not disappear. He then consulted a neurologist who informed me that there had been no further attacks of priapism and that a neurological examination revealed no pathology. It was his impression that the patient was suffering from a psychoneurosis.

CASE II

This patient consulted me in 1919. He was thirty-six years old, unmarried, and had had gonorrhea seventeen years previously. He gave a history of priapism for the past two years. The attacks came on almost every night irrespective of whether he indulged in coitus or not. Once in a while he had two attacks in one night, generally had only one attack and never missed a night. Wassermann and urine were negative. He had been examined by a urologist but nothing abnormal was found. He also had been examined and treated both by a prominent neurologist and a psychoanalyst but with no result. The gastrointestinal apparatus was also found normal.

I gave him tablets of hyoscine hydrobromide, but with no result. He then disappeared but returned again in 1923, that is, four years after his first visit. During all this time, his priapism was getting worse, having at times as many as seven attacks in one night. He had again been treated by psychoanalysis but with no result. I sent him to a neurologist, but no organic neurological lesion was found. Epidural injections were advised, but declined by the patient. Unfortunately, the patient never returned or answered my letters of inquiry, nor could the physician who had originally referred him to me give me any information as to the subsequent history or final outcome of the case.

CASE III

The history of this case is incomplete and unsatisfactory, as the patient came from another city and made only two visits. He came first in 1926. He was then thirty-three years old, single, denied venereal disease, in fact he had never indulged in coitus. He told me that albumin had been found in his urine and occasionally sugar. He had had attacks of priapism for three years before seeing me. These attacks were very severe and painful and would persist for a long time. A doctor, whom he had consulted, inserted an instrument into his urethra which was followed by fever and swelling of the right testicle, necessitating incision and drainage. Since then the testicle at times swelled up and became inflamed, especially on sexual or even ordinary nervous excitement. The patient was of a nervous temperament.

After a while, and without any treatment in particular, the attacks decreased in frequency, but were still present and came on about once a month. The patient thought that they were not as painful or as prolonged as previously.

My examination disclosed a thickened right epididymis, a slightly congested prostate, distended seminal vesicles, and some congestion in the prostatic urethra as seen through the urethroscope. The prostatovesicular fluid showed many lively spermatozoa and no pus cells. I suggested a neurological examination, which was never done. I heard from him about one year later and was informed that there had been no further attacks of priapism but that the patient thought he was getting impotent. However, as at the time the patient had been married only three days and had never indulged in coitus before marriage, it could not be definitely stated whether this was so or not.

CASE IV

This patient was a physician in general practice with whom I had been acquainted for several years. He first consulted me for priapism in 1924, giving a history of two or three attacks

at night, which awakened him and disappeared if he arose from his bed. He made only one visit to get my opinion and refused to submit to any urological examination. He returned for a single visit in 1928 still complaining of his attacks of priapism which were coming on almost every night. He merely wanted to talk things over. He had had several Wassermann tests taken and had undergone various neurological examinations, but his Wassermann had always been negative. He never had a primary sore or any secondary symptoms, in fact, he never had any symptoms suggestive of lues. Nevertheless, his neurologist made the diagnosis of arrested lues spinalis. He merely discussed with me the various treatments that had been recommended for priapism and then did nothing further. The last I heard of him was about a year ago and he still had his priapism, a period of at least five years.

CASE V

This was another out-of-town patient who came only once for an opinion. He consulted me in 1922 and was at that time forty-nine years old, married nineteen years, one child fifteen years ago. He had had gonorrhea before his marriage and had an examination just previous to marrying and had been pronounced normal.

His attacks of priapism had been of three years' duration. They consisted of prolonged nocturnal erections followed by powerful heart beats and periods of irritability. He was definitely afraid of heart failure, as his father had been found dead in bed. Heart and blood pressure were found normal. He informed me at that time that he drank somewhat and was under the impression that this bore some relationship to his attacks of priapism. On examination his sexual apparatus was found normal except for a very much enlarged verumontanum as seen through the cystourethroscope. I referred him to Dr.

Paine, of Rochester, N. Y., where he lived. I also suggested a neurological examination.

He returned to me about one and a half years later. He had been treated by another physician by prostatic massage and direct applications to the verumontanum. For a period of three months he abstained totally from drinking and smoking but noticed no difference as a result. I recently wrote to Dr. Paine inquiring as to the final outcome. Dr. Paine kindly informed me that the attacks of priapism had become more troublesome, that the patient's stomach and bowels were disturbed, and that he was losing weight. Dr. Paine remarked that the patient was very irregular in his attendance and that the interval between his treatments was well filled with alcoholic sprees. He had not heard from the patient since 1923.

CASE VI

This patient came to me from Texas in 1923. He took this long trip for the one purpose of getting rid of his attacks of priapism. He was fifty-two years old, married thirty years, had impregnated his wife three times, the last time fifteen years previously. He never had had venereal disease. His sexual troubles dated back for a period of sixteen years. He first noticed that the least amount of urine in his bladder would prevent him from having coitus. Then he began losing all sensation during coitus. He took some suppositories and claimed to have been relieved of the above symptoms for a year and a half. He also claimed that the suppositories relieved him of frequency of urination as well as nocturnal urination.

In 1911 he went to a Chicago urologist who cystoscoped him and told him that he had an ulcer at the neck of the bladder, which he treated by deep instillations. Although the patient never complained of any rectal trouble, he said that the urologist cut some "pockets" from the rectum. I could get no definite statement from him just as to the nature of these latter

treatments. However, the last treatment caused considerable pain and a marked swelling of the right testicle, and he woke up at night with a marked erection. This was the commencement of his history of priapism. His testicle remained enlarged for over a year and then gradually reduced in size till it was only about one third larger than normal. His other symptoms, including priapism, also disappeared. He then suddenly was awakened at 3 A. M. with an attack of priapism, without pain, and due to no reason the patient could think of. Since then he had had continued attacks of priapism which disappeared on his getting up. The testicle had always been sore and his coitus had been normal, but without sensation at ejaculation. In other words, these attacks of priapism had continued for a period of eleven years, though not always of equal severity. In 1919 the patient complained of pain in the right leg and went to Hot Springs, Arkansas, where he was treated with ultraviolet rays, which cured the pains in the leg, made the testicle slightly smaller and, according to the patient, reduced the frequency and intensity of the priapism. In June, 1922, he had his right epididymis removed by operation at Hot Springs, but without any effect on the priapism. His urine and Wassermann reaction had always been negative. The intestinal tract was normal. The attacks of priapism came on only when he slept soundly; if he did not sleep soundly or if he stayed up all night he was not bothered by them. He had at times hesitancy in starting the stream of urine and some scalding on urination.

A complete genitourinary examination, including cystourethroscopy by me, showed everything absolutely normal.

I considered that the entire trouble centered in his ejaculation center, probably due to a reflex from the rectum. The soreness in the testicle I considered due to congestion, as I have often found this symptom in patients who allowed themselves to become sexually excited without indulging in coitus.

As a matter of fact the patient purposely abstained from coitus, except on rare occasions, thinking that coitus might aggravate the priapism.

I gave him an epidural injection of novocaine in sixty c. c. of saline solution, with an immediate stopping of the priapism. About a week later I gave him another epidural injection (novocaine ten c. c., saline solution eighty c. c.). He then went back to Texas and remained free from attacks of priapism for a period of four months, when he had a recurrence. It must be remembered that previous to seeing me he never was without a nightly attack for a period of eleven years. As the patient could not come to New York, and as he informed me that there was nobody in his neighborhood who could give him an epidural injection, I advised him to take some luminal suppositories.

Unfortunately I have not heard from the patient since then, although I wrote him several letters, the last as recently as February, 1930.

A NEW TREATMENT

The treatment of priapism by epidural injections was suggested to me by a neurologist, and, although epidural injections have been used for many years for other genitourinary conditions, notably by Cathelin and also by Valentine and Townsend back in 1903 for enuresis, I have never seen it employed in cases of priapism. The neurologist ascribes its action to a nerve blocking by an infiltration anesthesia of roots in the epidural space.

The cases reported above can not be considered transitory cases, which Hinman and others consider of no account. All of these cases had lasted for years, and although, as previously remarked, they did not present the picture of the most severe form which often require operation, they were still important enough to warrant reporting.

The next question that comes to mind is, were the good results noted in some of these cases really due to the epidural injections? I believe they were. We must remember that some of them had lasted for many years and had had the benefit of treatment by expert neurologists, and in at least one case by an expert psychoanalyst, without the least benefit. The same may be said in some of these cases as regards urological treatment directed to their genitourinary organs. And when we notice the prompt disappearance of the priapism after the epidural injections, in one case twice at intervals of eleven years, I think we are justified in concluding that in the cases reported at least, the treatment was the direct cause of the disappearance of the symptoms.

CHAPTER XIII

SATYRIASIS

DEFINITION

SATYRIASIS is defined as excessive venereal impulse in the male. It is the exact counterpart of nymphomania, which is the same condition in the female.

The excessive impulse must be pathological in order to constitute satyriasis. The fact that a married man (egged on perhaps by his wife) has the desire and the ability to have intercourse with his wife very frequently, does not constitute the disease. The amount of sexual intercourse a man can have under suitable conditions varies *normally* within very wide limits, and simply excessive coitus does not constitute satyriasis. In those afflicted, there exists an abnormal, terrible desire or impulse to have sexual intercourse under any circumstances or conditions, irrespective of the age of the female or other considerations of decency or decorum. As White and Martin put it, "the sexual desire is so overpowering that its gratification becomes the one dominant thought and purpose of the patient's life."

ETIOLOGY

The etiology is not at all clear, and various causes given by some authors are vigorously denied by others. This is mainly due to the different conceptions of the disease itself held by different authorities. Alcoholism and pulmonary phthisis are considered by some as etiological factors. Both continence and masturbation are supposed by some to lead to it, but, from a large experience with both of these latter conditions, I cannot at all subscribe to this view. I have never seen either a case of masturbation or of continence develop into satyriasis. I

have also read the reports of those cases of supposed satyriasis following continence, but, from an impartial reading, can say that the author had not the correct conception of the disease. One example might be briefly given here. A young unmarried clergyman had for many years been troubled with sexual thoughts which he, however, successfully repressed. Finally his sexual feelings so overpowered him that he became almost delirious and was cured only by regular sexual intercourse. This case has been frequently cited as satyriasis due to continence. To the unprejudiced mind, however, it is clear that this was not at all a condition of satyriasis, but simply an unusually powerful sexual desire. The very fact that the patient was cured by normal sexual intercourse shows that there was not even a tendency to the disease. As regards masturbation being a cause, we must bear in mind that the mere fact that a victim of satyriasis often resorts to masturbation, if he is unable to satisfy his desire in any other way, by no means proves that masturbation is the cause of the disease.

An interesting theory of the etiology of satyriasis is the atavistic theory brought forward, I believe, for the first time by von Krafft-Ebing. In animals, especially during the rutting season, the sexual instinct is so powerful as to dominate all other habits and render them at this time insensible to dangers ordinarily carefully guarded against.

As a result of education and breeding of many centuries, the sexual instinct in the normal human individual has been placed more or less in the background, and is not "the predominant note in the chord of human sentiments, but forms rather episodes in the physical and psychic life of cultured man with periods of ebb and flood. It is rather the generating element of higher and nobler social and moral sentiments, leaving room for other spheres of activity, whose object is the furtherance of interests affecting the individual as well as society at large."

As a result of centuries of education, civilized man has evolved a moral code for himself, which dictates that he satisfy his sexual needs within certain limits of modesty and morality and not, like the brute, whenever desire seizes him.

"Practically speaking," says Krafft-Ebing, "the sexual instinct never develops in the normal, sane individual who has not been deprived by intoxication (alcohol, etc.) of his reason or his senses, to such an extent that it dominates all his thoughts and feelings, to the exclusion of other aims in life, and tumultuously and in rut-like fashion demands gratification without allowing the possibility of moral and righteous counter-presentations, resolving itself into an impulsive, insatiable succession of sexual indulgences."

In satyriasis, according to this view, we have a reversion to primitive instincts. The patient becomes, for the time being at least, like the animal in the rutting season.

That there may be some truth in this atavistic theory is shown by the fact that among primitive peoples no restraint whatever is imposed on the sexual impulse; it is gratified without shame and without formality. No hindrance is offered to the mutual intercourse of the two sexes.

"While originally," says Kisch, "savage and uncivilized races, as well as primitive man, made nakedness the rule and cohabitation was practised entirely unrestrained by law or morals, and simply as an expression of unbridled passion, so that complete promiscuousness of sexual life resulted, civilization has set limits to the sexual relations and has introduced marriage as a sacred institution."

Lombroso comments upon the entire freedom in sexual relations among the North American Indians and mentions that "periods of general promiscuity occur at certain times, just as in the case of rutting animals, probably in the warm season of the year, when food is plentiful. It is difficult to draw any dis-

tinction between the noisy orgies of baboons and those of the Australian savages, who keep the sexes separate throughout the entire year, but come together like rutting animals at the time of the ripening of the yam."

Cook mentions, in connection with his first voyage, that at Tahiti he saw a native in sexual intercourse with an eleven-year-old girl before the queen, who gave him directions in that regard. The sexual act, according to Cook's account, was the favorite topic of conversation between the sexes.

According to Herodotus many of the nations of antiquity did not keep the sexual relations private, but cohabited like animals in any assemblage.

Lombroso and Ferero, in their work, "Woman as Criminal and Prostitute," say: "In the lower stages of development the sense of modesty is entirely absent; unlimited freedom of sexual relation is the general rule."

It might be objected, however, that lack of modesty in sexual matters does not constitute satyriasis. But, on the other hand, we can easily understand that if such a primitive man were to be brought into contact with modern society, it would be impossible for him to control his sexual appetite as does the civilized man of today, after centuries of education. It is more than likely that the former would have connection at every opportunity whenever the desire seized him and would be practically like one afflicted with satyriasis. In other words, were a man born today, with prehistoric or even primitive sexual instincts, and with that lack of self-control which is *normal* to primitive man, we would certainly consider him suffering from satyriasis.

PATHOLOGY

Opinion is divided, among those who have studied this condition, as to whether it is a disease *per se* or only a symptom

of some form of psychosis. Thus Parke says that both satyriasis and nymphomania are more frequently symptomatic of the graver psychosis dependent on derangement of cerebral and spinal functions. On the other hand, Wulffen considers it a pathological condition of sexual hyperesthesia. According to him, both satyriasis and nymphomania are not perversions, but simply pathological states. The pathological seat, in his opinion, is to be found in the genitals themselves and the disease is neither hereditary nor are those afflicted degenerates. Krafft-Ebing considers it a state of physical hyperesthesia, with a powerful participation of the sexual spheres.

My own opinion is, that in the present state of our knowledge (which is by no means complete) it is best to consider satyriasis as a clinical entity just as we consider impotence, or masturbation; that is, a condition which may be due to either local, cerebral or psychic causes. This conception does not conflict with the opinion that the disease is merely a symptom of some graver psychosis (psychic form), nor with a case which has come under my own observation, and which is presently to be reported, where the disease was due to the irritation of an exceedingly large and inflamed verumontanum, which was seen through the posterior endoscope, and in which the reduction of the verumontanum by the application of powerful caustics eventually effected a cure. The view just expressed is merely tentative, as it appears to be the only one to harmonize all the clinical facts. It may, however, have to be modified or entirely altered as soon as more light is thrown upon the pathology than we know at present.

It should be distinctly remembered, in considering the symptoms and history of some of these cases, that satyriasis often accompanies severe forms of psychoses, and is to be found in connection with, and forms part of, some forms of insanity.

SYMPTOMS

The person afflicted with satyriasis strives to obtain coitus at any price. If he cannot obtain it in the ordinary way, he sometimes resorts to masturbation or sodomy. Rape is not uncommon. Wulffen reports a case of an old man of 70, who married a young girl with whom he had coitus 10, 15 and 20 times in twenty-four hours, and actually kept this up for a period of three months. Krafft-Ebing reports the case of a middle-aged man who left the train, ran into a small village, and raped an old woman of 70, whom he found alone in her home. The case which came under my own observation, and above referred to, was that of a poor laborer who spent all his wages to obtain connection, and who told me that he would have had connection several times a day if he had had the price. Every time he saw a female he would be seized with an inordinate desire, which he found it most difficult to restrain.

The entire psyche of these patients is made up of sexuality which colors their entire world. Every thing they see or hear brings thoughts on sexual matters. The phantasy produces sexual pictures, and in very bad cases there is an actual confusion of ideas and hallucinatory delirium. In most cases of the disease, the genital organs are in a state of continual turgescence. Many of those afflicted eventually find their way into the criminal courts. "The sexual impulse," says Krafft-Ebing, "may become so strong as to completely dominate both imagination and will and to imperatively demand relief in the corresponding sexual act. In acute and severe cases, morals and will-power entirely lose their controlling influence, while in chronic and milder cases restraint is still possible to some degree. At the acme of paroxysm, hallucinations, delirium and benumbed consciousness appear, and often continue during a prolonged period." These latter symptoms, just mentioned, really belong more to the grave psychoses than to satyriasis proper. He also

quotes the case of a man in whom the sexual impulse became so powerful that, if he were absent from his wife even for a short time, he became indifferent as to whether woman, man, or animal satisfied his desire.

There is also a form of chronic satyriasis which is described by Krafft-Ebing as follows: "To this class belong men who suffer from sexual neurasthenia as a result of *abusus veneris,* and particularly of masturbation, and who at the same time possess intense libido sexualis. Their imagination, just as in acute cases, is intensely excited, their mind is full of obscene pictures, so that even the most sublime things they contemplate are tainted with lustful images and suggestions. All the thoughts and desires of such men are concentrated on sexuality, and, as the flesh is weak, they gradually acquire the grossest perversions of the sexual act, under the stimulus of their imagination."

DIAGNOSIS

The diagnosis is to be made from a careful study of the history of each case. It is especially important to make the correct diagnosis and differential diagnosis in criminal cases, so as to fix the responsibility in cases of rape or other criminal assaults.

PROGNOSIS

In the absence of a distinct pathological condition the prognosis as to cure is bad. Many of the milder cases, however, seem to be able to control themselves to a certain degree, often even to a very marked degree, and they may go through life without getting themselves into trouble.

TREATMENT

In each and every case, it is well to investigate the condition of the posterior urethra. In the case reported by me above, I found a definite pathological condition, the removal of which

cured the disease. The pathological condition in that particular case was an extremely enlarged and congested verumontanum, the largest I had ever seen, and the treatment consisted in direct application of very strong silver nitrate to the parts through the Wossidlo-Goldsmith posterior urethroscope. Why a diseased verumontanum should have caused satyriasis in that particular case, and why in hundreds of other cases which I have seen practically the same condition in the posterior urethra should have had no such effect, is one of the unsolved mysteries of sexual neuroses. Both Forel and v. Schrenck-Notzing report cases relieved, and in some cases cured, by the use of hypnotism. In these they considered masturbation to be the underlying cause.

Even though we cannot get at the etiological factors, or remove the underlying pathological condition (especially in the psychic and cerebral forms), we must not neglect treatment nevertheless. We must positively interdict alcoholics, as well as coffee and tea. We must also remove any local genital condition as well as anything that psychically stimulates the sexual centers. The reason for this treatment is as follows: There are very many mild cases of satyriasis, in which the patient under ordinary circumstances is quite able to control himself, but if drunk, or under additional outside sexual stimulation, is entirely unable to do so, and gets himself into serious trouble. The more severe cases ought to be placed in an institution, for the protection of society as well as for their own protection, and we ought not to wait until some unfortunate, uncontrollable impulse brings them into the criminal courts.

CHAPTER XIV

RAPE

DEFINITION

RAPE is defined as carnal knowledge of a female against her will. There are many interesting legal questions involved in the consideration of this offense, such as age of consent, consent obtained by fraud, absence of consent through fear of bodily harm, and the effect of narcotic drugs, etc. Concerning all these strictly legal aspects of the case, I have nothing to discuss. I leave them to the members of the legal profession to whom they properly belong.

There are several interesting medical aspects in the study of this crime, however, which should be taken into account by those who pass judgment upon the offender.

There are girls, for instance, and some who consider themselves strictly respectable, too, who have no hesitation in allowing a man, in many cases their sweetheart, to indulge in any sort of sexual play, but stop short only at intromission or sexual intercourse. They themselves are very often the aggressors, and will inflame a man's sexual passion to the most intense point, will go past the most extreme bounds of propriety, will sometimes even give hints that sexual advances would not be resisted, but will stop short at the actual performance, or anything that might rob them of their virginity. They will, in some cases, place themselves in the posture to make sexual congress very easy for the male, but will, with *words,* deny their consent. It sometimes happens that the man's passion has been inflamed in this way beyond the point of control, or perhaps, he thinks that she is only acting the part of Bryon's heroine, who "saying she would not consent, consented," and allows his passion to

get the better of him, going the one slight step further, which converts spooning into the criminal act. Legally he has committed rape, that is, he has had carnal knowledge against the will of the female, yet when we consider that no passionate married man would have been able to desist if his passion were sexually aroused by his wife in a similar manner, it must be admitted that scientifically and morally we can hardly consider the foregoing a case of rape, and we are almost tempted to say that the female got about what she deserved.

There is, however, another class of cases, which is just the reverse of the one just discussed.

An unscrupulous man takes out an unsuspecting girl, but one endowed with strong sexual passion, and treats her to supper and strong drinks. He does not get her intoxicated, she is still master of her consciousness, but unfortunately, with her strong inborn sexual passion, the liquor has the effect of so inflaming her sexual desire that she easily yields to his advances. Legally, the man has not committed rape; he has got the willing consent of a girl who was neither unconscious nor rendered stuporous. Scientifically, however, even if the crime does not come under the caption of rape, it is certainly about the same thing. He has, by a drug, so inflamed the passions of the female, that it is almost impossible for her to resist temptation. It is like dangling a tempting dish before a starving man, and then finding fault with him for attempting to obtain it.

In the above two instances I am discussing the subject purely from a medico-legal aspect, and have not entered into the moral question at all. Of course, no high-class mother would allow her daughter to go unchaperoned with a man, and drink with him. But that is not the subject under discussion here.

I have given the two examples just mentioned, to show the difference between the legal and the physiological aspect of

the same act. I will now go into the pathology of rape, and take up the interesting question whether "rape is always a crime."

It must be stated at the outset that there are cases of rape, in fact, by far the greater number of cases, which are undoubtedly crimes and merit the most severe punishment. Under this heading come, for instance, the celebrated Boscheiter case, so prominent in the public papers several years ago, where several young men of good families started out with the deliberate intention of drugging a young girl with chloral and then violating her. Unfortunately for all concerned, they administered an overdose of the drug, and the poor girl died. They were all convicted and served prison terms.

There is no doubt in this and similar cases, where there is deliberate premeditation, that the rape committed is a crime so foul that should merit the most severe punishment. With such cases the physician has nothing to do. They belong to the legal fraternity absolutely.

But there are cases, pathological cases from the medical standpoint, in which the advice of the medical expert should be sought, more often perhaps than at present, and in which we may well ask "Was the particular offense really a crime"?

There is a pathological condition in the male called satyriasis in which the individual afflicted has an almost insatiable desire for sexual intercourse. While it is true that in its most severe form the desire is so extreme as to amount practically to a mania, yet there are many mild forms of the condition which may afflict men of the highest respectability and of the very hightest intellect. Such men are perfectly normal, but cannot resist indulging in sexual intercourse at the slightest provocation.

Krafft-Ebing, in his work on psychopathia sexualis, gives many examples of this condition, although the vast majority

of the cases mentioned by him belong to the very severe type of the disease. Cases are on record in which married men compelled their wives to submit to their sexual embraces from 10 to 15 times in 24 hours. In some cases these periods of sexual excitement come on in attacks, while in the intervening intervals the patient is apparently normal. In other cases, however, the patient is in a continuous state of sexual erethism. One of the cases reported, for instance, was that of a respectable married man, in whom, if his wife was absent from home but a short time, the sexual impulse became so powerful that he had to satisfy it, irrespective of consequences.

The person so afflicted strives to obtain coitus at any price. If he cannot obtain it in the ordinary way, he may resort to masturbation, sodomy or rape. In such cases there exists an abnormal terrible desire or impulse to have sexual intercourse under any circumstances or conditions, irrespective of the age of the female or any of the considerations of decency or decorum.

Several years ago I had under treatment a poor laborer, who spent all his wages to obtain connection, and who told me that he would indulge in coitus several times a day if he had the price. Every time he saw a female he would be seized with an inordinate desire, which he found it extremely difficult to restrain.

The entire psyche of these individuals is made up of sexuality, which colors their entire world. Their mind is full of obscene pictures, so that even the most sublime things they contemplate are tainted with lustful images and suggestions. If we look around among normal men we may often notice some slight tendency to this condition. We find, for instance, men and women also who never appreciate a joke unless there is something suggestive about it and who manage to twist even

the most sacred thoughts and sayings into something suggesting the sexual.

LEGAL ASPECTS

In a court of law, as I understand it, when a person is on trial for rape, the main question, after the facts have been established, is whether the man is sane or insane. If there is no doubt that the man is not insane and it has been established that he has committed the act, he is punished, often very severely, sometimes even with death, but generally with a long prison term. At any rate, little sympathy is spent on such an individual.

What I desire to bring out most emphatically here is the fact that the victim of satyriasis is *not* insane, either in the legal or medical sense of the term, except of course in some of those extreme cases reported by Krafft-Ebing, and even in such cases the question of insanity is to a large degree doubtful. Such unfortunates are not insane, and yet they have not the ability to restrain their desire in the presence of opportunity. They may be likened to opium fiends, who have been deprived for some time of their accustomed drug. It is well known that some of these opium habitués will go to almost any extreme to obtain the narcotic.

What shall be done with these unfortunate victims of satyriasis? Much has been tried in a medical way, but with very limited success. Some European authorities have reported cures in some cases by hypnotism. All cases are not alike. In some of them there seems to be an organic cause for the condition. It would take me too long to discuss here the anatomy and physiology of the male sexual organs. Briefly speaking, it may be stated that the verumontanum, which is situated in the prostatic urethra, has been called the sexual heart of the male, because in it is centered a large part of the sexual sense of the individual. Congestion and other pathological conditions of it,

sometimes give rise to the most marked sexual disturbances, such as certain forms of impotence, pollutions, masturbation and various reflex neuroses combined under the general term of sexual neurasthenia. I do not wish to be understood that the entire sexual sense is situated here, or that every form of the disturbances above mentioned is due to pathological conditions of it, but merely, that in many cases, the conditions above mentioned are due to disturbances of this portion of the male anatomy, and a cure of the affected portion of this region will, in many cases, cure such disturbances. I have of course here given but the briefest outline description of the verumontanum.

TREATMENT

Now in the particular case of satyriasis detailed at the beginning of this paper, I found upon examination the verumontanum greatly inflamed and enlarged, but by proper treatment I managed to reduce its size to its normal condition, as well as get rid of the inflammation, with the result of curing the patient's satyriasis. Cases have also been reported by other authorities in which the sexual sense suddenly reappeared in old men, long after the decline of sexual passion, but in a most perverted form, which came near sending them into the criminal courts. Here also, on examination, the same pathological condition of the verumontanum was discovered, and its removal or cure was followed by a disappearance of the pervert tendencies. Why a disease of the verumontanum should cause these serious symptoms in some cases, while in hundreds of other cases, even more serious pathological conditions of it are found without producing anything like such symptoms, is one of the unsolved mysteries of sexual disorders.

Again, from a medical viewpoint, all such cases should be compelled to become total abstainers from liquor. The reason for this lies in the fact that it has been noted that there are very

many mild cases of satyriasis, in which the patient under ordinary circumstances is quite able to control himself, but if drunk, is entirely unable to do so, and gets into serious trouble in consequence. The more severe cases should be placed in an institution, for the protection of society as well as for their own protection, and we ought not to wait until some unfortunate, uncontrollable impulse brings them into the criminal courts.

There is also a condition in the female, called nymphomania, which is the exact counterpart of satyriasis. In a few cases the experiment has been tried of having a nymphomaniac marry a man who is the victim of satyriasis. The result has been uniformly disastrous. Not only have the patients not been cured, but it was found that the children inherited the sum total of the degenerate qualities of both parents.

So much for the medical treatment. Now for the legal side of the question. Here there are two important points to be considered. First, society must be protected, and secondly in the real condition, these cases are not criminals, but the victims of severe disease. Hitherto, when a person has committed rape, and it has been demonstrated that he was not insane, little sympathy was wasted upon him, and even where he has not been lynched, he has received a lengthy prison sentence. For the real criminal this is certainly as it should be, but such punishment is not in accord with modern scientific principles as far as the victim of satyriasis is concerned. The tendency of modern criminology is more and more to look upon all crimes as disease. Many years ago, the insane were put in prison, and in many cases were treated by severe whipping, on the theory of casting out devils. Even in comparatively modern times, the insane were put in the so-called mad houses, and were not treated with nearly the humane treatment as at present.

In every case of rape, therefore, where insanity is pleaded, the criminal should not only be examined by an alienist, but also

by a psychologist and sexologist, who should go into the history of the case from earliest childhood, to detect if possible any pervert tendency. In fact, this should be done in every case, whether the defendant sets up the plea of satyriasis or not, because many of these victims do not know, or do not believe that there is anything wrong with them.

To anticipate criticism of members of the bar, I might add that I fully appreciate the difficulties of such procedure, and the abuse which would probably result. It is likely that every person indicted for the crime of rape, and who has no other defense, would at once claim that he could not help it, and that he was seized with an uncontrollable desire to commit the act. But is that not equally true in cases pleading the defense of insanity? Do we not find insanity frequently given as an excuse to avoid the consequences of criminal acts, and has it not frequently occurred that experts could be found to prove the defendant insane? Still the law considers insanity a valid defense in many cases, and certainly would not think of abolishing the defense because of the abuse.

I would suggest just one thing further, however, and that is that in all cases where the defendant escapes punishment for his crime on the plea of satyriasis, he should not be let go scot free, but should be detained in a sanitarium, and kept under medical observation and treatment, until such time as experience would show that he can safely be allowed to return into society, which, as far as medical knowledge stands at present, means in many cases that he will be so confined for the rest of his life. This procedure will have a two-fold effect. In the first place the family will be spared the odium of having a relative in prison as a criminal, and in the second place it will deter many who really are not diseased from setting up satyriasis as a defense, because they will have so little to gain thereby.

CHAPTER XV

THE EVIL CONSEQUENCES OF WITHDRAWAL.

FOREWORD

THE practice of withdrawal is one of the oldest and most wide-spread of sexual malpractices. Although many years ago Bangs and others have called attention to the evil consequences following this practice, and I have reported some interesting sequelæ in the same connection, the subject is of such great importance, and is so little appreciated, that this entire chapter is devoted to its analysis.

It must be emphasized at the outset, that the evil effects of this practice are not of interest merely to the genitourinary specialist, the neurologist, and psychiatrist, but they are even of more immediate interest to the general practitioner. There is hardly an organ in the body whose functions may not be deranged through reflexes from the genitals arising therefrom. Besides the symptoms of general neurasthenia, I have elsewhere reported a case of symptomatic sciatica which resisted treatment by others over a long period of time. I was able to bring about a quick cure by local treatment to the patient's prostate, the condition being due to withdrawal. The patient had previously made no mention of this at all in giving his history, not thinking it had any relation to his "sciatica." Another case, which will be reported herein, presented symptoms which suggested cardiac disease. These symptoms, lasting for years and, baffling the diagnostic abilities of several excellent internists, were due to no other cause than to reflexes starting from an insulted sexual apparatus.

It is for just this reason that the general practitioner must be interested in this condition and constantly bear it in mind as a frequent etiological factor. The patient does not know or suspect that this practice can harm; nor does he come to the physician saying that he practises withdrawal and has such and such symptoms. Far from it. He may come complaining of headache, or frequency of urination, or fainting spells, or attacks of vomiting, or excessive perspiration, etc., and it is only after tactful and painstaking cross-examination (especially in women) that the etiological factor of withdrawal is elicited.

DEFINITION

Coitus interruptus, or "withdrawal" (by some called Onanism), is the voluntary interruption of coitus by withdrawing the penis from the vagina before ejaculation takes place. We must include herein any attempt on the part of the patient to withdraw the penis before completed coitus, whether successful or not.

ETIOLOGY

The object of the procedure is to prevent impregnation by having the ejaculation take place outside of the female genitals. In most cases there is a deliberate understanding between husband and wife to do this, and in other cases it is only the wife, who does not wish to be annoyed with the inconveniences attendant upon childbearing, who compels her husband to resort to this practice. Economic stress is the reason generally given, and it is indeed rare for the women to avoid pregnancy on account of the pains of labor. There are many other reasons given by both parties why they desire to avoid pregnancy, but the economic reason is the one most common.

PATHOLOGY

To understand the pathology of withdrawal it is necessary to have a clear idea of the physiology of normal coitus, for, as in other conditions, the pathology is but perverted physiology.

The physiology of normal coitus in the male has already been given on page 119, and the pathology of *coitus interruptus* in the male has also been given on page 298. Only a brief description of the essential points of the physiology of normal coitus as well as the pathology of *coitus interruptus* will therefore be given here.

At the commencement of normal coitus, the seminal vesicles are more or less completely distended and impulses are sent from them to the erection center. The latter also receives impulses from the cerebrum as well as from the glans penis during the friction of coitus. (See diagrams, page 123.) Normally the erection center does not send out impulses to the ejaculation centers until it is completely filled up with the impulses it has received from the cerebrum, the seminal vesicles, and the glans penis. In this way ejaculation does not take place until an appreciable time after the commencement of coitus. The result is that the seminal vesicles are almost completely emptied and the erection center is left in a condition of complete quietude. The desire for coitus therefore does not come back for a long time, until the seminal vesicles have again become completely distended, by which time the erection center as well as the ejaculation centers have completely recovered from their state of temporary exhaustion. This time varies normally in different individuals. As a further result of normal coitus, the mucous membrane of the prostatic urethra, which just before and during coitus has been markedly hyperemic, has lost its congestion. The mucous membrane having resumed its normal condition, does not send impulses to the cerebrum until it is again rendered hyperemic at the next coitus.

Let us now see what happens to all these parts as a result of the repeated practice of withdrawal. If the act of coitus is stopped before it is completed, the seminal vesicles have not been able to completely empty themselves, or to empty them-

selves as completely as during a normal coitus, and are thus left more or less filled. The mucous membrane of the prostatic urethra has not been able to completely deplethorize itself, and thus remains more or less congested after the act. As a result of all this, impulses are sent much sooner from the distended vesicles and the prostatic urethra to the erection center and the cerebrum, so that the desire for coitus is felt sooner than after normal coitus. The act is therefore repeated more frequently than it would have been in that particular individual after a normal coitus.

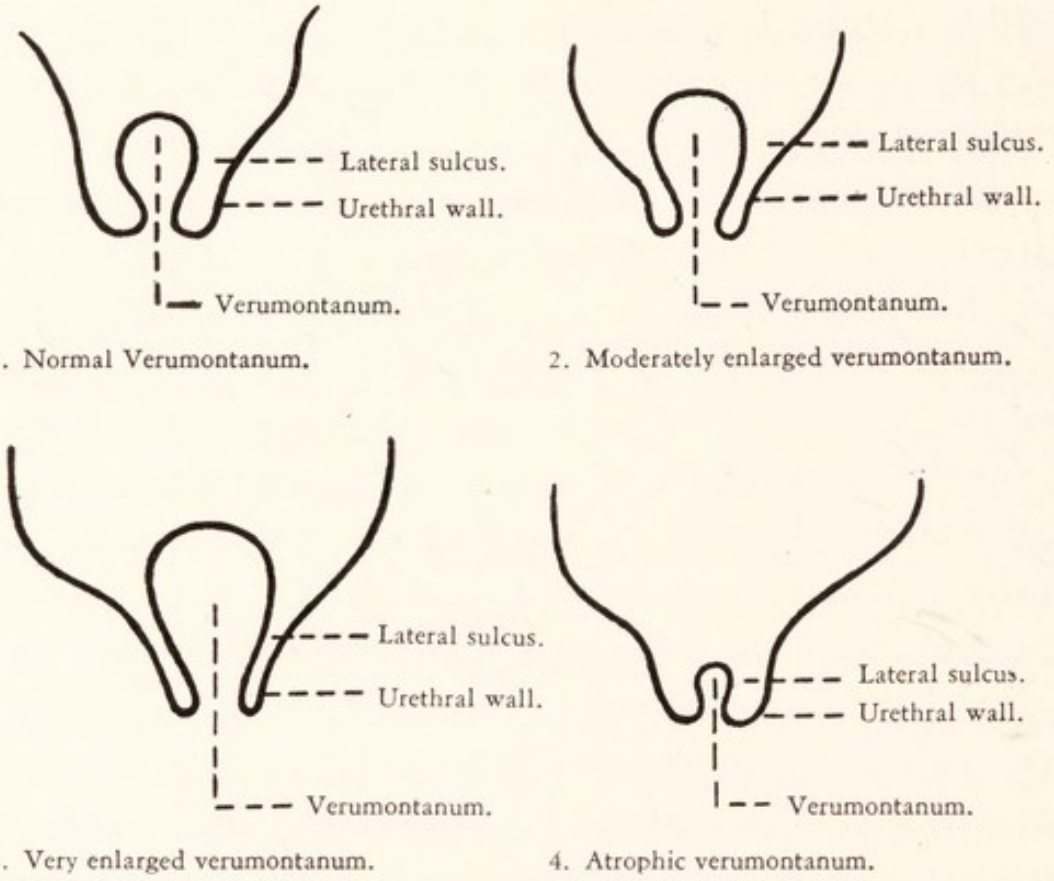
The seminal vesicles, being never completely emptied during withdrawal coitus, are constantly sending impulses to the erection center, while the mucous membrane of the prostatic urethra, being in a condition of chronic congestion in consequence of repeated acts of withdrawal, is likewise sending continuous impulses to the same center whether coitus is indulged in or not. The result of these continued impulses sent from both sources, as well as the repeated demands made upon the center itself from the oft-repeated acts of coitus, is, that the erection center does not completely recover itself, and finally remains in a state of hyperexcitability. It thereupon loses its inhibitory function, and sends out impulses to the ejaculation centers the very moment it receives them. We thus get the clinical condition of rapid ejaculation or even premature ejaculation at the very commencement of coitus, with little or no erection. It must be remembered, however, that all this does not occur as a result of a single act of withdrawal, but only after repeated insults to the sexual apparatus, and it is often only after years of this practice that the harmful effects above described become evident. This condition of rapid ejaculation and later of premature ejaculation is the first stage of impotence. In the latter condition the erection center has become so hyperirritable that it sends out impulses to the ejaculation centers at the very first prepara-

tions for coitus, and ejaculation takes place before the penis has become sufficiently erect to enter the vagina. As a final result of a more or less prolonged period of hyperirritability of the erection center, the latter finally becomes completely exhausted and refuses to send out any impulses at all. The condition then becomes one of complete impotence, in which neither ejaculation nor erection can take place at all, no matter how strong are the impulses sent from the cerebrum, the seminal vesicles, or the penis.

If the posterior urethra be examined with the endoscope after the patient has practiced withdrawal for a long time, we will find it in a condition of marked hyperemia. As a general thing the verumontanum will be found to be not only congested but swollen. One must have considerable experience, however, before he can determine what constitutes congestion in the posterior urethra, because the region of the verumontanum is normally of a darker red than the other parts of the urethra, and the pressure of the instrument also causes abnormality in the color of the urethral mucous membrane. With experience we can easily demonstrate a condition of chronic congestion which must be seen to be appreciated. Moreover, it takes considerable experience in posterior urethroscopy before the enlargement of the verumontanum can be recognized, as the normal verumontanum varies in size within very wide limits; thus in the colored race, for instance, the normal verumontanum is usually of very large dimensions, corresponding to the large size of the entire sexual apparatus. As a general thing it may be stated that we must consider the verumontanum in its relationship to the posterior urethra in any particular individual. In other words, a rather large-sized verumontanum would not be considered abnormal in an individual having a very wide prostatic urethra, while a verumontanum that completely fills the prostatic urethra, touching the walls of the urethra on either side, with hardly

a trace of a lateral sinus is to be considered enlarged. (See diagram.)

As already stated, we find congestion of the prostatic urethra in all these cases, but this pathological picture may be brought about by many other conditions than the one under considera-



1. Normal Verumontanum. 2. Moderately enlarged verumontanum.

3. Very enlarged verumontanum. 4. Atrophic verumontanum.

Diagrammatic pictures of normal and diseased verumontanum.

tion. *One cannot make a diagnosis of the practice of withdrawal by merely looking through the urethroscope.*

The pathology in the female is similar to that in the male, but on account of the normally more passive part taken by the female during the act of coitus the results are much less severe, though at times we find sequelæ just as severe as in the male.

In the female, with the commencement of coitus, there is a general hyperemia of all the pelvic organs. In a normal coitus with fully developed orgasm, and the expulsion of the secretions from the genital glands, a deplethorization occurs, and the

organs are left in their natural condition. If, however, the act is interrupted by withdrawal on the part of the husband, the orgasm either does not take place at all, or takes place incompletely, the sexual glands do not completely empty themselves, —in other words, the female does not really "come"; the pelvic organs remain hyperemic and, after this state of affairs has continued for a time, a condition of chronic congestion of the pelvic organs takes place, with all its disastrous results.

It should be mentioned that, in even so-called normal coitus, the woman does not receive the consideration she deserves in a vast majority of cases. From a very large clinical experience and study, I have come to the conclusion that probably not one of five men know how to perform the sexual act correctly. As a general thing, even in so-called normal coitus, the man only considers himself and not the woman at all. We find that when the desire for connection and erection occurs, he immediately goes at it, whether the woman has the desire or not, and in many cases when she is but half-awakened. As soon as he has completed his part of the act, he stops and removes the penis. As a result, at the commencement of coitus, the woman is not fully excited, and only becomes half-way excited during the act, and remains excited because she has not nearly completed her part of the act when the husband ceases to perform.

In questioning many women I have been told that they experience little pleasure during the sexual act, but become excited afterward. Such women have no real orgasm and no perfect deplethorization. This state of affairs has been described many years ago by Sturgis, but has not received the consideration it deserves. We see, therefore, that in even so-called normal coitus, in the vast majority of cases, there is left a certain amount of congestion in the female pelvic organs,—a condition which becomes much worse if the husband practices withdrawal.

SYMPTOMS

The symptoms may be divided into local and reflex. The sexual symptoms have been partly given in discussing the pathology. Briefly there is first a state of rapid ejaculation. The patient notices that the sexual act is more rapidly completed than before. This condition of overexcitability increases in severity until ejaculation takes place at the moment of complete erection or even before it. The patient states that as soon as his penis has entered, ejaculation takes place and the whole thing is over in a moment. He consequently obtains little pleasure from the sexual act. Later on ejaculation takes place so rapidly that the penis has no time to enter the vagina (premature ejaculation). In the final stage the centers are completely exhausted, refuse to act, no ejaculation takes place at all, and erection is either weak or entirely absent; in other words, there is complete impotence, the libido may become diminished, absent, or not at all affected. This last condition is particularly unpleasant, as the patient has normal desire, but a complete lack of ability.

I desire again to emphasize the fact that not every case reaches this final stage, and that the time it takes to reach any of the conditions above enumerated varies within very considerable limits. In some cases it is remarkable to note the amount of abuse the sexual apparatus will stand before it rebels. Patients also vary widely according as the sexual or the reflex symptoms predominate. Sometimes frequency of urination results on account of the congestion of the posterior urethra.

Coming to the *reflex* symptoms, we find an entirely different state of affairs, and it is more particularly to these that I would direct attention. The sexual symptoms are not a source of confusion to any great degree, because the attention of the physician is at once directed to the sexual apparatus from their very nature, and the patient is treated accordingly, either by

his regular attendant or is referred by him to the specialist. When, however, we come to the reflex symptoms we find them to be of widely divergent character, and many of them do not in any way suggest their sexual origin. There is hardly an organ in the body whose workings may not be disturbed by the reflexes coming from the abused sexual mechanism. These patients do not come with their symptoms to the genitourinary specialist or to the neurologist, but to the general practitioner, the orthopedist, the gastroenterologist, the cardiac specialist, etc. They do not suspect the cause of their trouble, and unless the attending physician is on his guard and constantly bears in mind the possibility of this condition in doubtful cases, he may easily be led astray.

It would take us far beyond the limits of this treatise, to enumerate all the symptoms that may be brought about by this condition, and which are generally classified under the general term of "sexual neurasthenia." I will therefore mention only a few which are very interesting or very unusual types, and which came under my own personal observation either in my private practice, in the neurological department of Dr. I. Abrahamson at Mount Sinai Dispensary or in my own department of genitourinary diseases at Mount Sinai Hospital Dispensary, and in the Harlem Hospital Dispensary.

CARDIAC SYMPTOMS DUE TO UNNATURAL SEXUAL PRACTICES

Mrs. X. came to me complaining of a slight leucorrhea. The following history was obtained after careful and tactful questioning: She had suffered for two years prior to her marriage, about six years ago, from marked cardiac palpitation, together with a ringing in the ears and a feeling of throbbing in the region of the temples. Believing she had heart disease, she consulted several physicians, who failed to give any relief. She postponed her wedding and finally consulted a prominent internist in New York City, who found her heart normal and

prescribed a tonic, but this likewise did not alleviate the symptoms. Finally she married, whereupon all her symptoms disappeared and remained away for about four or five years, during which time she gave birth to two children. Within the past year or two, however, all her former symptoms returned with increased severity. This time they were accompanied also by marked swelling of both ankles, a morning edema under both eyelids, which disappeared during the day, and by urine of low specific gravity, with a diminution in the percentage of urea as well as a diminution of the total quantity of urea passed in twenty-four hours. The patient was now certain that she was suffering from both heart disease and kidney disease.

A vaginal examination disclosed a slight laceration of the cervix and some endocervicitis which was sufficient to account for the leucorrhea. I was struck, however, with the enlarged condition of the labia minora.

After careful and tactful interrogation, she finally told me that she had practiced masturbation before marriage, and on further questioning, she confessed that for the last few years she had not desired an increase in her family and had prevailed upon her husband to practice withdrawal. Later on she had allowed him to have coitus only between her thighs, not permitting any intromission.

Considering this case in retrospect we at once note a definite history. It is a history of reflex cardiac and circulatory disturbance during masturbation, followed by marriage with normal sexual relationship for several years, during which children were born and during which time all the symptoms vanished. This in turn was followed by a period of abnormal sexual relationship, in consequence of which, the symptoms immediately returned with increased severity. I sent this patient to a prominent internist, telling him of my suspicions. After careful examination, the latter confirmed my diagnosis, finding the

heart, kidneys and blood-pressure normal. I explained the cause of the symptoms to the patient and, although she was skeptical, she promised to follow instructions, with the result that all her symptoms rapidly vanished.

Cases like the above have been described by Max Hertz and others, but, as we have seen, they are often overlooked and in the one just presented, the condition baffled the diagnostic skill of many physicians as well as that of the prominent consulting internist. Had this patient in addition had some real valvular lesion accompanied by a murmur, it can be readily understood how much more obscure the case would have been and how easily all her symptoms might have been ascribed to a cardiac condition.

SYMPTOMS OF SCIATICA DUE TO THE PRACTICE OF WITHDRAWAL

Although this case has been reported by me elsewhere, it is such an unusual type, that I feel justified in repeating it here.

The patient, A. W., a painter, had been treated at various neurological clinics for over a year for sciatica of the left side. He had had the usual treatment. His previous history is briefly as follows: Patient complains of pains in the left lower extremity; is excitable; has severe tenderness in the left sacroiliac joint. He was treated by electricity, including the high-frequency current, hot air, hot baths, as well as iodide of potassium, but all without avail. He finally had to stop working at his trade, as he could not climb ladders or work on scaffolding. His general condition was poor and he looked much emaciated. He was then referred to me for examination. I found the prostate enlarged and tender; but especially the left seminal vesicle (the side of the sciatica) was very much enlarged and nodular. This, with his emaciated condition, and in the absence of a history of gonorrhea, made me suspect tuberculosis. However, an examina-

tion of the secretion of his vesicles and prostate obtained by massage, as well as his urine, failed to show any tubercle bacilli. I cystoscoped him also, and found his bladder normal. I treated him by massage of the prostate and seminal vesicles, at first once a week and later every other week. After six treatments he felt much better, and after ten treatments was entirely cured and could do all the work necessary in his trade. The local condition of his prostate and seminal vesicles also became normal, and his general condition markedly improved.

In this case it must be borne in mind that there had been absolutely no improvement for over a year, and that while under my care the patient received absolutely no treatment, medical or otherwise, except massage of the prostate and vesicles. The etiological cause in this case was the practice of withdrawal, of which, however, the patient made no mention in giving his history, not thinking that it had anything to do with his condition. This case recalls to my mind the good results obtained by Fuller in the treatment of chronic arthritis (even in non-gonorrheal cases) by drainage of the seminal vesicles.

NERVOUS EXHAUSTIBILITY DUE TO WITHDRAWAL

This is a very common condition and is merely inserted to illustrate a common type of sexual neurasthenia: M. L., aged 39, married, but separated from his wife; complains of loss of memory, lack of concentration of interest, and other general nervous complaints. These symptoms are common to the most diverse nervous conditions, and it was only after more minute interrogation that the following important facts were brought out in the patient's sexual history, which contained the clue to the etiology, and to which the patient in the first instance attached little importance. It was elicited that the patient had lost all sexual desire and that for some time previous to his separation he had practiced withdrawal. Upon examination, a very enlarged and tender prostate gland was found, and the

posterior urethroscope showed a remarkably congested prostatic urethra.

Patient was treated by massage of the prostate and by the application of 10% silver nitrate to his verumontanum through the urethroscope.

The improvement was very gratifying and very rapid. After a few treatments the patient himself remarked that he was regaining his former energy.

As stated at the beginning of this chapter, the etiology might seem very easy when read in connection with the diagnosis placed at the head of the history, but it is a far different state of affairs when the patient attends the neurological clinic, mingling with many organic and functional nervous cases, giving no sexual history of himself except such as is painstakingly elicited by the examiner.

PAIN IN SKIN OF PENIS, COMPLETE IMPOTENCE AND GENERAL NEURASTHENIA DUE TO WITHDRAWAL

This patient came to the dispensary complaining only of severe pain in the skin covering his penis, without urethral pain; further investigation of his history, however, brought out the fact that he had reached the final stage of impotence, with complete exhaustion of both the erection and the ejaculation centers due to withdrawal.

D. D., male, age 45; married eighteen years; father of 4 children; last child born eighteen months ago; came into my clinic at Mount Sinai Hospital Dispensary, complaining only of severe pain in the skin of the penis. The pain was strictly limited to the penile integument, and did not at all affect the perineal integument. The patient also complained of vague pains in the abdominal region. He had no pains whatever in the urethra and no pains connected with urination. He gave a doubtful history of urethritis ten years earlier, but did not

remember whether he had any urethral discharge at that time. Endoscopy of the anterior urethra showed a normal urethra with several congested follicles. His meatus was too small for posterior urethroscopy, and the patient objected to meatotomy.

Investigating his history more minutely, the following facts were disclosed. He has been absolutely impotent for two years past, and can neither have an erection or ejaculation. Previous to this, he had suffered for about six years from rapid ejaculation and feeble erections, which constantly became more and more feeble until the present state of impotence ensued. This condition of feeble erection and rapid ejaculation did not prevent him however, from impregnating his wife, who gave birth to a child eighteen months ago. About eight years ago, and while still sexually active, he had suffered from frequent nocturnal pollutions, at least once every night and sometimes two or three a night. In fact, he even suffered from pollutions when indulging in coitus. For the past four years he has not had any wet dreams whatever, even though he has had no coitus at all for two years. The patient admitted to having practiced withdrawal for four years, starting about eight years ago. Besides the urethral findings just mentioned the examination revealed a slight mitral murmur, abdomen negative, slightly enlarged axillary, cervical and inguinal glands. His prostate is moderately enlarged.

In this case, besides the general neurasthenic symptoms, we have elicited from the patient a perfect history of the course of events consequent upon withdrawal. This is an extreme case. It presents a history of withdrawal for a period of four years. At first erection and ejaculation are good, but the patient suffers from frequent pollutions (overexcitability of the ejaculation center). This is followed by a history of gradually weaker and weaker erections, together with rapid ejaculation (extreme excitability of ejaculation center, with gradual weakness of erec-

tion center). Finally, there is neither erection nor ejaculation, nor are there even wet dreams. In other words there has been a complete paralysis or exhaustion of both the ejaculation and erection centers. These facts may be translated into pathological parlance as follows: The erection center is being continually bombarded by reflex stimulation, due both to the distention of the seminal vesicles caused by incomplete emptying, and to the chronic congestion of the deep urethra, due to withdrawal. As a result, impulses are being continually sent to the ejaculation centers until the latter become so hyperirritable that at night, when the inhibitory influences of the cerebrum are lacking, the slightest additional stimulation such as the heat of the bedding, etc., is sufficient to bring on erection and ejaculation (*i. e.*, numerous wet dreams). As the disease progresses the erection center finally becomes so extremely hyperirritable during coitus, that it sends impulses to the ejaculation centers even before it is completely filled up with impulses from the glans penis, the seminal vesicles and the cerebrum (see Fig. 4, page 123). In other words, the erection center has lost its function of holding back these impulses until the proper time, and the condition of rapid ejaculation is the natural sequence. Finally, both the erection center as well as the ejaculation centers become completely exhausted and no longer respond to any stimulation from the penis, seminal vesicles, or the cerebrum, no matter how strong such stimuli may be. When that stage is reached there is neither erection nor ejaculation; the patient is absolutely impotent and cannot even have a wet dream.

GASTROINTESTINAL SYMPTOMS AND IMPOTENCE DUE TO WITHDRAWAL

A. R., referred to me by Dr. Abrahamson in May, 1913, was 55 years old, married twenty years, and the father of seven children, his last child having been born seven years ago. It may be stated in passing that in order to obtain a confession of

withdrawal from some of these patients I inquire, as a routine procedure, for the date of the birth of the last child or the date of the last miscarriage. If it appears that many years have elapsed since the last pregnancy, I ask why his wife has not become pregnant in so long a time, and directly suggest withdrawal as the probable cause. The patient, thus taken off his guard, generally confesses to the practice, whereas he would probably have denied it if questioned directly.

This patient complained of belching, of regurgitation of food, and of vomiting. Upon further questioning he also complained of seminal losses during defecation, and of impotence for five years past. He admitted to practicing withdrawal for the past seven years.

On account of his age and very emaciated appearance, I did not feel justified in ascribing his gastrointestinal symptoms to withdrawal until I had had him examined by an internist for possible carcinoma or other gastrointestinal disorder. However, the internist found the gastrointestinal tract practically normal, and I thereupon instituted a course of treatment to be hereinafter described, which had the result that after two months the patient was able not only to have normal coitus for the first time in five years, but that all his gastrointestinal symptoms left him, he gained in weight, and again felt in perfect condition.

DIAGNOSIS

The diagnosis can only be made by bearing in mind the possibility of such an etiological factor in conditions otherwise obscure. One often has to be very tactful in order to elicit a confession of this practice, especially in interrogating the female. It is often useless to ask either party directly whether they indulge in it, as they may often deny it. As a practical point, I have found it expedient to catch the patient off his (or her) guard, either before or after examination. I inquire, in my

routine manner, how long the patients are married, how many children (or miscarriages) they have had, and the date of the birth of the last child or pregnancy. This generally arouses no suspicion. Then, if I see from the history that the parties have had one, two, or more children in the first few years of married life, and none at all in the last four or five years, I ask why, and immediately suggest withdrawal or other preventive means. Generally the patient will then confess to the practice. We must not neglect to suspect it, however, even if there has been a recent pregnancy, because the practice is not successful in many cases, and pregnancy may result in spite of it.

Having made the diagnosis, we must not fall into the opposite error of blaming all the patient's symptoms on withdrawal, but constantly keep in mind the possibility of errors in refraction, in digestion or assimilation, etc., as possible causes for some of the symptoms.

COURSE AND PROGNOSIS

The course of the disease is often a direct reversal of the course of onset. The general neurasthenic symptoms frequently disappear with remarkable and startling rapidity. Even when they disappear more slowly, the patient himself notices the improvement between each successive visit. It is in the sexual symptoms that we often observe the reversal in the course of symptoms mentioned above. Thus, in those cases which had gone on to the stage of complete impotence, the first attempts at coitus may be marked by premature or rapid ejaculation. But this must not discourage a patient, as it is a sign of improvement in that particular case, since a partial coitus is an improvement on none at all. Finally, the lengths of coitus increase until the normal is reached. The patient must be told that his first attempts will naturally be weaker than normal, and must be assured that in a little while they will become entirely nor-

mal. At this stage he must also be cautioned not to abuse his newly developed power, but to have coitus at rather long intervals for a while, and only when he has strong desire. He should be cautioned particularly against experimenting himself, by making attempts at coitus without any desire at all, simply to see if he can effect it. In those cases which were characterized at first by the presence of frequent pollutions and later on by an entire absence of all pollutions, there may be a reappearance of the pollutions while they are progressing toward recovery, before the final normal state is reached. This phenomenon often discourages the patient but, again, it is a sign of improvement, as it shows that the sexual centers, previously completely paralyzed, are now again beginning to respond to peripheral impulses. Whenever this occurs, it is an indication to omit massage of the prostate if it has been employed. As already indicated, the prognosis is excellent in most cases.

TREATMENT

The treatment of this condition is both rational and simple, and the results are correspondingly gratifying. Nothing is more easy to treat than impotence caused by withdrawal. Incidentally it may be stated that, despite the popular opinion to the contary, impotence as a general thing is very easy to treat and very easy to cure, *if we know the etiological factor or the pathological lesion underlying the condition.* Impotence is but a *symptom*, and to treat it as if it were a disease, or a distinct entity, is a serious error, and is nothing more or less than guesswork.

As has been pointed out in discussing the pathology of withdrawal, there is at first increased irritability, and later on an exhaustion of the erection and ejaculatory centers, together with a congestion of the entire prostatic urethra. In the female almost all the symptoms are reflex, but some of these may be explained by the chronic congestion of the pelvic organs. Owing

to the more passive part taken by the female during coitus, the symptoms are not so pronounced, and are often absent altogether. Inasmuch as even in the case of the female, the cause of the condition is due to the male, there is no special treatment for the female except the giving of advice for her partner.

The first thing to be done is to bring about a condition of sexual rest. This means, not only abstaining from coitus, but abstaining from anything that may reflexly or otherwise irritate the sexual centers. The couple should not sleep in the same bed; they should avoid spooning, hugging, kissing, etc. Strict and explicit instruction should be given on this point, for many patients believe that they may do almost anything, so long as they abstain from coitus. As a matter of fact, however, I would much rather have a married man perform coitus than have him excite himself into an erotic condition by spooning, etc. and then stop. As stated above, there must be absolutely no sexual excitement of any kind whatsoever.

In reading the histories of some of the cases cited, the reader may have noticed that in many of them the symptoms did not come on immediately after the commencement of the pernicious practice, but some time afterward, perhaps even at a time when the practice had been given up the normal coitus was being indulged it. In many such cases it is hard to make the patients understand that the previous withdrawal is responsible for their symptoms. Their answer is that they felt all right while indulging in the practice, but have been feeling badly only now when they are having normal coitus. Nevertheless, the pathology is clear and the symptoms are easily explicable. The centers in these cases have begun to become hyperirritable, and the prostatic urethra has just commenced to become congested, so that even the additional excitement of the centers during normal coitus, or the additional hyperemia of the prostatic mucous membrane of normal coitus, is an irritation which, if continued.

will still further increase the pathological condition and symptoms, or will bring forth symptoms if none have previously existed. It is for this reason that absolute sexual rest (which means, not even normal coitus) is so essential. How long this period of rest is to continue varies with each individual. It depends upon the stage of the disease and the sexual habits of the patient. At least two months' rest is generally necessary, and in many cases four to six months' rest is not too long. If the patient can be sexually separated from his wife for a time, it is, of course, much better. The wife should be instructed, if possible, as well as the husband; for, otherwise, if she be kept in ignorance, she may counteract the treatment by insisting on connection, if she be at all a passionate woman. Many of the good results achieved in Germany, by sending the husband to some particular "kur" place, are not due to drinking the waters at all; nor solely to the hydrotherapeutic measures employed (although these are of value), but to the enforced continence, and to keeping the patient's mind occupied, and away from sexual thoughts. Of course, each case is a law unto itself, and the physician must take into consideration the sexual characteristics of the particular patient, particularly guarding against the likelihood of the patient indulging in extramarital coitus if kept away from his wife for too long a time.

The next indication is to reduce the hyperirritability of the sexual centers. For this purpose nothing is so useful as the bromides, which must be given in fairly large doses. I generally start with 15 grains of sodium bromide four times a day, taken in sweetened water, half an hour after meals and just before going to bed. Later, I reduce this to three times, twice, or once a day. Besides having the effect of diminishing the excitability of the sexual centers, the bromides have the additional advantage of greatly reducing, and in many instances taking away for the time being, all sexual desire. This greatly conduces

toward continence, which is so essential to the treatment. It is also necessary to explain to patients who come for treatment for impotence, due to withdrawal, just what we are trying to accomplish, and what the effect of the medication will be; otherwise they will complain that they are worse off during the treatment than before, having now lost all desire as well as potency. This reduction of desire is only temporary, however, and I have never seen any permanent harm to the sexual apparatus due to the proper use of bromides,—at least, for the length of time that it is necessary to employ them in the condition under consideration. Another great advantage of the bromides is the almost immediate amelioration of nocturnal pollutions. In order to further suppress the irritability of the centers, it is best to avoid all alcoholics, as well as tea, coffee, eggs, and oysters, all of which stimulate sexual desire.

The next indication is to reduce the congestion of the prostate and prostatic urethra, for as long as these remain congested they are continually sending erotic impulses to the sexual centers in the spinal cord as well as to the cerebrum. To accomplish this, nothing succeeds so well as the application of silver nitrate solution to the affected parts, and in some cases massage of the prostate. At first, when the congestion is intense, we should start with a very weak solution (1:3000) instilled *very gently* with a small size Bangs sound syringe. As the case progresses the solution should be increased up to 1:500. The sound syringe used should be larger and larger until the capacity of the meatus for sounds is reached. All manipulations in the urethra must be done slowly and gently, while the instillations should not be given oftener than once every fifth day, and less often later on.

As regards massage of the prostate, this is an excellent procedure, but it has its limitations. Much harm may be done by it, if used at the wrong time, or in the wrong manner. *Massage of the prostate should never be employed when the patient is*

suffering from frequent pollutions, and should be stopped whenever, in the course of treatment, pollutions become frequent. In other words, in many cases, originally uncomplicated by pollutions, and where massage is proper, the massage sometimes brings on pollutions, and in other cases it increases their number. Where this is the result, however, it should be discontinued at once.

The method of massage to be employed is likewise of the utmost importance. It is unfortunate that every manipulation of the prostate *per rectum* is described as "massage," whereas a distinction should be made between *expression* and *massage.* To illustrate: In certain forms of chronic gonorrhea, where either for diagnosis or treatment we are trying to rid the prostate of gonococci, it may be necessary and justifiable to employ considerable pressure in order to squeeze out the secretions of the gland, as well as those of the seminal vesicles, and even here caution is necessary. In the condition under consideration, however, our object is not to squeeze out the last drop of pus from the follicles, but to relieve congestion. Here it is necessary to perform "massage" in the strict sense of the word. A hard and painful squeezing of the parts can no more be called "massage" than giving a man a severe punch in the stomach can be called massage of the stomach. We must remember that the parts are congested and tender, and that our manipulations must therefore be exceedingly gentle and of very short duration. As the case improves we may use firmer and firmer pressure, of longer and longer duration. Done in this way, and within the limitations outlined above, massage of the prostate is an exceedingly useful adjunct to the treatment.

As the patient improves, the bromides are gradually withdrawn and the limitations in diet are removed little by little. If impotence is the main symptom, we treat it in the manner described in the chapter on impotence.

Chapter XVI

CONTINENCE

THE VENEREAL PROBLEM

THE subject of continence is one of vital importance, not only to the genitourinary specialist and neurologist, but to every specialist and general practitioner, for what organ or function of the body is there which has not been attacked by, or is immune to the ravages of syphilis? And yet, how neglected is this important subject! Examine our standard textbooks on venereal diseases, and while you will find therein elaborate discussions of the evil effects of non-continence, in how many of them is there a chapter on continence. Several years ago I examined most of the standard textbooks on physiology written in the English language, and could find practically no reference whatever nor any information as to whether continence is physiological or not. The absence of reference to continence in works devoted to venereal diseases is a positive defect in such works. The gastroenterologist not only cures his patient of his present attack of indigestion, but also gives him instructions about his diet and mode of living in order to avoid future attacks as well. The cardiac specialist not only relieves his patient of his disturbed compensation, but instructs him most minutely how to conduct himself in the future in order to prevent future decompensations, if possible. He would indeed be a poor phthisisist who would not inform his cured consumptive patient how to live thereafter in order to remain well. Why then should the genitourinary specialist, after having cured his patient's first gonorrhea, not warn him how to conduct himself in the future in order to prevent more serious trouble?

Many years ago I wrote upon this subject in connection with prophylaxis in gonorrhea. In that article I blamed the medical profession for much of the spread of venereal disease. I also cited cases to prove my formula, that illicit connection equals venereal disease.

Great strides have taken place in medicine since that time. The Wassermann reaction and the complement-fixation test for gonorrhea have confirmed our suspicions, and have still further emphasized the terrible consequences of both syphilis and gonorrhea, and the relationship, hitherto merely suspected, of these diseases to incurable conditions of many vital organs. The public press and the stage have brought home to the lay public, in no uncertain language, the possible consequences of illicit coitus. Our young women have become enlightened in these matters, and sex education is the order of the day. They are no longer willing to allow their genitals to be made a culture medium for the gonococcus and *Spirochæta pallida.* They refuse to be deprived of the pleasures of motherhood or of only bringing into the world children deformed or otherwise handicapped with the ravages of congenital syphilis. They object to being castrated or spending a life of misery in return for the privilege of exchanging "Miss" for "Mrs."

Side by side with this enlightenment of the public on sexual matters, another factor has made itself felt for some time, and that is the social-economic factor. This is no new influence, though it is more keenly experienced today, perhaps, than ever before. With the underlying causes of this factor, we, as physicians, cannot concern ourselves; it belongs to the domain of political economy rather than to that of medicine. But, whatever the cause, the results stare us in the face, and serve to bring the question of continence into prominence all the more. As a result of the greater number of conveniences which the average person now enjoys, the better housing, the more skillful medical

attention, the greater number of luxuries of the average person today, compared to many years ago, when people were content to live in rear tenements, and when even the better-class apartments could not compare in convenience with those of today—as a result of all this, and of many other social economic factors too numerous and complicated to discuss, the relative cost of living is far greater now than heretofore, and the young man cannot enter matrimony at as early an age as he could fifty or a hundred years ago. If he expects to live in merely fair comfort, and to give his prospective children the benefits of modern education, he must defer his marriage until his income is far in excess of that which his grandfather or even his father had when they were married.

We have therefore the following three alternatives:—

1. Illicit coitus equalling venereal infection.

2. The modern girl refusing to marry a man infected with venereal disease.

3. Social-economic conditions preventing early marriage.

We, as physicians, cannot alter the third condition, for we can neither reduce the cost of living nor increase wages. Likewise, we cannot alter the second condition, for we may not say to the modern girl "You must marry an infected man"; nor would we if we could.

It is, therefore, only with the first proposition that we, as physicians, have to deal. We are confronted with the condition, that a man cannot marry as soon as his sexual organs are ripe, that if he has illicit connection, he becomes infected with venereal disease, and that if he becomes infected and is not cured he cannot get married. How, then, shall we meet this problem?

I desire to state at the outset, that I am discussing the subject only from the standpoint of the physician, and not that of

the moralist, and that it must be discussed in the light of present-day knowledge upon the subject of venereal disease. Perhaps it may be possible, at some future time, to render people immune to gonorrhea and syphilis, just as we render them immune to smallpox, or to abort the disease immediately after it has been contracted, and before any serious results have ensued. When that times comes, the entire subject will take on an entirely different aspect and perhaps will be discussed entirely differently.

The answer that comes most readily to our minds is: Prevent the spread of venereal disease, or, if that is not feasible, abort it or cure it as rapidly and permanently as possible.

The prevention of the spread of venereal diseases involves the whole question of the suppression of prostitution. This is a very complex question and volumes have been written upon the subject. Without going into the causes of the failure, it is an absolute fact that from time immemorial, civilized nations have struggled with this problem and have always failed to accomplish more than temporary suppression. Heavy fines, imprisonment, and even the death penalty have been imposed at various times, but without success. When New York City attempted to eliminate houses of prostitution all efforts have had only a temporary effect. Prostitutes were driven merely from one district to another and no permanent suppression has taken place.

As a further means of preventing the spread of venereal disease, we have the immediate treatment of the patient right after exposure. Undoubtedly the method employed in the army and navy has had excellent results, but it has its limitations. In the first place, the strict military discipline which can be applied to soldiers and sailors can never be applicable to the general public; and, in the second place, this prophylactic method does not remove the danger of infection but only reduces the chances

of infection. In other words, if a thousand sailors expose themselves to infection, a larger percentage will escape infection under the army and navy method than before. Not even the most enthusiastic adherent of this method would claim that any particular individual would escape infection by employing the prophylactic army and navy package. What then are the chances of infection from illicit intercourse?

It goes without saying that if a person has connection with a prostitute he should not be surprised if she infects him. Even those houses that have a visiting physician are not safe, especially as regards gonorrhea, for the following reasons:—

1. It is easy for the woman to douche before examination and so deceive the physician.

2. The woman may become infected between the doctor's visits, or show the first signs of the disease between these visits.

3. The chronic or so-called "cured" cases form the most important source of contamination in this group.

It is perfectly possible that a woman who has had gonorrhea may show absolutely no pus or discharge whatsoever on her genital organs, and that scrapings from them may show no gonococci either when directly examined or even on culture; and yet this woman, under the stimulus of sexual excitement, may pour out millions of gonococci with the mucus from the glands where they are concealed and infect her partner. Those who have paid particular and careful attention to this source of infection will agree with me that *practically* once a woman has had gonorrhea there is no way of telling from physical examination whether she is cured or not.

Then we have the servant-girls, the chamber-maids, and other "sure things." To anyone who has had a large experience in venereal diseases it is a standing joke to see the large amount of disease contracted from these so-called "sure things." To all patients of mine alleging to have such a "sure thing," I have

but one answer and that is, "If they go with you, they go with others and so you are not safe."

Lastly, we have married women, especially the so-called "respectable married women." I have had several cases that have made a deep impression upon me in this respect. I have had two ladies under treatment who were eminently and absolutely respectable and above all suspicion, and yet both were suffering from gonorrhea, have been infected by their husbands (who, by the way, were also under my care). Now, here is the point I wish to emphasize: Surely, if any stranger could entice either of these ladies to have connection, he could be absolutely certain of their respectability, and also as absolutely certain of contracting gonorrhea. If one has connection with a married woman he must be able to guarantee for her husband, which is, indeed, a very difficult matter. Moreover, the very fact that she has connection with him proves that she is not respectable, and brings her in line with the arguments advanced against the other "sure things."

As a practical proof of all these arguments, it may be advanced that the rich, who with their money surely can obtain anything they desire, suffer just as much from venereal diseases as do others. Taking it all and all, we may practically sum up the whole thing by the formula: Illicit connection is equal to venereal disease.

Even the use of the condom is not an absolutely safe protection, for I have seen cases where the condom broke and gonorrhea was contracted, and also where the initial lesion on the penis occurred high up near the root and above the level of the condom.

Although great strides have been made in the treatment of venereal diseases in the last few years, their abortion or rapid cure has not yet been realized. In syphilis, the idea of aborting the disease with salvarsan has proven a failure, and in spite

of the excellent therapeutic properties of this preparation, we cannot cure syphilis any more rapidly than before. Surely, no conscientious physician would permit a syphilitic to marry before several years of observation have passed. With the present use of the Wassermann test, we actually keep the patient under observation much longer than previously in many cases. In gonorrhea, the abortive treatment is successful only in a very small percentage of cases, and is only applicable to patients who present themselves within twenty-four to thirty-six hours after the beginning of the discharge. The complement-fixation test and modern improved cultural methods in diagnosis have likewise had the effect of keeping the patient under observation much longer than previously.

We see, therefore, that in spite of the progress in medicine the prevention, abortion, or rapid cure of venereal diseases has not been realized, and has not helped to solve the situation under consideration. On the contrary, advances in medicine have but emphasized that our most careful methods of diagnosing a cure so far have been inefficient.

CONTINENCE AS A SOLUTION

We now come to the question of continence as a possible solution of the difficulty. This question must be discussed with perfect freedom, and with due regard to all the arguments *pro* and *con*. To ridicule it, and call everyone a fool who differs from one's pet opinion, is not scientific argument.

Having shown that it is practically impossible to avoid venereal disease when having illicit intercourse, we now come to the questions: Is illicit intercourse necessary? Is continence physiological and in harmony with perfect health? Can a young, unmarried man remain continent and still be healthy?

Upon the answer to these questions hinge a large portion of the causes of the spread of venereal disease, for it must be

acknowledged that this portion of medicine bears exactly the same relation to morality and religion as every other portion of medicine. In every religion the most stringent laws are to a certain extent subservient to those of health. The orthodox Hebrew may eat articles of food proscribed by the dietary laws if necessary to his health. Even the rite of circumcision and the abstinence from food on the Day of Atonement, the most sacred customs to the orthodox Hebrew, may be interfered with if health is at stake. The religious Catholic and Protestant may neglect abstaining from food on certain fast days if prejudical to his health. And so it is with the subject under consideration. Our clergymen may preach chastity and purity from morning till night, and may bring to their aid the most potent religious, moral, and ethical arguments; if the physician, however, says that it is detrimental to health to be continent, that coitus is absolutely necessary for the healthy adult, our patients will throw aside the teachings of the clergyman and listen to those of the physician, and (I say it with deep religious feeling) will be perfectly right in so doing. No matter what the law says, no one would condemn a hungry man for stealing a loaf of bread to eat, and none ought to condemn a healthy adult for having connection if this is absolutely essential to his existence. And, as I have shown that practically illicit connection equals venereal disease, if we physicians consider illicit connection necessary, we ought not to wonder at the prevalence of venereal disease, or hope to see it decrease.

In the following pages I shall endeavor to prove that continence is not detrimental to health, considered either from a physiological or psychological standpoint.

PHYSIOLOGY OF CONTINENCE

First, considered from the point of view of physiology. It is indeed remarkable that several years ago, when I consulted

almost every work on physiology published in the English language during the preceding ten years, not one had anything to say on the question. This search included, besides others, textbooks by the following authors: Landois, Kirkes, Brubaker, Schafler, Raymond, Ott, Foster, Hall, Stirling, Johnson, Hare and "American Textbook of Physiology." In 1875, Austin Flint, Jr., makes a slight reference to the question, when he says that "sexual intercourse is only physiological when confined within the limits of legitimacy." With this one slight reference as an exception, I could at that time find no data in works on physiology.

But we have other authorities (outside of physiology) who have expressed opinions on this question. No less an authority than Prof. Bryant, the great English surgeon, says: "The student should remember that the functions of the testicle, like those of the mammary gland and uterus, may be suspended for a long period, possibly for life, and yet its structure may be sound and capable of being roused into activity on any healthy stimulation. Unlike other glands, it does not waste or atrophy for want of use."

This opinion from the great English surgeon answers a very important objection to continence which I have seen urged by many physicians. I have heard physicians argue as follows: "Every organ of the body, if not in use for a long time, atrophies; muscles lose their power, joints become stiff, the stomach and intestines refuse to secrete the proper digestive ferments, if these are artificially supplied for a long time; even the higher functions of the brain become 'rusty' if not made use of, therefore the genital apparatus ought to be kept active or else it will atrophy and become useless."

It is, however, a fact that the sexual organs are constructed upon entirely different principles than most of the other organs of the body. They are constructed for intermittent action and

their functions may be suspended indefinitely without harm to either their anatomy or physiology. Witness the mammary gland. A woman becomes pregnant and gives birth to a child, and immediately the gland, which had remained dormant for years, swells up and secretes milk. After lactation is finished the gland becomes smaller and inactive. She may not become pregnant again for ten or more years, and during all this while the gland is not in use, but even after this long period, should she again become pregnant, it will again swell up and be absolutely useful in spite of the long period of disuse. The same is true of the uterus. I have gone somewhat in detail into this question, because it is very important, and is constantly being brought up by the opponents of the continence theory and is very apt to impress the laity.

James Foster Scott, the great authority on sexual instinct, says: "If the penalties meted out to the impure are so many, there is yet comfort for the unmarried man in those pages which show that perfect continence is quite compatible with perfect health, and thus a great load is at once lifted from the mind of him who wishes to be conscientious as well as virile and in health with all the organs of the body performing their proper functions." And again, on page 95: "There is an erroneous and widely spread belief that exercise of the sexual functions is necessary in order to maintain health. . . . The reproductive glands have been so constructed that their specific activities can be suspended for long periods of time without their atrophy or the slightest impairment of function. In this particular they resemble the inherent capabilities of a woman's breasts, which can remain quiescent for years and when called into demand physiologically respond with perfect function." And again, on page 99: "It is a pernicious pseudo-physiology which teaches that the exercise of the generative functions is necessary in order to maintain one's physical and mental vigor of manhood."

Acton says: "One argument in favor of incontinence deserves special notice, as it purports to be founded on physiology. I have been consulted by persons who feared, or professed to fear, that if the organs were not regularly exercised they would become atrophied, or that in some way impotence might be the result of chastity. This is the assigned reason for committing fornication. There exists no greater error than this or one more opposed to physiological truth. In the first place, I may state that I have, after many years' experience, never seen a single instance of atrophy of the generative organs from this cause. . . . No continent man need be deterred by this apocryphal fear of atrophy of the testes from living a chaste life."

Beale, professor at King's College, London, says: "And I would remark here that, notwithstanding very strong assertions to the contrary, and by authorities who profess to have thoroughly studied the question, no sufficiently valid objections have been established upon reasonable grounds, or upon facts of physiology and health, to living, nay, to passing life in a state of celibacy." And again, on page 64, in the chapter called "Question of Physiological Necessity," he says: "The argument that if marriage cannot for various reasons be carried out, it is nevertheless necessary, upon physiological grounds, that a substitute of some kind should be found, is altogether erroneous and without foundation. It cannot be too distinctly stated that the strictest temperance and purity is as much in accordance with physiological as moral law, and that the yielding to desire, appetite, and passion is no more to be justified upon physiological or physical than upon moral or religious grounds."

Sir James Paget, the eminent English surgeon, says: "Many of your patients will ask you about sexual intercourse, and some will expect you to prescribe fornication. . . . Chastity does no harm to mind or body; its discipline is excellent; marriage can be safely waited for."

It must, however, in all fairness be mentioned that there are some who hold directly opposite views on this question, and in order to be candid I shall cite some of these views and attempt to point out their fallicies.

Lydston says: "No man or woman at adult age is in perfect physiological condition unless the sexual function is naturally and regularly performed."

This would, indeed, be a remarkable statement, but it loses its remarkability as we turn to another chapter in the same work, —that on masturbation. Herein we see, as I shall presently quote, that even this author, who holds such extreme views, cannot deny that continence is perfectly in accord with physiological well being. He says: "There is one point in sexual physiology that should be impressed upon our patients. The impression prevails among young men that exercise of the sexual function is an absolute physical necessity, irrespective of the method of its accomplishment. Indeed, it is probable that some physicians who certainly ought to know better foster this idea by ill-weighed and injudicious counsel. This idea is most pernicious in its effects, and it becomes our duty to correct it. Although no adult man or woman under existing social conditions is physiologically well balanced in a state of celibacy, one may be perfectly healthy and physically vigorous while leading a life of absolute continence, if the mind is properly disciplined and the body made completely subservient to the will. The excuse of physical necessity is too often a subterfuge to justify fornication and even masturbation. That such an excuse should ever be offered is striking testimony regarding the prevalent ignorance of sexual physiology. A better education in the ethics and physiological aspects of the sexual function is a crying necessity. The patient should be impressed with the idea that its (the sexual apparatus) function may be held in abeyance for very long periods, even for life, without necessarily producing

physical injury. When thus held in abeyance the generative function may be called into action at any time and present no evidences of deterioration from the compulsory rest."

The writer evidently means that sexual intercourse in adult life is desirable for the maintenance of the physiological balance, but is not a necessity under ideal conditions of sexual education; but he would lead us to infer that under the artificial conditions that constitute society today it may, and often does, become a necessity.

It is, of course, obvious that the purer one is brought up and the purer his associates are, the purer his thoughts will be, and the easier it will be for him to remain continent. And, on the other hand, if the mind is constantly kept excited by the reading of immoral literature, or the presence of lewd associates, it becomes extremely difficult to refrain from sexual intercourse. This difficulty is enormously increased if sexual intercourse has already been indulged in, so that what was at first a novelty finally becomes a habit. At this stage fornication may become a necessity in the same sense as alcohol to the habitual drunkard or morphine to the morphine fiend.

In carefully looking over the authorities that believe sexual intercourse a necessity, two important facts are observed:—

The first is the twosidedness of their statements, the hemming and hawing about the matter, showing that they themselves are not quite certain about it. Thus they say that sexual intercourse is a necessity, and at the same time they caution us against telling our patients this fact. It is for this reason that at the commencement of this discussion, I have stated the issue fairly and squarely. I said there, and I repeat it here, that if sexual intercourse is a necessity, it ought not only to be allowed, but encouraged; also, if continence is prejudical to health, it should be discouraged, no matter what religion or morality says.

The second important fact that strikes one is, that these authorities consider that the only alternative to sexual intercourse is masturbation, or, in other words, that if a healthy adult does not indulge in sexual intercourse he is bound to masturbate. This is a very grave scientific error. While it is admitted that a large number of boys and young men masturbate, it is *absolutely denied* that masturbation is in any way a physical necessity or alternative to sexual intercourse. Masturbation is generally acquired at puberty, following the awakening of the sexual sense, but it is also exceedingly common in very young boys and even infants, long before the sexual sense is developed. As a matter of fact, in a large percentage of cases the habit is dropped before sexual intercourse is commenced. I have also found the habit continued in married men while indulging in regular intercourse.

While admitting that masturbation does cause, for the time being, pronounced nervous symptoms (see chapter on Masturbation) such as dreaminess instead of being wide awake, also readiness to submit to insult rather than fight, etc., I would still unhesitatingly say, after a large experience in both cases of masturbation and gonorrhea, better ten years of masturbation than one year of gonorrhea. There is not the slightest shadow of a proof that masturbation ever produced insanity, permanent loss of memory, or even permanent neurasthenia. While, as before stated, masturbation may produce various nervous phenomena, it has been my experience that in practically every case these symptoms were only temporary, and no matter how long they had existed or how long masturbation had been practiced, all the symptoms promptly disappeared as soon as treatment was instituted and the habit dropped. Again, when we consider that the vast majority of adults have at one time or another masturbated, we must not be surprised that also among the insane we get a history of masturbation in quite a good many cases. As I have shown, masturbation, no matter of what intensity or

duration, can be permanently cured; whereas gonorrhea, if neglected, is one of the most obstinate of diseases, and often does produce permanent incurable pathological conditions. To sum up, then, the whole matter, I would say that masturbation is not at all a physical necessity to those who desire to remain continent; but, even if it were, it is not nearly as great an evil as gonorrhea or syphilis, and can be rapidly and permanently cured.

I will quote just one more authority who holds the extreme view that sexual intercourse is necessary to physiological well-being.

Von Schrenck-Notzing, page 30, says: "Likewise in man enforced abstinence may endanger the freedom of the will and lead to perversity of the sexual act." Again, on page 39 he says: "The best cure for Onanism and other manifestations of sexual hyperesthesia—with few exceptions there can be no doubt upon that point—lies in regular sexual intercourse." And, on page 40: "Therefore, the chaste youth should exercise sexual abstinence as long as he is able to restrain the instinct without injury to his health. Should he be in danger owing to increasing strength of his sexual impulse, of Onanism, of falling a victim to satyriasis, or perverse sexual indulgence, then it becomes the duty of his teacher and his physician to cause indulgence in coitus and, too, to acquaint the neophyte with precautionary measures which will guard against excesses, infection, and the procreation of illegitimate offspring."

The views here expressed are so decided that they cannot be left unnoticed, and it behooves us to examine them closely.

The theory that abstinence causes satyriasis or other sexual perversions is analogous to the theory that sexual intercourse is a physical necessity. After most carefully studying this very important question, I do *not* believe that sexual perversion any more than insanity is caused by abstinence, but rather that

abstinence may be but one of the many symptoms of sexual perversions. The fact that a sexual pervert who satisfies his sexual cravings through various disgusting means is abstinent from regular sexual intercourse does not say that because he is abstinent, therefore, he is led into sexual perversity. His mind is so constituted that he simply prefers this method to the other. If one follows up the history of these sexual perverts, he would be struck by the fact that in not a few instances these pervert tendencies started quite early in life, even before puberty, when surely abstinence could not have been the cause of them. I have gone somewhat into this question in the chapters on Satyriasis and Nymphomania, but further discussion into this very interesting subject of sexual perversions would lead me far beyond the limits of this chapter.

The next proposition is even more startling: "The best cure for Onanism and other manifestations of sexual hyperesthesia—with few exceptions—lies in regular sexual intercourse." It is a pity that the author does not give us the "few exceptions," for then it might be seen that they embrace practically the *entire* subject. As is well known, Onanism generally starts around puberty, or even before it, and continues for a few years thereafter. Does this authority mean to recommend sexual intercourse at the ages of 12, 13, 14 or 15, in order to cure the habit? If not, then one of his "few exceptions" cuts off certainly over 80 per cent. of the cases, for the largest portion of them start and continue during these ages.

But let us say that the author refers only to adults. Even if there were no other remedy for sexual hyperesthesia than sexual intercourse, I would very much hesitate to prescribe a remedy which carries with it the almost certain risk of gonorrhea or syphilis. Surely the "cure" is much worse than the disease. But, happily for mankind, there is another safe and certain remedy. In the chapter on Masturbation I have shown that the hyper-

esthesia in the prostatic urethra, as well as the congestion of the prostate gland itself, which is the result of long-continued masturbation, acts reflexly upon the sexual centers in the brain and causes the intense desire to masturbate. Also, that as soon as the local condition is cured by prostatic massage and deep urethral silver-nitrate instillations (see chapter on Masturbation), the desire for masturbation ceases, and the patient is cured of the habit.

Let us now consider the last proposition, which, to state briefly, in order to avoid repetition, is that the chaste youth should refrain from sexual intercourse as long as he can, but, as soon as such abstinence seems to interfere with his health, his physician is to advise sexual connection, telling him how to avoid venereal disease and illegitimate offspring.

The first part of this paragraph peculiarly illustrates the hemming and hawing about the subject which I have previously alluded to. It is simply a most cowardly device on the part of the physician for throwing off his own responsibility, and putting it upon the patient. It may be good politics, but it is neither scientific nor in accord with the ethical obligation that the physician owes to his patient. To tell a young man "Don't have connection, but when you can no longer refrain from it, have it," is simply to give a silent consent to it; for every young man will quickly come back and say that he cannot refrain from it. If he later presents himself with a venereal disease, the doctor will say: "I told you so; I told you not to have connection, but you would not listen to me."

But the advice (according to the author) does not end here. The physician is to instruct the youth how to avoid venereal disease and illegitimate offspring. The author very wisely omits to tell us what these instructions consist in. A statement like this may possibly be swallowed by the general public, but to the physician, especially one with experience in genitourinary work,

it is the rankest hypocrisy. If the physician, with the proper light and instruments, the woman in the proper position, with the aid of the speculum, the microscope and the culture plate, cannot always, or even generally, be positive that his patient is free from infection, how in the name of all the gods at once can the young man, without this knowledge and facilities, tell whether the woman is safe or not? It cannot be too firmly impressed upon the public that a man does not generally become infected by a woman with an *acute* gonorrhea; it is mostly from women with *chronic* gonorrhea, with little or no visible pus, that most gonorrheas are contracted. It is just at this stage that the physician needs all modern resources to determine whether the case is infectious or not, and it is ridiculous to expect the lay young man to make the diagnosis. The second part of the proposition, *i. e.,* the prevention of illegitimate offspring, leads us into the realms of criminality, and such a statement ought not to be tolerated in any legitimate monograph.

I have entered into some detail in the discussion of this theory of von Schrenck-Notzing, because it is a typical illustration of the arguments advanced by those who hold this theory.

In this connection I may quote Sturgis as follows: "Trainers of pugilists and of men who are entering for athletic contests are well aware of the effect sexual intercourse exerts upon the physical and mental condition of every man, and coitus is the one thing which is rigidly excluded, and about which the strictest laws are held. An ex-pugilist has told me that when he was training for a fight, at the beginning, he suffered a great deal from want of intercourse, his seminal losses were frequent, and he had large and repeated pollutions, but in a short time, as soon as he got thoroughly into his work, these entirely disappeared and indeed he thought no more about them, but as soon as his work was finished and the fight was over he found that sexually he was as good as ever, the libido was pronounced,

and, as he expressed it to me, he 'could not get enough,' and I am satisfied, not only from this man's experience but of others with whom I have talked, that in such cases there is no loss of power from sexual abstinence, provided always the patient is not keeping his genital organs continually irritated by dallying with women, by reading, talking, or thinking about matters connected with sexual intercourse."

NEUROLOGIC RESULTS

I have thus far discussed the question from the point of view of the anatomist and physiologist. I will now briefly discuss it from the neurologist's viewpoint. In so doing I cannot do better than quote from one of the greatest neurologists in history. In the Lettsomian Lectures on Syphilis and the Nervous System, Professor Gowers says: "With all the force that any knowledge I possess can give, and with any authority I may have, I assert, as the result of long observation and consideration of facts of every kind, that no man ever yet was in the slightest degree or way the better for incontinence; and I am sure, further, that no man was ever yet anything but better for perfect continence. My warning is: Let us beware lest we give even a silent sanction to that against which I am sure we should resolutely set our face and raise our voice." Surely such an assurance from the great neurologist ought forever to allay the fears of those who fear wreck of the nervous system, submersion of the freedom of will, insanity, sexual neuroses, and degenerations as the result of continence.

The lectures from which the above quotation was taken were delivered by Gowers in 1889. In order to determine if modern neurological research work might possibly alter this opinion, I sent a circular letter in 1910 to many of the most prominent neurologists in the United States, asking them if they had ever seen cases of nervous disease which could be attributed to continence. In practically every case I received the answer.

that not only did they consider continence physiological, but that they did not believe, from their experience, that continence ever leads to nervous disease.

It has been claimed that continence leads to impotence. This accusation must therefore be faced fairly and squarely.

In the discussion of the various types of impotence I have pointed out that there is one form which occurs in men in whom the sexual functions appear very late, and last but a short time. These men rarely masturbate, rarely have pollutions, have very slight libido and easily remain continent. They sometimes marry for economic or other reasons, and are impotent, but do not worry much about their condition. In other words, in these cases there is a congenital lack of sexual desire and power, which is the cause of the easy continence and impotence.

Cases like these are often the ones brought forward as examples of impotence having been caused by continence. The careless observer, going into the history only superficially, simply takes it for granted that the man is impotent because he has been continent.

I have also called attention to another form of impotence in which the etiology and pathology are just the reverse to that above mentioned. To this class belong men, with normal or even powerful desire and passion, who indulge in illicit intercourse for years before marriage, and are perfectly potent. They then become engaged to be married, and, for fear of infection, remain continent during the period of their engagement. Their continence, however, consists merely in abstinence from coitus. They see their girl every night for months or even for a year, and spoon for hours at a time. As a result of this continuous spooning, they get their sexual organs and sexual centers into a hyperirritable condition but stop just short of coitus. In consequence of this, their sexual organs and centers become congested and hyperirritable, until they finally become exhausted.

(See Pathology of Impotence, p. 131.) If they marry while in this condition, they are apt to suffer from temporary impotence.

Here, again, the careless observer might conclude that as long as the patient indulged in coitus he was potent, but as soon as he remained continent for a long time he became impotent, and that, therefore, the impotence was the result of continence. As a matter of fact, however, these men were not continent in the scientific sense of the term, but quite the opposite. The best proof of this is the therapeutic proof. If you permit such a man to continue his attempts at coitus he will continue to get worse, but if you insist upon true scientific continence his sexual organs will recuperate rapidly as a result of the rest, and he will soon be restored to the normal.

It has been argued that, after the sexual organs are mature, continence is contrary to nature, that the object of sexual desire and coitus is not merely for purposes of procreation, for if that were the case it would be necessary to indulge perhaps only a dozen or twenty times in a lifetime. It is contended that, if procreation were the sole object of coitus, it follows that as soon as the wife becomes pregnant it would not be necessary to indulge for the entire period of pregnancy and even for one or two years after the birth of the child. Placing the maximum child-bearing period of a woman as perhaps thirty years, it can easily be figured out how few acts of coitus are required if its object were procreation only.

CONCLUSIONS

This is certainly a powerful argument against continence, and seems to hold up the whole theory of continence to ridicule. It must be fairly met, and, after devoting considerable attention to it, I have come to the following conclusion:—

It is undoubtedly true that the act of coitus is not for purposes of procreation only, any more than the act of eating is

merely for the purpose of sustaining life. Chittenden and other physiologists have shown that we eat far in excess of what we actually need to sustain life. If the object of eating were only to supply our bodies with the necessary elements, a few simple articles of diet would suffice. Most of us eat because we enjoy the things we eat, and likewise most people indulge in coitus because they enjoy it. But here comes the very important point: While most of us eat because we enjoy the things we eat, we would not *voluntarily* eat anything which would *seriously* harm us. In our *ignorance* we might perhaps eat things which do not agree with our digestive apparatus, but no sensible person would *voluntarily* do so. *I doubt whether any sane person would partake of a dish, no matter how tempting it appeared, if he knew there was danger of contracting syphilis or gonorrhea thereby.* Of course there are persons with such weak resisting powers who cannot resist a tempting dish which previous experience has shown does not agree with them, but such persons are certainly in the minority, and even such persons would resist if the risk were in any way as serious as contracting gonorrhea or syphilis.

I fully realize that the impulse for sexual connection is a much more powerful one than the impulse to partake of a tempting dish, but the difference is one of degree only.

It is the same with the act of coitus. I admit that in the vast majority of cases it is indulged in for the pleasure it affords, and it is perfectly proper for married people to indulge in it as often as is consistent with their sexual powers, irrespective of procreation. Were there no danger in illicit coitus, the question would be solely a moral one, and medicine would have nothing to do with it. But as experience has shown the very grave dangers of illicit coitus, the above argument against continence at once falls to the ground.

Lastly we come to the argument, that continence is contrary to nature. In discussing the etiology of satyriasis I have touched upon this very subject, and will again repeat in part what I said in that connection.

In the earliest stages of development, nakedness was the rule, and cohabitation was practiced entirely unrestrained by law or morals, simply as an expression of unbridled passion. No restraint was imposed upon the sexual impulse, and it was gratified without shame or formality. According to Herodotus many of the natives of antiquity did not keep the sexual relations private, but cohabited like animals in any assemblage.

This condition of affairs still exists today among uncivilized peoples. Cook, in connection with his first voyage, mentions that at Tahiti he saw a native in sexual intercourse with an eleven-year-old girl, in the presence of the queen, who gave him directions in that regard.

As a result of centuries of education, however, civilized man has set up a moral code for himself, which dictates that he satisfy his sexual needs within certain limits of modesty and morality, and not like the brute, whenever the desire seizes him.

In discussing the atavistic theory of satyriasis, I mentioned that were a *normal* primitive man brought into contact with modern society, it would be impossible for him to control his sexual appetite as does the civilized man of today, after centuries of education. It is more than likely that the former would have connection at every opportunity, whenever the desire seized him, and to all intents and purposes he would be practically like a patient afflicted with satyriasis. In other words, if a man were born today with primitive sexual instincts, and with that lack of self-control which is *normal* to primitive man, we would certainly consider him as suffering from satyriasis.

This, in brief, is the answer to the argument that continence is contrary to nature: Tell a dog on the street that he must not

have connection on the public highway, but must restrain his desire till he and his bitch can find a dark and secluded spot, he would probably resent this interference as contrary to his natural instinct. *Nature* teaches us to satisfy our sexual impulse whenever desire occurs, and this would really be the most physiological way of doing things, but *civilization* dictates that we restrain our passion within certain bounds of decency and morality. It is just as much against nature to restrain our passion within these bounds as it is to practice continence and to restrain it within bounds of legitimacy, especially as such restraint in normal individuals is perfectly physiological.

In connection with the nature argument against continence, it has been said that human nature has always been the same, and that you cannot change it, and that there has always been illicit coitus and will always be, as long as human passions and desires remain the same.

I have just shown, by comparing primitive man with civilized man, that you *can* change human nature, in spite of the fact that the sexual passion is probably just as strong in the civilized man of today as it was in his primitive ancestor.

But we need not go back to primitive man for comparison. For reasons too complicated to mention, woman has always excelled man in sexual morality. She has always been more moral and modest than man.

And yet we need only consider her as portrayed in old English literature, as, for example, in the original edition of the Knights of the Round Table, or even in comparatively modern literature, as illustrated in Shakespeare's works, to appreciate the vast difference in the morality of the woman of several centuries ago and that of the woman of today.

Heaven knows that there are enough immoral women today, and that there are many single as well as married women who transgress the law of morality, but the greatest pessimist must

concede, nevertheless, that these woman are greatly in the minority in proportion to the feminine population. In fact it may be stated, without fear of contradiction, that the vast majority of wives and daughters are absolutely moral. Women today are considered virtuous as a matter of course, until the contrary has been proven, and it would be considered a gross insult, in introducing a woman, to state at the same time that she is virtuous. There is no necessity for such a remark.

But consult literature as I have done, and see what was the standing of woman, and the opinion concerning her during the period above referred to. In introducing a woman, or in recommending her in marriage, it was generally deemed necessary to descant upon her sexual virtue. It was not taken for granted that a woman was virtuous as a matter of course, but, if she were, special mention was made of the fact, while men were never expected to be virtuous in those days. In other words, the woman of that period occupied the same position in sexual morality as does the man of today.

The world has been advancing; the woman of today is, in the vast majority of cases, a moral woman. Man has been advancing also, and will, I believe, continue to advance until he will some day, not very far distant, be far more virtuous than ever before. Woman demands it of him today, whereas less than ten years ago she did not expect him to have been virtuous before marriage. What woman demands of man, she is bound to obtain.

CHAPTER XVII

SOME UNUSUAL FORMS OF SEXUAL NEUROSES

IN the following pages I will not consider the more common forms of sexual neurasthenia, such as impotence, masturbation, pollutions, etc. In all these, from the very nature of the condition, the attention of the physician is at once directed to the sexual apparatus, and the patient is treated either by his regular attendant or is referred by him to a specialist.

In this chapter, however, I desire to discuss some of the unusual forms of sexual conditions, cases in which the patients present symptoms of widely different varieties, and, in many cases, not at all suggestive of the sexual apparatus. In reading the cases as reported herein, together with their diagnosis presented at the very beginning, it may *appear* not to have been very difficult to have made the diagnosis or to have seen the relationship of the patients' symptoms to the sexual apparatus, but in actual practice it is at times far from easy to recognize that relationship. In the first place, we must remember that the patients do not come to us saying that they are suffering from sexual neurasthenia and have such and such symptoms or conditions. Far from it. As before stated, they come complaining of the most diverse symptoms, making no mention whatever of their sexual condition; in fact, in many cases not even suspecting that their condition or train of nervous symptoms bears any relationship to the sexual organs. It often takes considerable questioning to bring out the sexual etiology, and very often the most painstaking examinations and interrogations are necessary before we can determine that the patients' symptoms are due to reflexes from the sexual apparatus. In many cases the genitourinary specialist must call to his aid the neurologist for

differential diagnosis, before ascribing the blame to the sexual organs. Similarly, however, the neurologist should call to his aid the genitourinary specialist for a complete examination of the sexual organs in cases which fail to respond to treatment and where the etiology is doubtful.

I might here state, in passing, that the average physician has not yet awakened to the importance of the male sexual organs as a source of *reflex* nervous symptoms, as compared to the female sexual apparatus. In the latter class of patients the pendulum seems to have swung *too* far. The physician has long since learned the important influence that the female sexual organs exert on every organ of her body. No physician would neglect thorough gynecological examination where the etiology of any nervous condition is not clear. I have said that there has been too much zeal in this direction, and many women are subjected to treatment and operation because of some slight, supposedly pathological condition found, which is thought by the examiner to be the source of all her woes.

For a study of sexual neuroses we must *not* look to the genitourinary clinics. To make a study of these cases I associated myself with the neurological class of Dr. Abrahamson, at the Mount Sinai Dispensary, where all such cases were referred to me. A special room was set aside adjoining one of the neurological rooms, where I made a complete genitourinary examination of all cases sent me. Besides taking a complete history of each case, palpating the external genitals, and the prostate and seminal vesicles *per rectum,* I examined the anterior urethra with the ordinary endoscope, and the posterior urethra with the posterior urethroscope. The patients did not come to the dispensary complaining of sexual trouble. They came complaining of various neurological symptoms, and if Dr. Abrahamson, after going into the history, suspected or determined that there was a genital source for their trouble, he referred them to me

for genitourinary examination and, when suitable, for treatment. It was in this way, and not through the genitourinary clinics with which I have been connected, that I have been able to make a special study of these cases as well as those of impotence, masturbation, and kindred ailments. I believe this plan of having a genitourinary examination-room in connection with a neurological department is a most excellent one—a far better practice, to my mind, than the one so often seen in other neurological clinics, where these patients are often dismissed with a dose of bromides or a tonic, without even a pretence of a genitourinary examination.

SEXUAL NEURASTHENIA WITH UNUSUAL SEXUAL SYMPTOMS

Patient has been married ten years. He has had three or four attacks of gonorrhea, the last attack having been fifteen years ago. Has had also a left epididymitis. He is sterile and his semen shows no spermatozoa. Urination is normal by day and absent by night. His chief complaint is that at night, and only at rare intervals, he is seized with a severe pain in his penis, located about three-quarters of an inch from the meatus. The pain lasts about an hour, during which time the entire penis shrinks up (does not bend) and his testicles also become heavier and smaller. If an erection comes at this time, the pain subsides. This the patient ascribes to the stretching of the penis. An examination shows signs of an old left epididymitis, and also a thickened right epididymis. This condition is sufficient to account for the sterility. The prostate is enlarged. The urine is turbid and full of long shreds. With the *bougie à boule,* a distinct stricture is found in the anterior urethra at the site of the pain, and with the endoscope we also see a distinct stricture (hard infiltration) at that point.

With the above urethral findings, one would at once naturally conclude that the stricture was the cause of his symp-

toms. This, indeed, was my impression. I therefore treated the patient with dilatation of the stricture, together with massage of the prostate at intervals in order to reduce its congestion. It must be remembered that, previous to the patient's coming to me, he had the attacks only at *rare* intervals. As the dilatation of his urethra progressed, I noticed that although the local condition had so far improved that he could take a large-size sound (30 F.), there was absolutely no change in his symptoms. In other words, these continued to recur at the same rare intervals. I was, however, struck with the fact that whenever the prostatic urethra was irritated, either by the urethral sound or by prostatic massage, a typical attack was evoked that same night. In other words, it was noticed that as long as the condition of the anterior urethra was treated by staffs which only touched the anterior urethra, no effect, either good or bad, was experienced by the patient, but as soon as these staffs were replaced by sounds which passed into the bladder, the symptoms at once became aggravated. I further noticed that although the stricture was situated in the anterior urethra, no bleeding occurred if only the anterior staffs were used, whereas a sound passed ever so gently into the bladder would almost always be followed by some bleeding. I then concluded that in spite of the presence of a stricture in the anterior urethra and the location by the patient of his pain almost precisely at the site of the stricture, this was only a concomitant condition, and not at all the cause of his symptoms. As soon, therefore, as his anterior urethra was sufficiently dilated, I examined the posterior urethra with the Wossidlo-Goldschmidt posterior urethroscope. This instrument showed a marked congestion of the entire posterior urethra, with several erosions. I had intended to make direct applications to the posterior urethra through the endoscope, but on account of the extreme congestion present (even the introduction of the instrument or of a sound being followed by

hemorrhage) I determined first to relieve the congestion by instillations of weak silver solutions with the Bangs' sound syringe, gradually increasing the strength of the solution and the size of the sound syringe. It might be added, in passing, that in cases where applications to or operations in the posterior urethra through the posterior endoscope are necessary, but where there is such extreme congestion of the parts as to preclude the passage of the instrument, I have found it expedient to give a preliminary treatment as above, until the congestion was relieved. Accordingly, every fifth day and later at longer intervals, the prostate was gently massaged and deep instillations of very weak silver-nitrate solutions given (starting with 1:3000 solution and a 16 French sound syringe). As before stated, the strength of the solution and the size of the sound were gradually increased, with the result that the attacks at first became less severe and later ceased altogether, so that finally it was not necessary to use the Goldschmidt instrument at all in order to make direct application.

In reviewing this case, it must be said that, while reflex symptoms coming from a congested prostate and posterior urethra are various and numerous, I have never seen reported a symptom-complex like the above, and other genitourinary colleagues with whom I have spoken tell me that they also have never had a similar case. It must be stated here, that had the picture not been confused by the findings in the anterior urethra, attention would certainly have been drawn at once to the prostate and prostatic urethra.

SEXUAL NEURASTHENIA DUE TO WITHDRAWAL

M. L., referred to me by Dr. Abrahamson in December, 1912, was 39 years old, and the father of one child. He came to the Neurological Clinic complaining of carelessness in work, loss of memory, and loss of all sexual desire as well as general nervousness. He admitted having practiced withdrawal for some

time. His prostate was very much enlarged, while the deep urethra was found to be very congested. Fortunately, this patient was separated from his wife, and recovered with no other treatment than massage of the prostate and a few direct applications of 10% silver nitrate to the verumontanum.

Examining the history of this patient in retrospect, we note, as has been repeatedly pointed out heretofore, that, like very many similarly afflicted, he did not seek the genitourinary specialist complaining of sexual symptoms, but came to the neurologist complaining of the most vague neurasthenic symptoms. It was only after much interrogating that the etiological factor was elicited.

PRURITUS ANI DUE TO REFLEXES FROM THE PROSTATE

Although cases like the following have been previously reported, they are rare and not generally appreciated; so that it would seem advantageous to call attention to the condition.

The patient, S. T., complains of severe itching in and also about the anus, for which he had been treated without any result for a long time. He is 30 years old, single, and had gonorrhea six years ago. Coitus is normal, urination five or six times a day and sometimes at night. Seldom has wet dreams, and has never practiced masturbation. Urine is normal except for the presence of excess of oxalates. Examination shows an enlarged prostate and fissures around the anus.

Here again the etiology was obscure. Itching is a very common symptom in connection with anal fissures, and one would believe the etiology to be very simple. However, the patient, before coming to me, had been carefully treated for a long time for this condition, without result.

I treated him by massaging his prostate once a week, together with an application of 5 per cent. silver nitrate to his anal

region. The result was that after only four treatments his pruritus had entirely ceased and has remained away up to date. For theoretical considerations it would perhaps have been better to have omitted all treatment except the prostatic massage, but I did not think it right to omit anything that might prove of benefit to the patient's most distressing condition, even though the etiological factors might thereby escape. Perhaps it was the combination treatment that did the work, but certainly the massage of his prostate must have contributed greatly, because, as above stated, he had received the local treatment before, without any result.

SEXUAL SYMPTOMS IN A PSYCHOPATH NOT DEPENDENT UPON CONDITION OF THE SEXUAL ORGANS

I desire to report this case as a direct contrast to the others, showing that we may have cases of sexual neurasthenia with pronounced sexual symptoms, with definite genitourinary findings, yet in which the symptoms are entirely psychic and only remotely caused or influenced by the condition of the genitourinary apparatus. Cases like the present one ought to be reported and emphasized in order to prevent us from claiming too much, and so make the genitourinary specialist too narrow, causing him to imagine that everything revolves about the sexual organs. In cases like the following, the genitourinary specialist should call the neurologist to his aid, and the latter can probably cure the patient by psychic treatment:—

H. S., referred by Dr. Ziegel of the Mount Sinai Dispensary, November 1, 1912. He is single, aged 21. Six years ago he practiced masturbation almost daily, over one and a half years. This was followed by a continuous prostatorrhea lasting five weeks. Two years ago he was treated by a quack physician who massaged him for one year. His chief complaint is that he imagines he feels his spermatic fluid circulating all through his body. He believes that he will not get well until his system is rid of

this contamination. He expectorated into his handkerchief and explains that he feels and sees the spermatic fluid in the saliva. Now he complains of pains all over his body which he attributes to the action of the spermatic fluid poisoning his entire body.

Examination of the genitals shows a varicocele and an atrophic prostate. The posterior urethra, examined by the Wossidlo-Goldschmidt posterior urethroscope, exhibits a practically normal verumontanum, with a marked erosion in the left lateral sulcus, and with an erosion at the opening of the left ejaculatory duct. The entire urethra is hypesthetic, the patient experiencing no pain or tenderness on passage of the instruments. There is no congestion of the verumontanum and the entire urethral picture, as well as the condition of the prostate as felt *per rectum,* is the direct opposite to what we find in cases of masturbation. The slightest palpation on the prostate brings fluid to the meatus. He urinates every two hours by day and rarely by night.

With this pronounced sexual history and the definite genitourinary findings, one might believe the relationship of cause and effect very direct. However, the patient came to the dispensary at irregular intervals and was treated by deep instillations of silver nitrate, and direct application of strong silver solution to his erosions through the urethroscope, and while his urethral condition cleared up entirely, and while there were no pollutions and he ceased to masturbate, yet there was absolutely no improvement in his psychic condition. He still felt his spermatic fluid coursing through his entire system. I believe him to be a psychopath and a case for mental rather than for genitourinary study.

SEVERE ANXIETY NEUROSIS DUE TO PROSTATIC IRRITATION

This case is reported because it is an extreme case of depression due apparently to no other cause than reflexes originating

from a congested prostate induced by previous masturbation. This is but one of many cases, although in general they do not present such severe symptoms. This case did not come into the genitourinary clinic for examination of his sexual apparatus, but into the neurological department of Dr. Abrahamson, and from the careful history taken in this department the relationship was easily recognized, and he was at once referred to me:—

M. G., single, aged 26, came into the neurological department of Mount Sinai Dispensary on November 3, 1911. His history, as copied from the neurological blank, is briefly as follows: Gonorrhea four times; last attack six months ago. Began to masturbate at 14 and stopped three years ago. Duration of present condition, five years. Is depressed; believes that his face does not look as it should; believes that people looking at him realize that there is something wrong with him. Knows that people doubt him. Memory good; sleeps fairly well; dreams rarely. In company of men, feels small; in company of women, feels very small and bashful. Believes that people can read the truth from his eyes and know what ails him. Hates and loves all women. His main worry is his eyes; feels sure that if his eyes were different he would feel perfectly well. Feels that his eyes are weak because of weak nerves brought on by Onanism and too much sexual intercourse. Life is not worth living. Does not masturbate any more. Pollutions rarely. Intercourse every two or three weeks. Sometimes believes that he will become insane and believes that he knows how he will act should that ever happen. He is very excitable and there is a lack of concentration. His general appearance is dull and apathetic. He also complains of severe headache and dizziness. All I found on examination was a very enlarged and tender prostate. The only treatment he received was massage of the prostate once a week. At the end of two months, when he made his last visit, practically all his symptoms had left him.

I suppose that many neurologists with such a distinct sexual history would consider this an ideal case for psychoanalysis, but here Dr. Abrahamson reversed his usual procedure and had the sexual apparatus investigated and treated first, before resorting to psychic treatment. To try to cure a patient by psychic treatment alone, while there exists a constant stream of reflex irritation sent to the brain from a congested prostate, is a mistake too commonly made. The ardent disciples of Freud, in their enthusiasm, are apt to be entirely too narrow in their interpretations.

TREMOR OF HANDS DUE TO PROSTATIC IRRITATION

Tremor of the hands is a common symptom in many nervous affections. In fact it is a common sign of "nervousness," using the term in the popular sense, but it is rather unusual to find it the only symptom of a congested prostate.

W. S., single, aged 20, was referred to me in June, 1911. His only complaint was a marked tremor of the hands which interfered with his business. He never had any venereal disease, rarely has wet dreams, and coitus, though rare, was normal. He likes to "fool" with girls. The only thing I could find was a moderately enlarged but rather tender prostate gland, which was most probably the result of the unnatural sexual excitement of too much spooning. He received no medication, and was treated merely by prostatic massage and deep urethral instillations of silver-nitrate solution. He was also cautioned against all manner of sexual excitement. As a result, in six weeks the tremor had entirely disappeared. He remained well for about two years and then returned with exactly the same symptom again, due to the same cause. This time the condition was complicated by nocturnal pollutions. He was again put on the same treatment with the same good result, and is at present absolutely well. How foolish it would have been to have

dosed this patient with bromides or to have given him electricity or tonic treatment!

SEVERE DEPRESSION DUE TO A CONGESTED PROSTATE GLAND

The patient, a physician, was referred to me by Dr. M. Allen Starr, of New York City. He is 32 years old, single, never had venereal disease, and never indulged in coitus. Patient has nocturnal pollutions once or twice a week, and must get up to urinate once or twice each night. Dr. Starr found him mentally normal. The chief complaint in this case is severe depression for a period of over two years.

I found his prostate gland extremely congested, and the expressed fluid obtained by massaging the prostate and stripping the seminal vesicles shows about four pus cells to each field and several lively spermatozoa. The posterior urethra, as viewed with the cysto-urethroscope showed extreme congestion in its entirety.

All I did in this case, besides the administration of bromides, was weekly massage of the prostate and deep instillations of silver-nitrate solutions into the posterior urethra. The patient, after receiving about ten treatments, himself remarked that he was greatly improved. Inasmuch as the patient himself is a medical man, his own admission of improvement has a special value. The patient finally became perfectly well, married, enjoyed normal coitus and is the father of several children.

RELATIVE ASPERMIA NOT DUE TO DISEASE OF THE GENITOURINARY ORGANS

Relative aspermia is a very rare condition, and the prognosis is generally very poor.

The patient, a very intelligent lawyer, is 32 years of age, and has been married for the last four years. He was brought

up under strictly puritanical standards, and it is to this bringing up that the physician who referred him to me, ascribes his condition, a theory to which I do not subscribe.

The patient had never indulged in coitus before his marriage. He never masturbated, and never experienced any desire for coitus, although he enjoyed spooning, kissing, etc. He has had nocturnal pollutions as often as once a week with pleasurable sensation. Before he married, he consulted a physician who found him normal, and told him he found no impediment to marriage. His urine is normal, and both he and his wife are desirous of having children.

When he married he found himself impotent, and could neither get erection or ejaculation. He consulted various prominent genitourinary specialists in New York City, who treated him by prostatic massage, deep urethral instillations and direct application to his verumontanum. He also submitted to circumcision, but none of these measures gave much relief. His wife then had her hymen removed by a gynecologist, and her vagina stretched. After this he managed to get into her by practicing coitus in the reverse positions, that is, he lay flat in bed, with his penis standing up, and his wife would simply sit down so that her vagina would cover and be entered by his penis. But even with this maneuver, coitus was generally imperfect, the erection going down very rapidly without ejaculation. He then was treated by a psychoanalyst of repute, but after a long period of trial he did not improve.

Upon examination, I found his prostate normal and both seminal vesicles distended. A posterior urethroscopy revealed a normal posterior urethra. The expressed fluid, obtained by massaging the prostate and stripping the seminal vesicles, showed no pus cells, but many lively spermatozoa. The external genitals were normal. The patient had never experienced any pleasure during his attempts at coitus.

Inasmuch as the patient has had at times nocturnal pollutions, and the expressed fluid showed live normal spermatozoa, I concluded that there was no obstruction either in the vasa or other channels leading from the testicles to the urethra. The fact, also, that the patient had pleasure during a pollution, and that he enjoyed spooning, kissing, etc., shows also that the sexual sense was not wholly extinct. The fact, again, that ejaculation took place during sleep shows that the ejaculation center was not destroyed.

I employed the faradic sinusoidal current, having one electrode in the rectum, and an ordinary urethral sound in the urethra connected with the other electrode. I employed the same current also to the perineum, and to the penis direct. I also tried to stimulate the ejaculation center directly by employing the same current, using a broad abdominal electrode on the abdomen and a smaller electrode on the spine over the supposed position of the ejaculation center. Internally I gave him at first yohimbin, and later corpus luteum capsules.

After about six weeks treatment, his erections were very good and very prolonged. He also could have coitus in the normal position, and enjoyed it. But in spite of good lasting erections, there never was any ejaculation. I examined the urine passed immediately after connection to see if possibly the seminal fluid regurgitated into the bladder, but no trace of any seminal fluid would be found therein.

ABSENCE OF ORGASM IN WIFE NOT DUE TO HUSBAND

The husband of the patient was sent to me by his wife's physician, because she never experienced any orgasm or pleasure during coitus and never had any desire for coitus. The physician in charge of the patient thought that the fault must lie with the husband. I found, however, that the husband was perfectly normal, had never contracted venereal disease, never

practiced withdrawal, and could keep up coitus with good erection for a long period of time, without, however, evoking any orgasm in the wife.

The patient herself is 25 years old, and is married nine months. She has been under treatment for anemia by her physician, and the laboratory blood count, after several weeks of treatment, was as follows:—

Hemoglobin	70	per cent.
Red blood cells	4,120,000	
White blood cells	10,000	
Color index	.8	
Small mononuclear	38.5	
Large mononuclear	2	per cent.
Transitional	0	
Polymorphonuclear	57.5	
Eosinophiles	1	
Mast cells	1	

Remarks.—No marked variations in size or form of red blood cells, no nucleated forms.

The laboratory report of the urine, showed nothing abnormal. The patient started menstruating at the age of 15, has her periods regularly every twenty-nine days, the flow lasting six days and without pain.

On examination, I found a rather small uterus, somewhat retroverted. Nothing abnormal found in the pelvis.

I put the patient on corpus luteum capsules, and applied electricity in the form of sinusoidal faradism and galvanism to the uterus and vagina. After several weeks of treatment, the patient informed me that her sexual desire had greatly increased, but that there was, however, no pleasure or orgasm during the sexual act. She aptly described her condition as that of a person having the desire to urinate, but finding it impossible to do so. I may mention in passing, that I have found in a large number of cases in women, that the administration of corpus luteum greatly increases their sexual desire. The patient had been

advised by her physician to rub her clitoris, and this manipulation did produce orgasm and pleasure.

The interesting part of this case, is the fact that the ordinary etiological factors were entirely wanting.

Subsequently, however, I treated a case practically identical with the foregoing and effected a complete cure by the treatment above outlined.

TYPICAL PSYCHASTHENIC SYMPTOMS DEPENDENT UPON PROSTATIC IRRITATION

The patient, C. G., is 50 years old, and has been married for fifteen years, and has one child 11 years old. Has been using a condom most of the time. Had had one attack of gonorrhea before marriage, but his blood, examined before marriage, was found negative for gonorrhea and syphilis.

The chief complaint of the patient is very nasty dreams by night sometimes accompanied by a pollution, although the patient indulges in regular coitus. He generally feels very exhausted after these dreams, and sometimes feels exhausted after regular coitus. Sometimes he feels ashamed of himself on account of the nature of his dreams, because he dreams of indulging in coitus with perfectly virtuous girls whom he happens to know, and for whom he has the highest respect and regard.

On examination I found a very enlarged and congested prostate and a congested posterior urethra.

The treatment consisted in relieving the local congestion by prostatic massage and weak silver-nitrate instillations into his posterior urethra. He immediately began to improve, but later on had several relapses, especially when he partook of some whisky to abort a cold. Finally he became well and has remained well ever since.

It might be objected by some, that the symptoms as well as the good results obtained in the cases just outlined, were not due to the conditions found, nor to the treatment of the sexual organs, but that these good results were perhaps due to the psychic influence of the treatment. I do not wish to deny the psychic effect produced by the treatment. The introduction of the lighted endoscope or cystoscope is full of possibilities hitherto unknown to the patient. There is first, the direct seeing of the disease focus, which, like an x-ray examination, appeals especially to the layman; secondly, the patient very frequently believes that light and electricity are both very beneficial in their therapeutic effects; and lastly, the novelty of the procedure impresses the patient with the thoroughness of the examiner. But in spite of all this, which in some cases only, is a concomitant feature, I feel certain that the good results were mostly due to the treatment itself. In the first place, the lesions in the genital apparatus were actually present, and the symptoms were improved, generally parallel with the improvement in the local condition. But what is significant is the fact that most of these patients had received treatment for a long time, with other procedures which must have had a greater hold on their imagination than my treatment. Take, for instance, the patient with attacks of pain in his penis. At first the dilatation of his anterior urethra with the Kollmann dilator has absolutely no effect, either good or bad, on his symptoms. If the case were purely psychic, a Kollmann dilator would have had more effect than rectal manipulation. But we see that this did not occur, and he only got well as soon as the prostatic urethra was treated and the local lesion cleared up. Going through all these cases, therefore, we note that almost all of them were treated by prostatic massage and deep urethral instillations,—procedures which are certainly not at all calculated to impress the imagination.

I wish to draw attention to the fact that the various neuroses are psychoanalytically investigated by the neurological department before they are sent to me. It is only after failure to elicit the etiological factor, or failure of the psychoanalysis itself to benefit the patient, or failure of educational attempts of therapeusis, that the patient is referred to me for examination and possible treatment.

In conclusion, the object of this chapter is to draw attention to the male sexual organs as the cause of profound nervous symptoms in many cases. I do not wish by any means to convey the impression that the male sexual apparatus is the hub around which the neuroses revolve. I have, therefore, purposely reported my failure to cure the patient by treatment directed to his sexual organs, in one of the types of cases, in spite of the fact that lesions in these organs existed, and were influenced favorably by treatment. We all know that severe nervous symptoms may follow errors in refraction, errors in digestion and assimilation and other reflex irritations from almost any organ in the body, but I do plead for a more careful investigation of the male sexual apparatus in functional nervous diseases in such cases which fail to respond to treatment and where the etiology remains in doubt.

CHAPTER XVIII

ENURESIS

DEFINITION

ENURESIS is the involuntary evacuation of urine in childhood in the absence of any gross pathological condition of the urinary apparatus. If the involuntary urination takes place during sleep, it is called *enuresis nocturna;* if during waking hours, it is called *enuresis diurna,* and if both by day and night, it is called *enuresis continua.* Involuntary evacuation of the bladder is normal in early infancy, but with proper training a child may be enabled to control its urine by day as early as the tenth month. Involuntary micturition at night continues much longer and, while some pediatricians do not consider it pathological even if it continues up to the end of the third year, others consider it pathological after the completion of the second year.

ETIOLOGY AND PATHOLOGY

Inasmuch as the normal act of urination consists in a reflex expulsion of the urine by the bladder, controlled by inhibitory impulses from the cerebrum, any condition which interferes either directly or reflexly with this mechanism may be the cause of enuresis.

In the infant, the contraction of the bladder and the relaxation of the sphincters are purely reflex and dependent upon stimulation of the centers in the spinal cord. It takes time for the higher centers in the brain to gain control of the function of micturition and to bring it under control of the will.

Enuresis may therefore be due to a lack of development of the control or inhibition of the higher centers in the brain. To

this class belongs the enuresis of idiocy, imbecility, or other diseased conditions of the cerebrum.

In other cases, the pathology and etiology are entirely different. The reflex stimulation from the bladder may be so powerful that the cerebral inhibition is too weak to control it, as in the case in hyperacidity of the urine, or any other local condition which may be the starting point of powerful reflexes.

In order that the lumbar centers be stimulated into action, there must be present ordinarily more or less distention of the bladder. In some cases of enuresis there is a contracted bladder which becomes distended with very little urine in it, and so, especially at night, the reflex is soon started, and bed-wetting results.

In other cases there may be a hyperirritability of the lumbar centers themselves. In these, the accumulation of only a slight amount of urine in the bladder is enough to start such a powerful reflex as to overcome the inhibition of the higher centers, and the enuresis here is associated with increased frequency of urination.

In other cases still, the control of the higher centers is unduly weak while the lumbar centers are normal. This is the condition of affairs in ordinary cases of nocturnal enuresis. As long as the child is awake the controlling influence of the higher centers is sufficient to keep things normal, but in sleep, with this control less powerful, enuresis ensues. Even by day, in some of these cases, if the child is deeply absorbed in some occupation, the control of the higher centers may at times be too weak to prevent enuresis.

In many instances, however, the pathology is not at all clear. Some cases appear to be due to a lack of proportion in the power of the expulsion muscles of the bladder and the bladder-sphincters, there being either normal sphincters and exceedingly

powerful expulsive muscles, or normal expulsive muscles and weak sphincters. In still another class there seems to be a lack of harmony between the nerves which control the expulsion of the urine and those which control the action of the sphincters. This condition has been compared to the act of stuttering or other speech defects. In most cases, however, we cannot discover even a hint at the underlying pathological conditions, and this is true of between 90 and 95 per cent. of them. Many theories have been advanced to explain these idiopathic cases. Both Herrman and Wachenheim believe that they belong to the same category as the tics, or habit-spasms. Some instances seem to be hereditary, for we find whole families in which the majority of members have always suffered from enuresis in childhood. In other instances, we discover a condition of instability in the nervous make-up of the individual, and attention has already been called to the fact that many individuals who suffer from impotence after reaching adult life have, as children, suffered from enuresis.

It was assumed formerly, on purely theoretical grounds, that so-called scrofula or malnutrition was an etiological factor, but careful observation has shown the reverse to be the case, for well-nourished children, as a general rule, suffer more from this condition than their weaker brethren. Both hypothyroidism and hyperthyroidism have at times been the cause of enuresis. In some cases the administration of thyroid has proven curative, while it has also happened that, in children normal in this regard, the administration of thyroid for some other ailment has brought on enuresis.

Among additional reflex causes may be mentioned long, tight, or adherent prepuce and balanitis or narrow meatus in the male, vaginitis in the female, as well as rectal worms, rectal polyp, or anal fissure, kidney disease, bladder disease, diabetes, or organic nervous disease.

Burnet claims that enuresis coming at rare intervals may be a manifestation of epilepsy, and is cured by bromides.

Many years ago adenoids were considered an etiological factor, but experience has not proven the casual relationship. In some cases the removal of adenoids, like any other psychic shock, has caused the cessation of the habit, but it has also happened that the removal of adenoids has brought on enuresis where the condition had not existed before.

Boys and girls seem to suffer in equal proportion. In girls the condition is more often kept secret even by parents, which accounts for the opinion that boys are afflicted more often than girls.

SYMPTOMS

In some cases the bed-wetting is simply a continuation of the normal condition of infancy. The child simply continues its nocturnal or diurnal enuresis without any interval of control. In other instances, however, the child had gained its normal control, and remained normal perhaps for several years before the enuresis developed. In this latter group I have been impressed with the fact that often the starting point was some illness. Thus, in not a few cases parents have told me that the child was entirely normal until an attack of measles or diphtheria, and one of my oldest cases was a young man of 17 who informed me that, when 8 years of age, both he and his brother (four years younger) were ill with scarlet fever, and that both of them had suffered from nocturnal enuresis ever since.

Except in the very severe cases, the children do not wet the bed every night, but generally skip one or two nights a week. Those suffering from *enuresis diurna* suffer almost always from *enuresis nocturna* as well, while children suffering from *enuresis nocturna* are generally able to control their water during the day. Many of the latter, however, if not allowed to leave the room promptly at school, pass the water in their clothes. This

is not true enuresis, however, as it is not done unconsciously, but is simply due to feeble control.

There is the greatest irregularity in cases of nocturnal enuresis, whether treated or not. In some, without any reason whatsoever, a child will not wet the bed for one or two weeks at a time, and then continue the wetting as before. If a new remedy is tried at just this period, the physician is apt to be very enthusiastic and credit the result to the treatment. The psychic element is generally well marked in these cases, it being a well-known fact, that almost any new procedure will stop the condition temporarily.

DIAGNOSIS

The main point in diagnosis is to exclude any pathological condition as a possible cause. The urine should always be examined as a matter of routine, so as to exclude the possible presence of diabetes, and we will also learn from this examination whether hyperacidity exists. In special cases we may have to examine the urine for tubercle bacilli, as tuberculosis of the kidneys and bladder have been known to be among the causes of enuresis. Such conditions as vesical calculus, cystitis, and urethritis must likewise be excluded as possible causes, and we must diagnose, if possible, whether the underlying cause has its seat in the cerebrum, the lumbar centers, or in the genito-urinary tract. After all, however, over 90% of the cases are idiopathic, *i. e.,* we can find no pathological condition either in the local genitourinary organs or in the assimilative apparatus.

PROGNOSIS

No matter how obstinate these cases may be, most of them recover at puberty. The younger the child, the better the prognosis, for where the condition continues beyond puberty it is more likely to be very obstinate. Even here, however, most cases are cured with proper treatment and great patience and perse-

verance on the part of physician and parents. Enuresis in idiots, imbeciles, or sufferers from other grave cerebral conditions is apt to remain incurable. The prognosis as a general thing depends more upon the patience and perseverence of the physician than upon any other factor, since 90% of the cases are idiopathic, without discoverable cause to work upon. The physician must not get discouraged because the child does not respond to treatment for a long time; nor must he stop treating the child because it apparently responds very favorably to his first medication. Such response is very apt to be temporary only, and he must therefore have patience with both classes and keep them under treatment and observation for a long time. The parents should also be told that long treatment and observation are necessary to effect a permanent cure.

TREATMENT

Several years ago, through the courtesy of Dr. Charles Herrman, at that time Chief of the Pediatric Department of Vanderbilt Clinic, New York City, I made a special study of the enuresis cases coming to that institution, and made myself acquainted with all the available literature on the subject as well.

I was struck with the fact, however, that while many wonderful and quick cures are mentioned, many of these cures failed entirely or relieved the patient only temporarily when I gave them a trial.

As I became more experienced in the management of these cases, the explanation of these reported "cures" became clear. There is a very marked psychic element about enuresis, and any new therapeutic agent, be it electricity, silver-nitrate instillation, passing a sound, or a new prescription will temporarily stop it. Most of these "wonderful" cures mentioned are also quick cures, having been reported by the physician, after he had tried them for a few weeks only, and before the psychic element

had worn off. For this reason, a cure with any new remedy ought not to be reported until at least six months have passed, to ascertain whether the result is permanent.

1. GENERAL TREATMENT

The general treatment is very important and should be carried out, no matter what regulation treatment is applied. In many cases, it is useless to attempt to treat enuresis without due regard to diet, mode of living, and other factors to be described presently.

In the first place, we must look for any local or general irritation, and treat this condition. This includes such sources of irritation as long, tight, or adherent prepuce, hyperacid urine, rectal worms, vesical calculus, vaginitis, urethritis, or any of the other conditions mentioned under Etiology and Diagnosis. These, however, amount to about 10% only of all cases of enuresis.

The child should sleep upon its side, for many children wet the bed only when lying flat upon their backs. For this purpose, wherever necessary, a towel may be tied around the child's body, with the knot so placed as to press upon its back when lying upon the back. The discomfort of this knot will compel the child to lie upon its side. I do not think it necessary, however, to blister the sacrum in order to keep the child off its back.

It is also advisable to have the pelvis of the child elevated during sleep. This has the effect of causing the urine, which accumulates in the bladder during the night, to gravitate toward the fundus, that is, away from the trigonal region. It is the irritation of the urine against the trigonal region which often starts the reflex of urination. The elevation of the pelvis can easily be accomplished either by raising the foot of the bed or by putting a pillow under the child's pelvis.

It is advisable likewise to have someone note the time the child wets the bed during the night, and then to wake up the

child just previous to that time on succeeding nights, and have it empty its bladder. This is an excellent method of procedure, but entails a large amount of inconvenience on the part of the parents, unless they happen to be wealthy enough to afford a special night nurse. To avoid this staying up and watching on the part of the parents, an ingenious device has been suggested, which consists of having one pole of a battery in contact with the diaper covering the child's genitals, and so arranged that as soon as the diaper is wet, a circuit is completed which rings an electric bell waking up the child or parent. I have had no personal experience with this method, and cannot therefore state whether it is practical.

It is always advisable to have the child empty its bladder just before retiring, and, if not inconvenient, to do so again before the parents retire, just before midnight.

It is absolutely useless and often harmful to punish a child for bed-wetting. It is far better to reward it for the nights when it does not do so. In *enuresis diurna* it is well to appeal to the child's pride, for in some of these cases the enuresis is kept up as a matter of habit, sometimes from sheer laziness on the child's part. In cases of contracted bladder, it is well to develop its capacity by having the child retain its urine at longer and longer intervals during the day, or by gradual distention of the bladder with fluid, by the physician, through a catheter.

When the urine is normal, it is best to reduce the quantity of fluid taken by the child during twenty-four hours by at least 25%. If, however, the urine is hyperacid, this reduction would only make matters worse, by increasing the relative hyperacidity.

A diet rich in sugar or starch is to be strictly avoided and often an antidiabetic diet is of distinct value. Red meat should be given only once during the twenty-four hours. The last meal should be taken not later than 6 P. M., and should be "dry" and

not very heavy. At this meal we may allow cereals, butter, sugar, ice-cream, milk-toast, fruit and bread.

After 4 P. M. no fluid is to be given to the child at all. This rule must be rigidly enforced, except for the first week, when a little fluid may be permitted, the quantity of which is to be gradually reduced until the child is used to the regimen.

2. *REGULATION TREATMENT*

For the regular treatment of enuresis, nothing has thus far superseded belladonna pushed to its physiological limit and persisted in for a long time. I can do no better than recommend the method of administration advocated by Kerley, which I have followed with good results in most cases. One must follow his scheme as closely as possible, however, and parents must be warned in advance concerning the physiological effects of this drug, so that they may stop it at the right time.

Kerley recommends a 1:500 solution of atropine, each drop of this solution representing gr. $\frac{1}{500}$ of atropine. Of this solution he prescribes 1 drop twice daily, at 4 and 7 P. M., increasing the dose until the physiological effect (dilated pupils or redness of the skin) is produced. The administration must, however, not exceed a maximum of 1 drop for each year of the child's age. Thus, a child 3 years old should never receive more than 3 drops of the solution twice a day; one 6 years old should never receive more than 6 drops twice a day. As a general thing, the physiological effect will be produced before this maximum is reached. Kerley gives the following scheme for a child 5 years of age:—

	4 P.M.	7 P.M.
1st day	0 drop	1 drop
2d "	1 "	2 drops
3d "	2 drops	2 "
4th "	2 "	3 "
5th "	3 "	3 "
6th "	3 "	4 "
7th "	4 "	4 "
8th "	5 "	5 "
	24	

We must not be discouraged if no improvement appears for two or three weeks. The diurnal cases respond more quickly than the nocturnal, that is to say, if the child suffers both by day and night, it will first cease its involuntary evacuation by day, and it will not be until some time later that any improvement will be noted by night. The first improvement noted at night will be a diminution in the number of wet nights. It may take a few weeks before the child has an entirely dry week, but when this occurs the treatment must not be stopped, else the child is sure to have a relapse. If the child has had two dry weeks, we may reduce the amount of drug by one-half and keep up this amount for six weeks. If there have been two dry months, however, we may stop the drug entirely, keeping up the dry suppers for three months longer. In diurnal enuresis (without nocturnal) the same scheme should be followed except that the atropine should be given after breakfast and after lunch instead of at 4 and 7 P. M., while strychnine should be given at the same time.

3. TREATMENT OF OBSTINATE CASES

Most of the so-called obstinate cases are cases in which the above method of treatment had not been persisted in long enough, the physician or patient having become discouraged. Kerley has shown what can be done in so-called incurable enuresis. He put some of these patients on the above method of treatment, and although some of them did not show improvement for several months, still he persisted, continuing to treat them without interruption for an entire year. They were entirely cured, and although he kept them under observation for six months longer, there was no relapse.

Several years ago, I had under treatment a bright boy of 9 years of age who had suffered from enuresis for about six years. He was kept under continuous treatment of one kind or another for a period of over two years, with but little im-

provement. I carefully followed out the above scheme with no result whatever. The reason that it failed was possibly due to the fact that the boy seemed to have a tolerance for the drug. I then increased the drug until he received over twice the maximum dose for his age, yet there was absolutely no sign of a physiological effect either in the pupils, the skin, or the pulse. I tested his bladder capacity and found it even above normal, for he could easily hold over 10 ounces of urine during the day. I tried strychnine, thyroid, stypticin, cantharides, but all without result. The only thing that had some slight effect was deep instillations of silver-nitrate into his posterior urethra. After two years of treatment his parents became discouraged, stopped everything, and I have not heard whether anything further was done.

While studying these cases at the Vanderbilt Clinic, I experimented to ascertain what could be done in so-called obstinate cases, by treatment directed to the urethra. I gave deep instillations of weak silver-nitrate solution into the deep and anterior urethra, and was rather surprised to see how well these children will admit of such instrumentation, if the procedure is done with due gentleness. In a few of these obstinate cases, I have had some permanent successes; in others, however, no beneficial result was obtained. On the other hand, I have never seen the slightest harm follow this method. Curiously enough, my best results were obtained in females, by instilling silver-nitrate into the urethra with a sound syringe.

I have often noticed that adults, after the prostate had been massaged, experienced difficulty in starting the stream of urine. The massage seems to have an inhibitory effect in most cases. Acting upon this experience, I thought that massage might possibly have a similar effect in enuresis, and accordingly tried this procedure upon a series of cases at the Vanderbilt Clinic, though without any beneficial result whatever. In one instance, I had

a rather peculiar experience, but, as this was an isolated case, it is difficult to say whether it was merely a coincidence or the result of the treatment.

The case was that of a little boy about 8 years of age, whose enuresis had been reduced by belladonna treatment before he was referred to me to one bed-wetting every two weeks. Further belladonna treatment, likewise before he came to me, did not relieve this semimonthly bed-wetting. I started to massage his prostate once a week, with the result that almost immediately the enuresis increased to five wet nights a week, and later on to every night. After that the case proved very obstinate, even though the massage was stopped after but three treatments.

It would take me far beyond the limits of this treatise to state all the methods and drugs which have been employed for the relief of obstinate cases of enuresis. A few of the more important ones, however, may be mentioned.

On the theory that enuresis is a habit spasm, it has been recommended to treat the condition by re-education. Accordingly, Herrman treats his patients as follows:—

"He has the patient urinate at regular stated times, but on each occasion he is directed to void a little,—say, 2 drams; then stop, void 2 drams more, and stop again. This is continued until the bladder is emptied. This procedure exercises the mechanism which controls urination; and the patient trains and educates himself in the voluntary execution of the act. After this has been done under the direction of the physician for two or three times, the patient can continue it by himself."

Williams reported remarkable results from the use of desiccated thyroid. He administered gr. ½ of dried thyroid twice daily to children between 2 and 6 years of age, and somewhat larger doses to older children. Ruhräh also tried this drug in cases which seemed to be suffering from thyroid insufficiency, and states that he has had considerable success in a series of

cases. The results were very prompt, coming on within a week of treatment, sometimes even after the first or second dose. In fact, according to him, no response can be expected unless the result is prompt. In this connection Williams noticed a marked increase in weight while children were taking the thyroid,—in one case, a gain of five pounds in a single week. According to Ruhräh, the thyroid need not be continued for a long time.

Lumbar puncture has been recommended by some authorities, but Allaria states that he has obtained results just as good with pseudo-lumbar puncture. The procedure in both is the same, except that the solution is injected into the subcutaneous tissue instead of into the spinal cord. Allaria states, however, that marked results are not obtained by either method, and that whenever they occcur they are really due to the psychic effect.

Radcliffe has obtained good results from taka-diastase in cases associated with glycosuria.

Burnet has called attention to the fact that enuresis coming on at long intervals may be merely an expression of nocturnal epilepsy and be cured by bromides.

Coutts highly recommends the tincture of lycopodium, in doses of gtt. 20 to a dram *t. i. d.* He says it is almost a specific, but I have had considerable difficulty in obtaining tincture of lycopodium, many druggists claiming that no such preparation exists. In one case in which I tried it, however, the result was excellent.

Electricity has been recommended by various authorities. I have tried it on several occasions and sometimes with success, but believe that in the latter the influence was purely psychic.

Chapter XIX

NYMPHOMANIA

DEFINITION

Nymphomania may be defined as excessive venereal impulse in the female. As has already been mentioned, it is the exact counterpart of satyriasis, and the two conditions are generally considered together.

It is commonly asserted that, while satyriasis is rather rare, nymphomania is not at all uncommon, and is certainly much more frequently met with than satyriasis. I cannot, however, subscribe to this comparison of the frequency of the two conditions. The error has been made, I believe, in not taking into account the *normal* sexual desire of woman. When a single man has sexual desire he generally indulges in intercourse, and no notice is taken of the fact. But, under our present social conditions, an unmarried woman is supposed to suppress all thoughts of sexual intercourse, and so we have come to regard one who, teased by a strong (though still normal) sexual impulse, betrays it by her actions as a nymphomaniac. This condition, however, is not true nymphomania. In making our comparisons of the frequency of nymphomania as compared to satyriasis we must take into account that the sufferer from satyriasis may remain undetected for a long time (in mild cases possibly for life) while the nymphomaniac is more readily recognized.

ETIOLOGY

Much that has been said concerning the etiology of satyriasis also applies to nymphomania. Neither culture nor breeding seem at times to have any etiological influence. It is found in the most cultured, in the most modest, and in the most religious,

almost to the same degree as in those less carefully educated. As with satyriasis, while many of the nymphomaniacs are given to masturbation, from this fact alone we cannot conclude that masturbation was the cause of the nymphomania.

One factor, however, stands out prominently in the etiology of these cases, and that is the hereditary factor. In so many cases of nymphomania we find an immediate history of insanity or other severe psychosis in one or the other of the parents, or very near relatives, that we cannot help coming to the conclusion that nymphomania, far more than satyriasis, is, in the vast majority of cases, really a psychopathy. Another fact worthy of mention is that so many nymphomaniacs end up in insane asylums. In this connection, however, we must take into consideration that nymphomania may be but a symptom of some graver form of psychosis, and it may well be that, in some cases at least, it is among the first symptoms of insanity. As far as our present knowledge goes, no known factor (outside of heredity) will cause nymphomania. In other words, *the nymphomaniac is born and not made.*

PATHOLOGY

As may be gathered from a consideration of the etiology, the pathology is not at all understood. We do know, however, that the disease is not dependent upon any local condition of the genitals, and all we can say at present is that the disease probably has its seat in the brain.

SYMPTOMS

In nymphomania the sexual desire is purely physical in character, and centered upon the local pleasurable excitement of the genitals. There is none of the higher feeling of love which is so characteristic of the erotomaniac.

The best and most careful rearing of girls suffering from nymphomania, says Reti, cannot save them from their downfall.

In their wild passion, casting all moral and social considerations aside, they throw themselves into the arms of sin. The more they abandon themselves to the gratification of their lust, the greater is the desire of their morbidly irritated sexual centers for lecherous satisfaction. Every indulgence increases the desire and lessens the capacity.

Trélat tells of a young girl, the daughter of a professor, who at the age of 15 would receive soldiers at night through her bedroom-window to satisfy her increased desire.

Talmey cites the following case from Reti: The patient lived happily with her husband until after the birth of her first child. From that moment insatiable lust seized her. An irresistible craving suddenly took hold of her—an indomitable lust to embrace a man. In her genitals she felt a morbid itching, an inexplicable excitement, a burning desire for sexual gratification. In the beginning her husband tried to satisfy her until he discovered his impossibility to do this. She did not allow an hour of the day to pass without demanding gratification from her husband. He was terrified to see her pressing her genitals to the edge of the table, to the door or any other hard object, in order to satisfy her sensual appetite. When she became worse from day to day her husband decided that she was ill and brought her to the hospital for examination. At the introduction of the speculum, at first a morbid contraction of the constrictor cunni muscle occurred. The touch of the carunculæ myrtiformes provoked intense pain. After surmounting the obstacle, however, the pain ceased and a blissful rapture ensued. "Now! Now!" exclaimed the patient when the entire speculum was within the vagina. A convulsive movement seized her entire body, a thrill went through her, and she made all the movements of a passionate coition.

The nymphomaniac tries, by all sorts of coquetry and exposure of her genitals if necessary, to attract men to her for

purposes of coitus. In many cases, the mere sight of a man is enough to throw her into the most intense sexual excitement. Wulffen gives the following instance from Merzbach: A Berlin lady, belonging to the highest society, grabbed, under cover of her napkin, at the dinner, the genital organs of her supper partner.

One of the prominent symptoms, especially in young girls, is the demand for gynecological examination, and especially for catheterization. Any excuse for examination is brought forward. The patients will voluntarily retain their urine in order to have to be catheterized. The mind of these patients is simply full of sexual ideas. The patient, if unmarried, will invent numberless diseases for the purpose of being manipulated by the gynecologist.

Krafft-Ebing rightly says that the milder cases of nymphomania claim our sympathy not less than those unfortunate women who by irresistible impulses are forced to sacrifice feminine honor and dignity, for they are fully conscious of their painful situation; they are a toy in the grip of morbid imagination which revolves solely around sexual ideas and grasps even the most distant points in the sense of an aphrodisiac.

Many of these cases, in their despair, come begging for castration, in the hope of finding relief in this operation, and some have even attempted suicide.

According to Herodotus, the pyramid of Cheops was built by the numerous lovers of the daughter of this king, who raised this enormous monument in recognition of the innumerable times she had yielded herself to their desires.

Lombroso cites several examples of this inordinate sexual desire as follows: One woman surrendered herself to her husband's laborers; another had for her lovers all the desperadoes of Texas; a third had intercourse with all the herdsmen of her village; a fourth, though her husband occupied a good social

position, led the life of a prostitute; a fifth, a cultured and intelligent woman, entertained a common bricklayer, etc. He also gives the following examples: A hysterical girl visited a physician and said to him, "I am still a virgin; take me." She submitted him to the utmost extremity of provocation, and asserted afterward that she had been violated. A rich young lady met a workingman in the street, offered herself to him, was accepted, and when she returned home related the affair with laughter. White and Martin mention the case of a mother of five children who, in despair about her inordinate sexual desire, attempted suicide, and then sought an asylum. There her condition improved but she never trusted herself to leave it.

Prostitution is often the logical outcome of nymphomania.

Rohleder has called attention to the fact that nymphomaniacs are not infrequently sterile. From a theoretical standpoint this might appear very odd, but Rohleder gives the following reasons for the sterility in these cases:—

1. On account of the frequent and promiscuous coitus, they very often become infected with gonorrhea, with its resulting sequelæ.

2. Even if not infected with gonorrhea, the frequently repeated acts of coitus result in inflammations of the vagina and uterus, which predisposes to sterility.

3. There results a weakness or partial paralysis of the vaginal walls and its musculature, with the result that the spermatozoa rapidly flow out of the vagina after coitus.

4. On account of the rapid orgasm and the violent, stormy coitus, the spermatozoa are quickly expelled during coitus.

DIAGNOSIS

The diagnosis is made from a careful consideration of the entire history. We must remember that simple increase of sexual desire does not constitute nymphomania, and that the divid-

ing line between normal and pathological sexual desire is not easily defined. Whenever a single girl seeks or enjoys gynecological examination, or, without evident cause, desires catheterization, we must suspect nymphomania.

COURSE AND PROGNOSIS

The course of the disease is generally from bad to worse, and the prognosis is generally very bad. Many of these cases end up as prostitutes, and quite a few become insane.

TREATMENT

The treatment is very unsatisfactory, as in the vast majority of cases nothing can be done for them. According to Forel, Moll, von Schrenck-Notzing, and Fuchs, hypnotism has cured mild cases, but has been found absolutely powerless in the severe forms of the disease. Forel especially warns against the method of treatment by marrying a nymphomaniac with a man who is the victim of satyriasis. This has been tried, with the result that the children inherited the sum total of the degenerate qualities of the parents. Rohleder states that Fränkel has been trying Roentgen treatment of the ovaries, with the idea of not only causing sterility but also a diminution of the libido, but he does not know if any good has resulted therefrom. The best that can be done for these unfortunates is to put them into an asylum where they can be of no harm either to themselves or to society in general.

CHAPTER XX

FRIGIDITY

DEFINITION

In direct contrast with the intense desire for coitus which we have just described as characteristic of the nymphomaniac, we have the woman afflicted with frigidity. Here there is an absence of any inclination to sexual intercourse. Frigidity, then, may be defined as a lack of sexual desire in the female. It is often described as *anesthesia sexualis.*

Frigidity may be total or partial, congenital or acquired. In total frigidity the patient has absolutely no desire, sometimes even a feeling of disgust for the sexual act. In partial frigidity there may still be some feeling left, but it is present to but a very slight degree, and only on infrequent occasions. While total frigidity is rare, partial frigidity is not at all uncommon. At least 10% of all married women suffer from partial frigidity, and some authorities have placed it as high as 40%.

Frigidity must not be confused with that condition in which, during sexual intercourse, the orgasm fails to occur. Although this latter condition may be associated with frigidity and may lead to that condition, yet it is not frigidity, although very often described as such by some authors. By frigidity we mean a condition where there is a lack or total absence of sexual desire. There are very many women, however, who have normal or even very intense sexual desire, but, on account of some pathological condition, cannot have an orgasm during coitus. This condition may be compared to that form of impotence in the male in which the desire is normal, and erection may even occur, but the organ goes down either before or just after intromission, and neither ejaculation nor orgasm takes place.

ETIOLOGY

Frigidity is normal before puberty and in old age. It may also be considered normal in modestly reared girls up to their marriage, and it is not abnormal to have it persist for some time after marriage. As a matter of fact the pleasurable sexual sense is very often not developed until some time after marriage, and after many acts of coitus. The adage, "The girl has to be kissed into a woman," is undoubtedly true in many cases. Frigidity is also normal for a short time after a normal sexual intercourse. It may be acquired or congenital, and these will be considered separately.

Acquired Form—Frigidity may be caused by a lack of relationship between the male and female genitalia. Thus, a very large or roomy vagina, with an undersized penis in the male, or even a markedly relaxed condition of the vaginal musculature, or any other similar condition which does not allow of intimate contact of the penis with the vagina may be the cause. Marked lacerations after childbirth often result in the same condition. Impotence or rapid ejaculation in the male may also be the cause of frigidity in the female. This latter condition is especially operative if present at the very commencement of married life, before the sexual sense has been developed in the female. Such women may go through their entire life without ever knowing what sexual pleasure is. In some cases it has happened that such a woman in her second marriage becomes perfectly normal. *Coitus interruptus,* especially if started right after marriage, may cause frigidity, for the same reason.

Masturbation, especially if it has been practiced for a long while before marriage, may be the cause of frigidity. Castration, especially if performed before puberty, will almost necessarily lead to frigidity. Various psychic or temperamental conditions, such as lack of affection between the parties, fear of pregnancy, etc., are sometimes etiological causes. Faulty meth-

ods of education, in which the sexual elements have been unduly repressed, are stated by some authorities as causing frigidity. There can be no question that the method of education of girls, in which they are supposed to suppress all sexual feeling, and are supposed to remain in ignorance of everything sexual, has a marked tendency toward the development of frigidity. Should such a girl marry for purely *social* reasons, it would not be surprising if her exceedingly dormant sexual centers should continue to remain dormant after marriage, and never be aroused from their lethargy by a mate entirely unsuited to her.

Intellectual frigidity, according to Sturgis is that condition where a woman's thoughts seldom or never turn to thoughts of love, but are given to intellectual studies, to scientific pursuits, and who, in fact, represses, consciously or unconsciously as the case may be, all sexual thoughts or desires; indeed, they never enter her mind, and she regards that portion of her nature as beneath contempt, and considers the menstrual function in no other light than that of a nuisance. Sturgis rightly considers this condition, in the majority of cases, more apparent than real, and feels that if such a woman were to meet her right intellectual mate, her frigidity would vanish.

Congenital Form—In many cases, no etiological factor can be found, the female simply being born with little or no sexual desire. From a study of the sexual passion in many women, I have found that there is a large hereditary element about it. Thus, I have very often seen an entire family, all the members of which, both male and female, were very passionate sexually, and others again where the opposite condition prevailed. What applies to families also applies in a larger sense to races. As is well known, there are certain races, especially the negro, and, in general, the Southern races, who have the sexual passion markedly developed, while the Northern races, as a rule, are much less passionate.

PATHOLOGY

The pathology varies with the etiological cause. In lacerations after childbirth, which cause a relaxation of the vaginal walls, thus making the vagina too roomy for the penis, and preventing the intimate contact of penis with vagina during coitus, the pathology is obvious.

Contrary to what one might possibly expect, injuries and diseases of the clitoris rarely, if ever, lead to frigidity. Cases of rudimentary clitoris, cases where the clitoris has been bound down by adhesions so that it could not possibly come in contact with the male organ during coitus, and even rare cases of complete paralysis of the clitoris, in which all sensation has been abolished, have been seen more or less frequently, and yet in none of these cases has there been the slightest effect produced upon the woman's desire. On the other hand, injuries to the vaginæ bulbi, as well as injuries to the constrictor cunni, have caused frigidity.

In chronic masturbation the pathology is as follows: As a result of the frequent irritation and stimulation of the external genitals, these parts have become very sensitive, in fact much more sensitive than the interior of the vagina. As a result also of the oft-repeated act, the sexual centers have at first been rendered irritable, and then more or less exhausted, so that stronger and stronger external stimuli are necessary to arouse them. When such a person marries, the ordinary friction or stimulation of coitus is not sufficient to arouse them, and they derive no pleasure from the act and become frigid.

In inverts, who sometimes marry for economic or other reasons, frigidity is the rule. Here the pathology consists in the psychic makeup of the individual. Having only sexual feeling for one of their own sex (for they are really males with female genitals), frigidity must follow as a matter of course.

In frigidity due to impotence in the male, the pathology must be sought in the sexual centers. These very often lie dormant in the unmarried female, and have to be aroused into action after marriage. Should the male be unable to arouse them, they continue in their dormant condition, and frigidity finally results.

In total frigidity, the sexual center is absolutely unable to be stimulated either by psychic or organic sexual stimulation. In partial frigidity, the sexual center is capable of stimulation, but with difficulty.

Frigidity is very often part of a symptom-complex, consisting of infantile uterus, scanty and delayed menstrual function, sterility and lack of sexual passion. In these cases there seems to be a lack of development of the entire sexual makeup, anatomical, physiological, and psychical. In this connection I investigated, several years ago, the relationship of sexual passion to sterility and for this purpose interrogated 289 sterile women. My method of procedure and the results obtained have been set forth in a previous work of mine, from which I quote the following:—

The subject of sexual passion is one about which it is very difficult to obtain any accurate *scientific* information. In most of my cases I interviewed only the wife and obtained my information from her. It is a very difficult matter at any time to decide what constitutes normal sexual desire, and when it is to be considered increased or diminished. It is still more difficult when we have to take the patient's statement what he or she *thinks* is normal or increased or diminished sexual desire. Thus it is not at all uncommon for a man to tell you that his sexual ability is below par, because he has heard of a friend who can indulge in coitus several times a night, whereas he only indulges as many times a week. Again, the sexual passion largely depends upon the sexual passion of the partner. Thus a man

with average sexual desire would not have much intercourse or as much sexual intercourse if his wife were very frigid or suffered from dyspareunia; whereas, if he had a wife who was very passionate and constantly fondling him, he would naturally have increased desire and perform the act more frequently. Again, most of my female patients were married but once, and never had connection with anyone except their own husbands, and so had no standard to go by whether their own or their husbands' desire was increased or diminished. Some women also do not care to admit that they have increased sexual desire, although the majority, thinking that it is important for the treatment (and in their desire to have children they will answer any question, no matter how delicate), will freely tell you what they consider the truth. It must be remembered that people judge largely by comparison. So a man with a very marked sexual desire, having for a wife a woman with normal sexual desire, is likely to consider that his passion is normal and that his wife's passion is below normal, and so forth.

Fully realizing all these difficulties, I have, nevertheless, attempted to gather some facts upon this very important subject, and have tried, as far as possible, to avoid many of the errors above mentioned, and to which such statistics are especially liable. While a few of the authors mentioned in the bibliography state in a general way what their impression is regarding the relationship of sexual desire to sterility, I believe this is the first attempt to collect actual data on the subject, as I have come across no regular statistics, even in the voluminous work of Kisch.[1] I wish to state, also, that these facts, although collected almost entirely from dispensary patients, were *not* collected in the dispensary, where one has obviously not the time

[1] A few years after my work was published, Rohleder in 1914 published the 4th volume of his work in which he quotes some statistics on this very subject collected by Duncan more than thirty years ago. Duncan found, in 191 sterile women, 20.4% with lack of sexual passion.

to go into such details. All my work on this subject was done in my own private office, where I saw the patients not once, but dozens of times in some cases, and where the patients, after seeing that I took a real interest in them, were perfectly willing to answer frankly and truthfully all my questions. I desire to repeat that, if questioned with proper tact and dignity, no sterility patient will refuse to answer to what, under ordinary circumstances, would be considered embarrassing questions. I make this statement advisedly, because I know that all the answers to my questions were truthful, as far as the patients were able to speak on the subject.

The statistics given here are the result of a very careful investigation of the sexual history of 289 cases. As I could find no authority to go by, nor any standard as to what may be called normal, diminished or increased sexual desire, I made up the following rules and have been guided accordingly:—

In the first place, I determine how many times on the average, except during the menses, sexual intercourse took place a week. As most people apply for relief for sterility at least a year after marriage, and in most cases after the second or third year, the novelty of sexual intercourse has already worn away. Then I carefully inquired which of the parties (or if both) desired the connection. In most of the cases the wife will tell you that it is the husband who asks for it; but further inquiry often brings out the fact that the wife has the desire, but does not care to ask her husband to have connection with her. I then ascertained the fact whether the wife cares for intercourse at all or only submits to please her husband. In those cases where the wife does not care for intercourse, I am careful to determine whether the frigidity is due to pain during the act. In several cases where coitus was frequently indulged in, I discovered that this was not due to increased sexual desire, but to the fact that the couple thought they stood a better

chance of having a child. If the man is questioned, I ascertain whether he thinks his wife is more or less passionate than women with whom he may have had intercourse before marriage. If it is the wife's second husband, I inquire if he is more or less passionate than the first one was. It must be stated that *any* one of these questions taken by itself may not mean very much, but if we take them all together we can fairly make up our minds as to the sexual passion of each party. Furthermore, in my statistics I have considered the sexual passion *diminished* if (outside of the menstrual period) sexual intercourse was indulged in less than once a week on the average, and *increased,* if performed more than four times a week. These facts were, of course, taken into account with all the other facts enumerated above in making up the statistics. My data then finally show that in 289 investigations the sexual passion was as follows:

	Husband.	Wife.
Normal	43.0%	35.2%
Increased	46.5%	20.7%
Diminished	10.4%	44.1%

We thus see that in almost half the cases the woman's sexual desire is diminished. While we all know that in even non-sterile families the woman is, as a general thing, not as passionate as the man, the above data are sufficient to show that in sterile women the sexual passion is certainly much less than normal.

SYMPTOMS

The frigid woman has little or no inclination for sexual intercourse, and receives no pleasure from the act. Very often these women submit as a sense of duty to their husbands, they may give birth to one or more children, and very often are ideal mothers, and, except for the frigidity, ideal wives. Some of the more intelligent may even simulate sexual passion to please and deceive their husbands. The congenital sufferers never seek

the physician's advice, but the husband seeks the physician, complaining of his wife's coldness, and on interrogating the wife we find that she has derived no pleasure from the act.

Some women, on the other hand, seem proud of their frigidity, and boast about what they consider their superior will and control of their desire. Some unmarried women, unless for economic reasons they take up prostitution, easily remain virtuous; they may not marry and brag about their chastity and the fact that no man can conquer them. "Even among married women," says Napheys, "there are wives who pride themselves on repugnance or distaste for their conjugal obligations. They speak of their coldness and the calmness of their senses as though they were not defects. Yet the sour, shallow, sexless shrew is, as Jordan justly says, an imposture as wife, and her marriage is a fraud."

There is on record an extreme case of frigidity, in which the wife read novels while her husband was having sexual intercourse with her, so little was she interested in the act. Although the majority of such cases cannot be recognized by any external sign, appearance or mannerism, yet in some cases there is certainly a less feminine and a more masculine character about the person. Many of these women make excellent executive chiefs, and do not possess the instability which is so characteristic of women. They are very mannish in their manners, are exceedingly practical, have strong will-power, but are by no means inverts. As already stated, they often make excellent wives and resign themselves without complaint to the sexual embraces of their husbands, although the act has nothing but repugnance for them.

DIAGNOSIS

The diagnosis is generally made from the history, which we as a rule obtain from the husband. In the unmarried, the diagnosis can only be suspected, but is rarely sought for.

The difficulties sometimes met in the diagnosis may be illustrated by a case of mine previously published. A husband came to me complaining that although he loves his wife very dearly and she loves him, and although he is able to perform the sexual act perfectly normally, his wife, who is still very young, is absolutely frigid, does not respond to his embraces and seemingly does not care whether her husband has coitus with her or not. I questioned her husband, who is a very intelligent man, somewhat of a philosopher and who has, in a purely amateur way, studied the theory of psychoanalysis, as to his opinion of the cause of his wife's frigidity. He informed me that he reasoned it out in the following manner. His wife thinks she has a voice; she thinks that the voice may be developed to such an extent that she might become a grand opera star. Her opinion is backed up by her music teacher who is very well paid for developing her voice. She has such confidence in her teacher's opinion and ability, that when the latter moved to another city she followed him there so as not to interrupt her singing lessons. The husband reasoned out that all her mind is concentrated on her vocal ambition and that her sexual desire is sublimated and kept in the background by her other ambition.

I had the wife see me, and after tactful questioning obtained from her the confession that she is very much in love with her music teacher, prefers him to her husband, and has already had two brought-on miscarriages as a result of her love for her teacher. In all probability a first class nonmedical detective might have guessed at the solution, but her pseudo-Freudian husband was entirely led astray in the diagnosis.

PROGNOSIS

The prognosis depends upon the possibility of the removal of the etiological cause. In total congenital frigidity, the prognosis is generally bad, but, apart from the frigidity, there are no evil consequences of the condition. The patient never knew

what sexual excitement or desire was, and therefore never misses it.

TREATMENT

The treatment varies with the etiological cause. Lacerations or other gynecological conditions should be remedied if possible. Masturbation should receive the appropriate treatment outlined in the article under that heading.

Of great importance, because so much good can be done, is the management of those cases of frigidity where the sexual centers have not been duly aroused on account of the husband. Although I have already gone into this subject somewhat heretofore (see page 228), it is of such vital importance that I may be pardoned for speaking about it again here.

The tendency of late has been to see to it that the young female should know more of sexual matters before her marriage than has been the rule heretofore. This is perfectly proper. It seems to be taken for granted, however, that no such instruction is necessary for the male. It is taken for granted that most men have indulged in sexual intercourse before their marriage, and therefore do not need instruction in this regard.

Even taking it for granted that most men have visited prostitutes before marriage, it cannot be too strongly emphasized that there is all the difference in the world between connection with a prostitute and with one's wife, and that such a man still needs enlightenment upon many points in sexual matters.

When a man goes to a prostitute he has but one object in view, and that is the gratification of his own sexual desire. The sexual desire or gratification of his partner has no concern for him. Moreover, if his sexual partner should prove frigid, he simply selects some one else on the next occasion.

When a man enters matrimony, however, he should understand that the marriage certificate is not merely a legal license to indulge in sexual intercourse whenever he desires. He should

understand that his mate has the potentiality of a keen sexual appetite, which it is his privilege to arouse and maintain. He should not cease being the courtier the moment the object of his love is bound to him.

For this reason, the marriage bed should be the scene of the most tender caresses, and all the artifices of love should be brought into play in order to awaken in the female the sexual desire. The act of coitus should be but the final stage of this love-making. The first intercourse should never consist of a licensed rape. The husband should be taught to restrain his passion until his spouse is fully awakened and ready to respond to his sexual advances.

As a matter of fact, most married men only think of themselves in this regard. If they have desire, they at once have intercourse, although the wife may be half asleep. By the time he is through she is just beginning to become excited, and then he withdraws his penis, little caring for the condition of nervous, unsatisfied sexual desire in which he leaves his wife.

For this reason, before he proceeds to intercourse, he should, with the most tender caresses and all the artifices of love, awaken in her the passion and desire for intercourse, and then, and not till then, should he proceed to the act. If, as is often the case, his orgasm should come before that of his wife, he should not remove his penis, but should allow it to remain in the vagina, at the same time, with kisses and caresses, fan his wife's excitement until she has had her orgasm. His wife will then appreciate that she is not merely his licensed prostitute, but his wife. Among the lower animals the male jumps on the female when desire seizes him, and in some cases nature has provided him with spines, which project from his penis during erection, and insert themselves into the vagina, so that the female cannot get away before his coitus is completed. Nature has not provided man with such an apparatus, but has given

him intelligence instead, and it is for him to employ that intelligence, rather than brute force, in his sexual relations. Were married men properly instructed in this regard, there would be less complaint about the coldness of their wives, and less complaint from the wives that sexual intercourse brings nothing to them but pregnancy.

For the congenital frigidity, Rohleder suggests the internal administration of yohimbin, which is supposed to act by determining an increase of blood to the genitals, just as in the male, and this erection-like action may start or increase the sexual desire. He also recommends coitus during the menstrual period, as in even extreme cases of frigidity there is some sexual excitement present at this time.

In the absolutely hopeless cases it would be proper, for the peace of the family, to instruct the wife to simulate sexual excitement, including orgasm. There is certainly no harm in this fraud, if it answers the purpose, and it is certainly far better than the breaking up of a family by divorce, or the leading of the man into extramarital coitus, with all its dangerous consequences.

CHAPTER XXI

ABSENCE OF PLEASURE IN THE FEMALE DURING COITUS

DEFINITION

UNDER this heading will be described that condition in which the female has normal sexual desire, but fails to experience any orgasm or other feeling of satisfaction during coitus. It must be sharply differentiated from frigidity; for in frigidity there is an absolute disinclination toward sexual intercourse, while in the condition under discussion there is normal or even increased sexual desire, but the patient experiences absolutely no orgasm or voluptuous feeling. The two conditions may, however, coexist.

Stress is laid upon the point that there is no orgasm here *during coitus.* Many of these women can provoke an orgasm by masturbation and many have resorted to titillation of the clitoris during or after coitus to bring it on, but with them the normal act of coitus is insufficient to bring on the orgasm.

It should be noted also that orgasm and voluptuous feeling are not exactly synonymous. The pleasurable feeling often begins at the very commencement of coitus, continuing and increasing in force until the orgasm is reached. The orgasm is the very acme of the voluptuous feeling and corresponds with the violent ejaculation of the fluid from the various glands. Until the orgasm is reached the woman is in a continuous state of excitement, and immediately after the orgasm there is experienced the feeling of satisfaction. Many of the women suffering from the condition of lack of orgasm during coitus experience more or less intense sexual pleasure at coitus, but do not get the relief which orgasm brings in normal coitus.

This condition has been wrongly described as dyspareunia by German writers as well as by some American writers; but dyspareunia is painful coitus, which is an entirely different condition. It has also been described under the heading of "Impotence in the Female," but while we may consider it as constituting *one* form of impotence in the female, it cannot be so described, because there are many other forms of impotence in the female as well.

Many men, and still more women, do not realize that the normal woman is endowed with pronounced sexual feeling and is supposed to experience intense sexual pleasure during intercourse. The reason for this ignorance is in many cases easy to explain. The young man, who before marriage has gained all his sexual experiences from the prostitute, does not care whether his sexual partner experiences pleasure or not and often carries this mistaken notion into his sexual life after marriage. Many women suffer in silence and some never know the cause of their irritability or hysteria, as it is often diagnosed. Some women, especially if endowed with strong sexual feeling, suffer intensely, and it is this condition which has been the cause of very much matrimonial unhappiness, often leading to divorce and at times to suicide.

It should be remembered that a woman may menstruate regularly, may have borne several children, may experience strong sex desire, and yet be unable to experience an orgasm. It should also be emphasized that the first orgasm may not be experienced until a long time after marriage.

Thus an investigation of 100 women brought out the fact that only about one-third of them had orgasm during the first year of married life, and almost two-thirds had it at a later period.

Some may imagine that because orgasm is not absolutely essential to pregnancy, little importance should therefore be

attached to this function. In answer to this, it should be emphasized that the nervous strain, especially in a passionate woman who is unable to reach a climax is tremendous, and often leads to pronounced psychic symptoms. This is well illustrated by the fact that in a certain clinic over 20 per cent. of such cases had actually been diagnosed as serious psychoneurotic cases before their sex history had been investigated, and after such investigation, it came out that only *one* of these 21 serious psychoneurotic cases could function properly with respect to obtaining an orgasm.

Again, in another series of statistics, it developed that of the women who were unable to obtain an orgasm, over 40 per cent. had been diagnosed as seriously psychoneurotic by expert psychiatrists, and that of women who did obtain normal orgasm, less than 2 per cent. were ever regarded as psychoneurotic. No more convincing proof could be brought forward to illustrate the effect of orgasm on the general nervous system.

Strange as it may seem, those who specialize particularly in female troubles, generally pay little attention to this state of affairs. If anyone is inclined to doubt this statement, let him consult our most modern text-books on gynecology and he will find no space or very little space devoted to this subject. It is only the sexologist and probably the neurologist and psychoanalyst who sees these cases, and in many instances, as above stated, even these latter specialists do not make a correct diagnosis.

In a paper read before a medical society several years ago, I called attention to this state of affairs in connection with the practice of withdrawal, and one of the physicians present remarked that he had many patients who practiced withdrawal, yet he had never noticed any bad consequences. In closing, I rejoined that the practice of medicine would be very easy if patients came to the doctor complaining of certain symptoms,

and would tell him at the same time that the symptoms were due to her unsatisfied sexual experiences. I asked the doctor to inquire into the sexual experiences of those of his female patients who complained of all sorts of neurasthenic symptoms, who wake up grouchy and unrelieved by a night's rest, who have pains and aches in various portions of the body which they cannot explain, who are disinclined or unable to perform their ordinary household duties, etc., and he would soon discover the importance of obtaining a complete sexual history for purposes of diagnosis and treatment.

Here, as in most branches of medicine accurate diagnosis is absolutely essential for proper treatment. But, unlike most other conditions, it is essential to interview two parties, the wife and also the husband, for *he* may be the chief cause of the condition in the wife.

ETIOLOGY

Any condition which interferes with the full completion of the act of coitus may cause the absence of the orgasm. Prominent among these causes may be mentioned *coitus interruptus*. Here the act of coition is purposely interrupted before the climax is reached in the male, and naturally long before its culmination in the female, with the result that in many cases coitus stops before the orgasm can come on in the female. Another condition that acts in a similar way is impotence and rapid or premature ejaculation in the male. Still another cause may be due to awkward coitus on the part of the male, especially where much pain is experienced by the female during the act. In the majority of cases of rape no orgasm is experienced. In other psychic conditions such as fear of impregnation or dislike for the partner, the inhibition from the higher centers may interfere with the development of the orgasm. Masturbation is also at times an etiological factor, and its mode of action will be presently described.

To the above pathological conditions, I would like to add one which I believe, I was the first to describe. In some of these cases where any of the previously mentioned conditions did not exist, I have found a diminution in the sensitiveness of the vaginal mucous membrane, amounting at times to almost complete anesthesia. It must be remembered, however, that the sensation of different portions of the genital tract varies within wide limits and one must have experience in these conditions before making the above diagnosis. I have had my most gratifying results in these particular cases with a method of treatment presently to be described.

It must, however, be remembered that frigidity, or lack of inclination to sexual intercourse, is normal before puberty and may persist sometimes for a time after marriage. This is especially so in girls who have been brought up with extreme modesty. Of course in girls who work in factories or sweat shops in intimate contact with males, the sexual sense is very often very early developed, but we must not consider it abnormal if a modestly reared girl should not develop sexual pleasure for some time after marriage.

PATHOLOGY

To clearly understand the pathology of the condition under discussion, it is necessary to understand the physiology of normal coitus in the female, and the factors which produce the orgasm.

Briefly the physiology of normal coitus in the female is as follows: As soon as the penis enters the vagina, its contact with the sensitive mucous membrane and its continuous friction against this membrane starts a series of stimuli which are propagated to the optic thalamus and from thence to the cerebral cortex. This gives rise to the pleasurable feeling of coitus. At the same time the cerebral cortex sends down centrifugal impulses to the erection and ejaculation centers in the cord. From

here other impulses flow out to the periphery, with the result that the clitoris becomes erect and bends downward to meet the penis, the entire genital apparatus becomes filled with blood, the muscles go through certain rhythmic movements, and the glandular apparatus is also stimulated into action. At the acme of the sexual act, they spurt out their secretions, and it is this ejaculation of the secretions of the sexual glands (mainly the Bartholinian) at the acme of the coital act that gives the extreme height of voluptuous feeling which constitutes the orgasm. But the pleasurable feeling, as already stated, begins at the very commencement of coitus, the orgasm being but its climax. With the completion of the orgasm, and partly as a result of the ejaculation and the relaxation of the coital muscles, the compression of the pelvic veins is released, the hyperemia and congestion of the pelvic organs disappear, and the parts soon regain their normal condition of circulation. In the description given above, I have outlined only the essentials of the physiology of coitus without any pretense to completeness, that is, just enough as is necessary for an understanding of the pathology of lack of orgasm.

If, for any of the etiological causes mentioned, coitus is interrupted, the woman is left in a state of excitement, there is no feeling of satisfaction, and the condition of her nervous system may be likened to that of dangling a mouse before a cat, which the latter is not permitted to reach, or to holding a cup of water before a thirsty man without permitting him to partake, or placing a starving man in the neighborhood of a fine dinner, which he may see and smell, but is not permitted to touch. In a way this condition is even worse than masturbation, for in the latter the process at least comes to orgasm, ejaculation, and satisfaction, whereas here these important elements are merely hinted at but not experienced. Moreover, the hyperemia of the pelvic organs, which is normally relieved with the orgasm and its ac-

companying ejaculation, does not disappear if the orgasm fails to occur; and, if the condition has lasted for a long time, chronic congestion, with all its accompanying sequelæ, results.

In masturbation the sensitiveness of the external genitals has been so increased at the expense of that of the vaginal mucous membrane, and the sexual centers have been so dulled and almost exhausted by the frequent demands made on them by the oft-repeated acts of masturbation, that the ordinary stimulation of the act of coitus is not enough to arouse them sufficiently to bring on the orgasm, and the latter must be brought on by titillation of the clitoris, or other masturbatory act of the hypersensitive external genitals. Another pathological condition met with is due to a disproportion between the male and female genitals. An undeveloped penis may not come into that intimate contact with the vagina which is necessary to sufficiently excite the sexual centers. Similarly a relaxed condition of the vagina, or a too roomy vagina, as the result of lacerations after childbirth, will have the same result. Pathological conditions of the clitoris, which prevent its coming into contact with the male organ during coitus, are a very frequent cause of lack of orgasm. Among such conditions also may be mentioned absent or rudimentary clitoris, a clitoris bound down by adhesions, or an abnormally placed clitoris. These pathological states of the clitoris explain why in some cases the woman experiences orgasm only when coitus is performed in unusual positions, such as lateral or even reverse positions of the parties. Perineal fissures and rectovaginal and vesicovaginal fistulæ may likewise prevent the occurrence of the orgasm. Any of the pathological conditions which cause dyspareunia may at times be etiological factors in hindering the completion of coitus and, by so doing, prevent the orgasm. Certain classes of degenerates, mainly inverts, often have marked orgasm when cohabiting with other females, and also with lower animals, but never with men. Many of the

etiological factors in frigidity and vaginismus also become causes of the lack of orgasm.

SYMPTOMS

Many of the symptoms have already been hinted at in discussing the pathology. The nervous strain of such a woman, with her unappeased though stimulated sexual appetite, finally leads to a condition of nervous irritability, sexual neurasthenia, and hysteria. The condition, as already stated, is in many ways worse than masturbation, and, except for its curability in some cases, is worse than frigidity. The totally frigid woman knows nothing of sexual passion, and therefore misses nothing and there is therefore no strain upon her nervous system, while in the condition under discussion the state of affairs is just the reverse.

Thus we find women suffering intensely as a result of not reaching the orgasm. Some of these women, as already stated do not know the cause of their reflex nervous and psychic miseries. It is in these cases that the examining physician, be he general practitioner or neurologist, should be on his guard and think of such a possible cause, before advising the taking out of teeth or tonsils, or administering such indefinite procedures as colonic irrigations, etc. The administration of bromides, only disguises the condition for a time but does not cure it.

Very often it is the husband who complains of his wife's lack of response to his embraces. This is a very important impediment to the husband. In many cases, it drives him to the prostitute, who from long experience knows how to simulate passion and make things as agreeable to her partner as possible. It has been shown that over 75 per cent. of the clientele of houses of prostitution is made up of married men. In many of these cases, the wife cannot compete with the prostitute.

Then we find cases which I have designated in a previous article as *Pseudoimpotence in the Female.* In this class of cases

there is perfectly normal coitus in both sexes, and this normal relationship may have continued to the perfect satisfaction of both parties for many years. The woman then becomes acquainted with a female friend who may possibly be a nymphomaniac or whose husband may be suffering from some abnormal sexual perversion, and this woman tells our patient what wonderful experiences she has during coitus or how very often her husband performs the act, and our patient immediately gets the idea that there must be something the matter with her because she does not, or thinks she does not, get as much pleasure out of the act as she thinks she ought to get.

As a result of the chronic congestion, which finally results, in the pelvic viscera, we have a train of symptoms, well known to every gynecologist, which appear whenever there is chronic congestion of these parts from whatever cause. It is not necessary to enumerate all the symptoms arising from this chronic congestion, but a few of the more common ones will be mentioned. Among these are backache, increased frequency of urination due to vesical congestion, leucorrhea, chronic endometritis, hemorrhoids, etc.

Most German authorities lay great stress upon the causative relationship of lack of orgasm to sterility. I have discussed this question elsewhere, but a few remarks upon this very important subject may not be amiss here.

Kisch says the following:—

"In our consideration of the various influences by which the contact of ovum and spermatozoön may be prevented, the degree of sexual excitement experienced by the woman during the sexual act must not be overlooked, for this plays a part not to be underestimated, even though it is a matter on which it is difficult to obtain accurate information.

"It is extremely probable that an active participation on the part of the woman in coitus has an important influence upon

the attainment of fertilization, *i. e.,* that sexual excitement in the woman is a link in the chain of conditions leading to conception. This excitement has a reflex influence, but the influence may be exercised in either (or both) of two ways; first: it may cause certain reflex changes in the cervical secretion, whereby the passage of the spermatozoa is facilitated; or, secondly, it may give rise to reflex changes in the vaginal portion of the cervix, to a rounding of the os uteri externum, and a hardening of the consistency of the cervix (changes of an erectile nature), coupled with a slight descent of the uterus,—changes which likewise favor the entrance of the semen into the uterine cavity. Theopold goes so far as to say that it is only women who experience erotic excitement who are capable of being impregnated.

"My own opinion is that considerable importance is to be attached to voluptuous excitement of the woman during coitus, for the former of the two reasons mentioned above, namely, because such excitement leads to the occurrence of reflex secretion of the cervical glands, the secretion thus produced maintaining or enhancing the activity of the spermatozoa; and contrariwise, in the absence of voluptuous excitement on the woman's part there is a failure of the reflex secretion, and the passage of the spermatozoa into the uterine cavity is consequently less easily effected."

Rohleder explains the influence of lack of orgasm as a causative factor in sterility, by saying that at the height of the orgasm, and with the pouring out of the secretions of the Bartholinian glands, there also occurs an extrusion of the plug of mucus from the cervical os (the Kristeller). At the same time the cervix descends to meet the penis, and the peristaltic wave of the vaginal musculature commences at the entrance of the vagina and extends upward, thus preventing the semen from flowing out of the vagina. This results in forming an aspiratory

or suction action, by which the spermatozoa are sucked into the now open os. The os uteri also opens widely and assists in sucking in the spermatozoa. If orgasm does not occur, this aspiratory action is either absent or incomplete, and the plug of mucus is not expelled from the cervix, all of which has a tendency to hinder the ascent of the spermatozoa. Most German authorities concur in this explanation by Rohleder.

I have shown elsewhere that there is a very pronounced relationship between lack of sexual passion (frigidity) and sterility. Experiments and observations upon animals, mostly by breeders, seem to support Rohleder's views as given above. Nevertheless, while I do not desire to go on record as opposing this explanation of the casual effect of lack of orgasm to sterility, I believe the casual relationship has been greatly exaggerated. The fact, for instance, that pregnancy may follow rape, and that pregnancy has followed the mere deposit of spermatozoa upon the external genitals, with an intact hymen, shows that orgasm is not absolutely essential to impregnation. But these are not the chief reasons for my dissent. My observations with cases of withdrawal have convinced me that the act of withdrawal is not by any means a good preventive measure for conception. The spermatozoa have a very lively motion of their own, and once they have reached the cervical os, in the presence of normal female genitalia, they will somehow find their way into the uterus and Fallopian tubes. While there is no doubt that the aspiratory suction greatly favors their ascent, I do not believe it to be as essential as the German authorities would have us believe. Inasmuch, also, as spermatozoa may remain alive in the uterus for several days, it can be readily understood that they have plenty of time to climb up into the Fallopian tube even without any suction action whatever.

I have pointed out heretofore that a very frequent combination met with is the infantile or undeveloped uterus, scant or

delayed menstruation, together with lack of sexual passion and sterility. These observations lead to the conclusion that the sterility is not the result of the lack of sexual passion or the lack of orgasm, but rather that both conditions are but expressions of a general lack of development of the entire sexual apparatus, anatomical as well as physiological.

There is another class of unfortunate women who have intense sexual desire but in whom it may take hours of continuous friction to bring on the orgasm, which may even never come on at all. In these women there exists a condition bordering on nymphomania, from which, however, it must be carefully distinguished. Those afflicted in this way constantly demand sexual intercourse with their husbands, and will exhaust the most powerful man. Being excited, they will demand their husbands to keep up coitus indefinitely in the hope of obtaining satisfaction of orgasm. They are able to perform coitus innumerable times a night, and yet remain unsatisfied. The pathological seat in this class of cases is probably to be sought in one of the sexual centers, which seems incapable of responding to a stimulus.

DIAGNOSIS

The diagnosis is made from the history of the case. The essential point in the history is the lack of ejaculation. Whenever a woman states that she remains dry after coitus, it generally means a lack of orgasm. The converse, however, is not true, for a woman without orgasm or ejaculation may nevertheless find herself wet, on account of the ejaculation from her husband, or the flowing out of his semen after coitus. We must take the entire history into consideration, and it must be remembered that some women deny the existence of orgasm when it really does occcur on account of a false notion of modesty. Some seem to be ashamed to admit it, while others deny it to gain sympathy by representing themselves to be martyrs to matrimony. Wher-

ever possible, therefore, it is desirable to obtain the husband's version of her condition at coitus, and compare the two histories. The fact should also be borne in mind that while the voluptuous feeling of gratification may be entirely unknown to the victim from her own personal experience, she may still know of it from conversation with female friends.

As above stated, the condition in which there is intense desire, but with inability to arouse the orgasm, must be carefully diagnosed from nymphomania. In the latter we will obtain a history of distinct orgasm on close questioning. The only similarity between the two is the intense desire for sexual intercourse, which in the disease under discussion, is due to the unsatisfied condition in which the woman is left after coitus. There ought be no difficulty in distinguishing lack of orgasm from vaginismus. In vaginismus there is no orgasm because there can be no proper coitus, while in the former condition coitus is perfectly possible.

After we have ruled out the husband as a possible cause, we must determine whether the condition is due to some organic fault as above described or whether it is a psychic condition. In this regard it is important to remember that there are women who are absolutely incapable of experiencing an orgasm either during coitus or by masturbation, but yet are capable of experiencing it most vividly during a dream. In these cases it is obvious that there exists no mechanical or organic impediment, but that during the waking state, there is probably some mental or psychic inhibition which prevents the orgasm.

PROGNOSIS

This depends upon the possibility of removing the underlying cause. The majority of etiological causes are remediable. Those cases where the pathological seat is in the sexual centers and their inability to respond to stimulation are perhaps the worst of all.

TREATMENT

The treatment varies with the etiological causes. It may have to begin with the treatment of the male, if the condition is due to impotence or premature ejaculation on his part. He should also be warned against the evil consequences of withdrawal not only to himself but also to his partner. He may have to be instructed in the proper method of performing coitus, not only for his own satisfaction, but also for that of his wife. These instructions have been outlined heretofore on pages 228 and 390, and will therefore not be repeated here.

Any pathological condition of the female which may have an etiological bearing should be remedied. These include such conditions as perineal fissures, lacerations, adherent clitoris, as well as masturbation, dyspareunia, vaginismus, etc. (see Etiology and Pathology). For abnormal situations of the clitoris, or abnormal shortness of that organ, it is perfectly proper for the parties to be instructed to experiment with out-of-ordinary postures during coitus, for the purpose of bringing the clitoris into better contact with the penis and so exciting the orgasm.

In cases where the female cannot come to a climax during coitus, but in which orgasm can be induced by titillation of the clitoris, a different position of the parties during coitus may be attempted, and in some cases the new position will bring the clitoris into closer contact with the male organ and thus insure more gratification to the female. Either one of the following two positions mentioned by Wright would have this effect. In the first instance, the man lies on his back, with or without a pillow under his hips, his legs slightly bent to support the weight of the woman's thighs. She sits astride, with her trunk upright, or leaning a little backwards. A certain amount of care and practice is necessary for the successful use of this position. Inasmuch as all the movements are made by the wife, it is especially valuable in those cases where the energetic move-

ments on the part of the husband in the ordinary method of coitus, cause a rather quick exhaustion of him with resultant rapid ejaculation. In the second instance, the man sits and the woman takes her place facing him, suspended across his thighs, with one leg on each side of his trunk. Mutual apposition is easy, and it has the advantage that both partners can move freely. In either of these positions, the clitoris comes into closer contact with the male organ, and the woman can continue the act until her orgasm occurs. This is certainly better than titillation of the clitoris, and the parties may at any time if they choose revert to the ordinary coital position.

In those cases where the examination discloses a diminished or absent sensation of the vaginal mucous membrane, treatment as first outlined by me, very often gives excellent results. The treatment consists in inserting a large vaginal electrode into the vagina, connecting it with the negative pole, while the positive pole is connected with a wet abdominal electrode, the galvanic current is allowed to pass for about ten minutes. Without disturbing the electrodes, we now give the sinusoidal-galvanic current for another ten minutes. No pain must be caused by the treatment.

Where nothing else can be done, Rohleder considers it perfectly proper for the husband to resort to titillation of the clitoris during coitus for this purpose. No matter what attitude we may take toward this procedure, we must appreciate that we are very often confronted with alternatives far more serious, such as unhappiness in the marriage relationship, possibility of divorce, and even the temptation of the wife to try her luck elsewhere. These are no idle theories, but actual occurrences. We must remember that married women talk a great deal about such matters among themselves, and the woman will soon be made to understand from her female friends what she misses. If therefore we have exhausted all our therapeutic measures without

avail, and find no other gynecological condition to remedy, it is far better to give the husband the advice mentioned than have the parties run the chances just referred to.

It is very important that the husband should be made to realize that he should not cease being the lover as soon as he has become married. He should realize that it takes longer for the wife "to come" than for him, and that he should not remove his penis the moment ejaculation is finished but should continue to caress his wife until she has had her orgasm. Many men act like brutes; they only think of themselves and as soon as desire affects them they literally jump into the vagina although the wife may still be half asleep. When he is finished, the wife is just about aroused, and he removes his penis irrespective of whether the wife has been satisfied or not. As heretofore stated, the husband should be informed as to the undesirability of such procedure and should arouse his wife's passion before starting by gentle caressing so that she may be at about the same stage of excitement as he is, and in any event not to remove his organ or cease his attentions until the wife has had her orgasm.

In a general discussion concerning the treatment of this condition it may not be amiss, on the contrary it is of great importance, to emphasize that in all sexual matters, the wife should always retain her modesty if she desires to remain a source of sexual attraction to her husband. The wife who forgets this and simply, because she is married, urges her husband in the most gross terms to cohabit with her when her passion is aroused, will in many cases cease to be a source of sexual attraction. There are very many delicate and modest ways in which the wife can indicate that she is willing and desirous of having connection, and which would be a real stimulus to her husband's passion, whereas gross and indelicate ways have just the opposite effect. However, much of a libertine he may be on the

outside, the average man desires his wife to be a model of modesty in his own home. Moreover, the wife should appreciate that there are times of great stress and worry, financial and otherwise, during which the husband is disinclined to perform the act, and she should take these facts into consideration. The great philosopher and human observer, Shakespeare, who has so well sounded the depths of all human passion, has not left this state of affairs unobserved. In his Henry IV, (Part 1, Act 2, Scene 3) we find Lady Percy, the wife of Hotspur, who at the time is deeply involved in a rebellion against the king, making this very mistake when she says—

"O! my good lord, why are you thus alone?
For what offense have I this fortnight been
A banish'd woman from my Harry's bed?
Tell me, sweet lord, what is't that takes from thee
Thy stomach, pleasure and thy golden sleep?

. . . . . .

. . . . . .

Why hast thou lost the fresh blood in thy cheeks,
And given my *treasures and my rights of thee*
To thick-eyed musing and curs'd melancholly?"—(Italics mine)
And Hotspur rightly answers as follows:
"Away, you trifler! Love! I love thee not,
I care not for thee, Kate: this is no world
To play with mammets and to tilt with lips;
We must have bloody noses and crack'd crowns," etc.

CHAPTER XXII

VAGINISMUS

DEFINITION

VAGINISMUS may be briefly described as a violent, painful spasm of the muscles surrounding the vaginal entrance. It was first described by Dr. Marion Sims, and I can do no better than to give his classic description of the disease, as quoted by Howard Kelly:—

"By the term 'vaginismus' I mean an excessive hyperesthesia of the hymen and vulvar outlet, associated with such involuntary spasmodic contractions of the sphincter vaginæ as to prevent coition. This irritable spasmodic action is produced by the gentlest touch; often the touch of a camel's hair brush will produce such agony as to cause the patient to shriek, complaining at the same time that the pain is that of thrusting a knife into the sensitive part. In a very large majority of cases the pain and spasm conjoined are so great as to preclude the possibility of sexual intercourse. In some instances it will be borne occasionally, notwithstanding the intolerable suffering, while in others it is wholly abandoned, even after the act has been repeatedly, as it were, perfectly performed."

ETIOLOGY

Although in the vast majority of cases a definite pathological condition will be found, it is also important to remember that, as a general thing, there exists at the same time an underlying neurotic condition as a predisposition to the condition. In no other manner than this can we explain the well-known fact that vaginismus is very rare among the poor, and that most of the cases are met with in the overcultured, highly nervous-tensioned

women. In other words, although as a general thing the disease is brought on by a definite genital trauma or other definite pathological condition in the genitals, exactly the same local condition would not cause vaginismus unless there were a predisposing underlying nervous condition present.

PATHOLOGY

While we are wont to regard vaginismus as a neurosis, still I believe careful investigation will very often show some local or general condition present to account for the reflex spasm. It is very important to remember this, so that we may not fall into the error of treating it as a disease *per se.* It is really only a symptom, and we should be unremitting in our search for the underlying cause.

One of the most frequent underlying causes is the awkward attempt at coitus by the male at the very commencement of married life. These awkward attempts, often combined with a peculiar formation of the vulva and vagina, sometimes cause the penis to enter the extreme upper portion of the vagina, and to press the urethra against the symphysis pubis, the severe pain which results causes the woman to shrink from and fear every act of coitus, and is also the cause of the reflex spasms of the muscles of the vaginal outlet. Very often, the first attempts at coitus cause unusually severe lacerations and fissures which provoke the spasms of the muscles at each succeeding attempt. Cases have been recorded where, during coitus, the penis has entered the urethra. In other cases coitus has been carried on *per rectum,* without the male being aware of the fact. Sometimes it has been discovered after many years of married life that the penis had never entered the vagina at all, but had simply rubbed up against the external genitals, without either party knowing the difference.

In many cases the pathological condition present is a very tough hymen, and it is the ineffectual attempts upon it which

produce the involuntary muscular spasms. In other cases still, the carrunculæ myritiformes are found to be exquisitely tender and inflamed, while in another class persistent search has brought out the fact that a urethral caruncle was responsible. Sometimes nothing but a hyperesthesia of the vaginal mucous membrane is found upon examination.

A penis which is too large is often assigned by the wife as the cause. But this condition is really one of very great rarity, and we ought not to give much credence to such explanation. Other pathological conditions sometimes found are: neuroma of the fossa navicularis: varicose veins or prolapse of the urethral mucous membrane; fissures of the fourchette, neck of the bladder, or anus; masturbation or any other cause likely to increase the irritibility of the external genitals.

SYMPTOMS

Vaginismus is most frequently met with in young women at the commencement of their married life. At the first attempts at coitus, the musculature of the vaginal entrance is thrown into a violent involuntary painful spasm, which effectually prevents the entrance of the penis. Generally the spasm involves only the muscles of the vaginal entrance, but in severe cases the entire musculature of the perineum, anus, and bladder seem to participate. In rare cases the constitutional effects are so severe that general convulsions have followed. With each renewed attempt the spasm seems to increase and, after a while, in some cases the mere approach of the male, or even the mention or memory of the act, is enough to throw the parts into a spasm.

As a result, such women dread the attempt at coitus, and shrink from the act, although, in some cases, they have borne this condition for a long time from a sense of duty. Often modesty restrains them from seeking medical aid, until finally a nervous breakdown ensues.

Although the penis is generally prevented from entering, it does enter in some cases, but with difficulty and with pain. As a general thing the spasm comes on with the first approach of the male organ, but in some cases it does not commence until the male organ has entered and then ensues the peculiar condition known as *penis captivus,* in which the penis is caught inside the vagina, is held there by the muscular spasm, and cannot be withdrawn. The greater the attempt of the male to extricate himself, the more severe the spasm becomes, while the interference with the return flow of the blood in the male organ causes it to enlarge still more, thus materially increasing the difficulty. In particularly severe cases it has been necessary to chloroform the female in order to release the penis from the vaginal spasm. A case of such undue severity is reported by Davis as follows: A gentleman entering his stable found his coachman with a maid-servant *in flagrante delictu.* All endeavors of the pair thus surprised to separate proved ineffectual, and their attempts to draw apart caused intense pain to both. Davis, who had been sent for, ordered an ice-douche, which failed, however, to liberate the imprisoned penis, nor was that effected until the woman had been placed under chloroform. The swollen and livid penis exhibited two strangulation furrows, a proof that two distinct areas of the levator ani muscle had been spasmodically contracted.

As already stated, a gynecological examination shows the parts to be extremely sensitive, so that it is sometimes impossible to insert the examining finger, and a general anesthetic is needed for examination. This will usually reveal one of the pathological conditions mentioned above.

Although vaginismus is generally encountered in the recently married, cases have occurred where it first developed later on, sometimes even after childbirth. In some cases the spasm came on during labor, and interfered with the birth of the child, and

it has also been accidentally discovered upon gynecological examination in virgins, the slightest touch causing a muscular spasm.

A particularly severe case is recorded by Sims as follows: A family physician anesthetized the wife for the first coitus, which then offered no difficulty; he continued to do this at bi-weekly intervals for a year, when she became pregnant and bore a child at term. The old pain returned, however, and it became necessary to resume the "ethereal relations."

For obvious reasons the sufferer from vaginismus rarely becomes a prostitute. There exists a class of women, however, called by the French "demi-viérges," and by the Germans "Halbjungfrauen," (half-virgins) who are known to permit anything sexual to be done with them, except the act of cohabitation, which they have probably learned to fear by reason of vaginismus.

DIAGNOSIS

Vaginismus must be differentiated from dyspareunia, although frequently a cause of the latter. In dyspareunia there is only pain in intercourse and no spasm of the muscles, while in the vaginismus the pain is due to the spasmodic contractions of the muscles. In dyspareunia coitus is perfectly possible, but only accompanied by severe pain on the part of the female, while in vaginismus coitus as a general thing is impossible.

Kraurosis vulvæ, in its early stages, may have to be differentiated from vaginismus. Careful inspection, however, even at the commencement of kraurosis vulvæ, will reveal the sensitive areas as the ostium vaginæ, as well as beginning shrinkage of the vulvar integument.

COURSE AND PROGNOSIS

If not treated, the disease goes on from bad to worse, until the entire nervous system suffers, and the patients literally be-

come nervous wrecks. Dyspareunia, frigidity, and sterility are the sequelæ. Masturbation may be the cause, but sometimes is the outcome, of the disease. The prognosis depends upon the ability of the surgeon to discover the underlying pathological condition. If this be found and properly treated, the prognosis is excellent.

The results of treatment, however, are almost invariably gratifying, though there is a very small percentage of cases which resist all treatment. If pregnancy ensues, the conditions almost always disappear after childbirth, although in very rare instances such has not been the case.

Schmidtmann, in his "Handbuch der gerichtlichen Medizin," 1905, has called attention to the fact that on January 20, 1893, the highest Austrian tribunal handed down a decision granting a divorce to the husband in a case where the wife was suffering from vaginismus and refused to undergo operative treatment for its cure.

TREATMENT

PROPHYLACTIC TREATMENT

It sometimes happens that the condition is accidentally discovered in virgins upon gynecological examination. When this is the case, marriage should be absolutely forbidden until the underlying pathological condition has been discovered and removed. Such circumstances, however, should be very rare. No virgin ought to be examined unless a distinct indication presents itself. The frequent handling of the virginal sexual organs cannot be too strongly deprecated. In the vast majority of cases the treatment of vaginismus can be safely delayed until after marriage.

As a matter of prophylaxis, it is also necessary to instruct young men before marriage to avoid any brutal attempts at coitus on the wedding night. Some men actually have the idea that severe pain and hemorrhage are essential at the first inter-

course, and believe in fact that it is the only reliable sign of virginity. According to them most any amount of force is justifiable, whereas it is just at the first intercourse that most cases of vaginismus start. Such brutal and awkward attempts cause severe lacerations and fissures, while each further attempt at coitus only aggravates the matter.

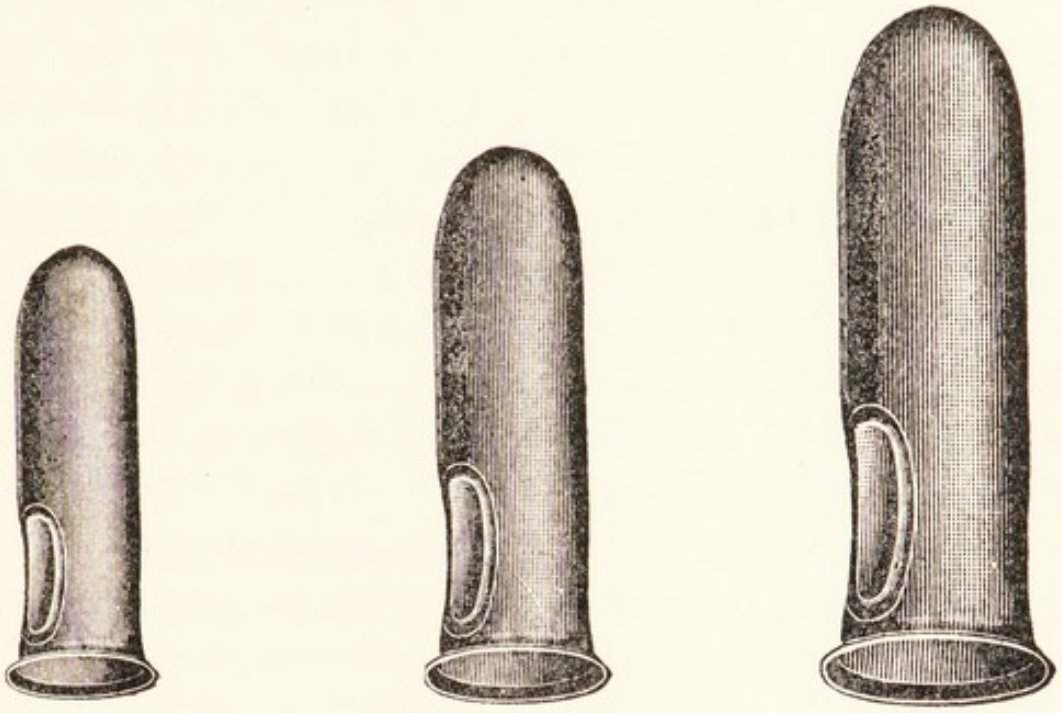
TREATMENT OF THE DISEASE

In the first place all attempts at coitus should be positively interdicted until the condition has been cured. In the second place a careful gynecological search, under anesthesia, if necessary, should be made for any pathological condition of the genitals, and these conditions should receive appropriate treatment. As above stated, the fact cannot be too much emphasized, that in vaginismus there is almost always present some pathological condition which may sometimes be very obscure and apparently insignificant, but which it is our bounden duty to search out and treat. Any other method of dealing with vaginismus, purely as a disease *per se,* will be doomed to absolute failure.

After removal of the cause, we have next to treat the condition of spasm, which often remains as a pure neurosis, sometimes due to fear, even after the underlying cause has been eliminated.

In mild cases, before attempting coitus, a pledget of cotton soaked with 5 per cent. of cocaine sol. should be inserted into the vagina for a few minutes, and the vulvar region should also be painted with a similar solution. This is a very excellent method, although Rohleder especially warns against it for the following reason: He claims that it may happen that the anesthetic effect of the cocaine may allow the penis to enter, but that the effect may wear off during coitus, the spasm may return, and the condition of *penis captivus* may result. Personally, I have never seen such consequences from the action of cocaine in this condition, nor have any of the numerous authorities

whom I have consulted ever reported such a result. From purely theoretical reasoning I should say, *that once the underlying cause has been removed,* a spasm which can be relieved by cocaine so that the penis may enter the vagina is not severe enough to cause the imprisonment of the penis even if it does return. The condition may be different, however, if coitus can be accomplished simply through the action of the cocaine before the underlying pathological condition is removed.



Vaginal dilators.

In other cases, the local hyperesthesia can be relieved by painting the affected parts twice a week with a solution of silver-nitrate, 20 grains to the ounce.

In marked cases, however, we must resort to gradual dilatations of the vagina with vaginal dilators. These should be inserted in increasing sizes, and left in for an hour at a time. Later the patient herself may insert them several times a day.

Severe and obstinate cases require either forcible dilatations or incisions. In either of these operations a general anesthetic is necessary, and it goes without saying that, in any procedure undertaken, the hymen should be first thoroughly removed.

In dilatation the vaginal entrance is forcibly stretched by the operator's thumbs until the underlying muscle is felt to yield. A glass vaginal dilator is then inserted, and the dilatations are kept up with the aid of these dilators as above described. At the operation it is well to stretch the parts so thoroughly that the largest dilator can be inserted. It frequently takes several months of constant dilatation to eliminate the spasm and permit the penis to enter. In any case, however, when pregnancy has once ensued, the condition generally vanishes after labor.

The incision method, known also as Hirst's operation, consists simply of making one incision in the perineum from the vaginal entrance, half-way to the anus, and then two other incisions one and a half inches long in each vaginal sulcus, which should converge toward the medium line and unite with the perineal incision. These incisions should be deep enough to divide the fascia and underlying muscular fibers, and should be closed with catgut sutures and unite the vaginal to the perineal structures.

The operation has the effect of lessening the contractile action of the bulbocavernosi and levator ani muscles and results in a gaping of the vulvovaginal orifice.

CHAPTER XXIII

DYSPAREUNIA

DYSPAREUNIA IN THE FEMALE

DEFINITION

DYSPAREUNIA may be defined as that condition in the female where coitus is accompanied by more or less severe local pain.

Attention should be called to the fact, however, that the German writers, as well as some American writers, use the word "dyspareunia" in an entirely different sense. The German writers define dyspareunia as a lack of sexual gratification on the part of the woman during coitus. In other words, she has normal or increased sexual desire, but never experienced pleasure during coitus. This latter condition must be carefully differentiated from frigidity, in which there is an absence of sexual desire. The subject is discussed in another chapter. It is important to remember this distinction between the German and American conception of the word "dyspareunia," or else those reading German literature on the subject will soon find themselves in considerable confusion. Howard Kelly, in his first edition of "Medical Gynecology," as well as the translator of Kisch's work "The Sexual Life of Woman," also use the word in the German signification.

ETIOLOGY AND PATHOLOGY

This condition is in reality but a symptom found in very many different conditions. It may be considered normal at the first coitus in the female, incident to the rupture of the hymen; nor should it be considered pathological during the first few weeks after that event.

Among the causes which induce dyspareunia may be mentioned the following: *vaginismus; incomplete, awkward, or rough attempts at coitus on the part of the male; hysteria; local hyperesthesia; disproportion between the male and female genital organs; trauma; genital as well as pelvic deformity; maldevelopment, cicatrical contraction, or displacement of any of the genital organs; inflammatory conditions in the urethra, vulva, vagina, bladder or rectum; inflammation or infiltration of the pelvic connective tissue, or the peritoneum covering the pelvic organs; urethral caruncle; vesical calculus; anal fissure; pelvic tumors; hyperinvolution; premature senility, etc.*

SYMPTOMS

As above stated, the condition itself is nothing more than a symptom. All we have is simply local or referred pain during coitus. But coitus is perfectly possible and no muscular spasm is present unless the condition is due to vaginismus.

DIAGNOSIS

The diagnosis is made from the history of the complaint of pain. It must not be confused with vaginismus, in which coitus is generally impossible, and in which the pain is due to muscular spasm.

PROGNOSIS

This depends upon the ability of the surgeon to find the underlying cause and to relieve it. Generally, the prognosis is good.

TREATMENT

As in vaginismus, we must not treat the condition as a disease *per se,* but simply as a symptom of some pathological condition. We must make every effort to find the underlying cause and relieve it.

Where the condition is due to rough or awkward coitus, full instruction should be given both parties as to the best way of conducting themselves during the act. The husband should be cautioned not to repeat the act too soon after the initial coitus, so as to give the ruptured hymen and other lacerations a chance to heal up. He should also be instructed to be gentle and to have his organ well lubricated in case difficulty is experienced in introduction. The wife also should be instructed how to do her utmost to assist her husband in introducing the organ. As stated heretofore, it is not uncommon for the husband, in his wild attempt at coitus, to insert the penis everywhere but in the proper place, and there are cases on record where coitus has taken place in the rectum or even urethra, and the hymen itself remained intact for years. If necessary, the wife should be given a speculum or vaginal dilator and shown how and where to introduce it herself.

In cases of marked spinal deformity in the female, in which the ordinary posture of coitus is not feasible or painful, it is perfectly justifiable to advise coitus in convenient positions.

Where the condition is due to smallness of the vagina, it should be treated by packing the vagina with glycerin tampons or dilating with vaginal dilators, and, in bad cases, by incisions similar to those made in the treatment of vaginismus.

It may be convenient to briefly describe here a condition in the female somewhat similar to dyspareunia, but of which very little is found in medical literature. In this condition the act of coitus is not accompanied by pain but by other disagreeable sensations.

Among these disagreeable sensations which accompany or follow shortly after coitus may be mentioned headache, nausea, vomiting, diarrhea, abdominal pains, vertigo, flushes, paraesthesia, etc.

Some of these symptoms can be explained by the Freudian theory. This was the case in a young woman who, when a girl, was raped. This rape was accompanied by severe abdominal pains, and later on, when she married, each coitus was accompanied by severe abdominal pains. The most important point in treating these cases is to find the local pathological condition which is the cause of these disagreeable reflex sensations. Where none can be found after careful examination, it is advisable to send them to a competent neurologist or psychoanalyst.

DYSPAREUNIA IN THE MALE

DEFINITION

Under this heading a condition will be described which, I believe, has never been described as a clinical entity, although occasionally mentioned as a symptom.

By dyspareunia in the male, I mean the exact counterpart of female dyspareunia, namely, pain during coitus. Under this heading I do *not* consider pain at coitus in the presence of acute inflammation of the urethra, for it is obvious that if a man is foolish enough to indulge in coitus during an acute posterior urethritis, prostatic abscess, or similar acute conditions, the act would be accompanied by more or less severe pain. Such conditions are really irritations of inflamed surfaces, and under no conditions can they be considered as neuroses, nor will they be considered under this heading.

ETIOLOGY

So far as my personal observation goes, I have only seen dyspareunia in the male as a sequela of either masturbation or withdrawal, and these two conditions must therefore be considered the most important if not the only etiological factors.

PATHOLOGY

The pathological seat is to be sought for in the seminal vesicles and ejaculatory ducts. Inasmuch as none of these cases come to autopsy, we can judge the pathology only by analogy and by the result of rectal palpation of these parts.

Inasmuch as the pleasurable feeling of orgasm is the result of the squeezing of the seminal fluid through the ejaculatory ducts, we can readily understand how any inflammation of these ducts would be accompanied by a sensation of pain, especially where the inflammation is such as would cause a temporary narrowing of part of the lumen of the duct, and so cause a temporary resistance to the onward passage of the seminal fluid.

SYMPTOMS

The chief and only symptom complained of by the patient is a severe, acute, knife-like pain coming on just at the orgasm. It is generally felt in the perineum, although it may be referred to the anterior urethra, more especially at the meatus. The chief characteristic of the pain is its simultaneousness with the orgasm and its sharpcutting, knife-like character.

Upon examination, we always find the seminal vesicles enlarged and exquisitely tender. The same local conditions may also be found present in the urethra as are found in masturbation or withdrawal, although the symptom-complex may be present in the absence of every condition except the enlarged and tender seminal vesicles.

DIAGNOSIS

The diagnosis is to be made solely from the characteristics of the pain just described.

PROGNOSIS

The prognosis is excellent, as every case treated by me so far has absolutely recovered. The cases are, however, rather infrequent.

TREATMENT

The treatment is really the treatment of the underlying condition and consists, briefly, in abstinence from sexual intercourse, *gentle* massage of the prostate and seminal vesicles, the treatment of the accompanying congestion of the deep urethra by *weak* silver-nitrate instillations, the avoidance of alcoholics as well as tea and coffee, and, in particularly bad cases, the temporary administration of bromides. For a *detailed* description of the underlying conditions, see Masturbation and Withdrawal.

CHAPTER XXIV

DYSMENORRHEA

DEFINITION

DYSMENORRHEA is a condition characterized by severe colicy pains in the lower abdomen coming on only at, or just before the menstrual period. In its wider application, we may include any complaint occurring regularly at the menstrual period, even if not connected with the sexual organs. Among such complaints may be mentioned headache, backache, toothache, joint pains, various skin eruptions and a general feeling of malaise. It should also be remembered, that in our modern civilized, but artificial mode of living, a certain amount of discomfort is present in almost every woman at these times, and is considered practically normal. The line between what is considered normal and abnormal cannot be strictly defined and varies also with different types of temperament. Quite a severe amount of pain in a hard-working woman would not be considered by her as abnormal, while even a slight amount of discomfort is often exaggerated by the high-strung hysterical person.

THEORIES

The theories that have been held and are still being held as to the causation of this condition are too numerous to be mentioned, and are still, more or less, in a chaotic condition. One of the reasons is that dysmenorrhea is, in many cases, only a symptom which may be due to widely different pathological conditions, and therefore it is hard to expect that one theory will fit every case. It is not my purpose to mention every theory that has ever been advanced, as that would fill a small size monograph.

One of the most prevalent theories that has been advanced and which, probably due to the reputation of its sponsor, has held sway for many years, is the mechanical theory. This theory assumes that there is a mechanical obstruction to the free exit of the menstrual blood, the retained blood forming clots and it is the expulsion of these clots through the narrowed uterine canal which causes the severe colicky pains which have often been likened to labor pains. In support of this theory, it has been urged that in many cases dilatation of the cervical canal very often causes a disappearance of these pains. This theory, while very fascinating and offering a very simple and apparently intelligent explanation, has been disproven in most of the cases. It is true that an anteflexed uterus and a stenosed cervical os very often accompanies dysmenorrhea, but it has also been found that no matter how narrow the canal or how acute the anteflexion, there is always a free outlet to the blood and that, in the vast majority of cases, the blood is not clotted. Others consider that the seat of the trouble is at the internal os, and that by severing this powerful circular fibro-muscular ring and preventing it from reuniting, a cure will result. Others have considered that the trouble is due to an insufficient quantity of ovarian hormone thrown into the blood, and administer ovarian extract or corpus luteum extract for this condition. This theory has in its favor the well-known fact that dysmenorrhea is often associated with an under-developed uterus and sterility. Others consider certain types of dysmenorrhea due to an over-secretion of ovarian hormone. Still others blame the thyroid and pituitary gland for the dysmenorrhea. As before said there is an element of truth in all these theories and different types are caused by different conditions.

ETIOLOGY AND PATHOLOGY

Much of what has been said in the two preceding paragraphs could be reiterated here. It has been very often definitely

stated that dysmenorrhea is not a disease at all but simply a symptom of some pathological condition. This statement is theoretically correct just as similar conditions in almost any other organ of the body. Practically, however, we find case after case where the most painstaking gynecological examinations together with examinations of almost all the other organs of the body, including complex blood chemistry, neurological examinations, inquiries into the functions of the various endocrine glands by means of all the latest methods at our disposal, and still nothing pathological is discovered. We must, therefore, from a purely practical point consider such a condition as dysmenorrhea, in many cases at least, as a distinct entity. In such cases there is nothing wrong with the patient throughout most of the year except that at the menstrual period, the pains and discomforts recur with clock-like regularity, necessitating the patient giving up all business and social obligations and taking herself to bed for one or more days. In other cases, however, we find pathological conditions, the removal or cure of which certainly does relieve or cure the dysmenorrhea. Of course, in many of these cases we cannot definitely prove that the condition relieved was the direct cause of the dysmenorrhea. If, for instance, we relieve an acute anteflexion by rapid dilatation or operation, we cannot scientifically assert that we may not have introduced some other feature as yet unknown in our treatment which had the desired effect. Among the pathological conditions found associated with dysmenorrhea whose relief at times cures the condition may be mentioned acute anteflexion, retroversion, adnexal disease, inflamed or misplaced ovaries, appendicitis, anemia and general relaxation of the abdominal viscera. The various endocrine dysfunctions due to pathology of the respective glands can hardly ever be demonstrated pathologically. Also the swelling and turgescence of the genital spots in the nose at each period must be put down as an etiological

factor in certain cases. Even Mazer, who has written an entire book on endocrinology in the female, concludes his interesting chapter on dysmenorrhea as follows:

"No satisfactory explanation of the cause of dysmenorrhea is presently available. The usual incidence of uterine hypoplasia, with or without congenital displacements of the organ, and the presence of follicle cystosis in some of these patients are strongly suggestive of endocrine malfunction, still a number of them respond favorably to dilatation and curettage of the uterus—a phenomenon which cannot be explained on the basis of endocrinopathy."

SYMPTOMS

The symptoms of dysmenorrhea have been largely indicated in the definition above given. As previously stated, in many cases the entire condition is really a symptom. The chief characteristic is that the patient is well except at or about the menstrual period. At this time or a few days before, she is seized with severe cramps which are colicky in character and not unlike labor pains. These pains, unless relieved by treatment continue in severity until the flow is freely established. In many cases they are so severe that the patient must take to her bed for one or several days. In other cases the symptoms do not appear until the flow is established and continue throughout the entire period. Accompanying these severe local pains or sometimes without them, the patient may complain of general malaise, a disinclination to work, headache, backache, toothache, sleeplessness and general nervousness. In some cases certain skin eruptions only appear at the menstrual period. The psychic of the patient is markedly influenced, and statistics of criminologists have shown that a larger proportion of crimes in females have occurred at this time than at any other. So severe are the pains in extreme cases that patients have even submitted to hysterectomy for the relief. Morphine, cocaine and alcoholic habits have been formed

by some of these patients in their endeavor to obtain relief from the severe pain.

CLASSIFICATIONS

Dysmenorrhea has been classified in various ways by different authors. It seems to me that the most simple and most intelligent classification is to divide it into two general groups. Namely congenital and acquired.

1. CONGENITAL DYSMENORRHEA

This form is often associated with an infantile or under-developed uterus, an acute anteflexion and more or less stenosis of the cervix. If such girls marry, they are very apt to be sterile. In these cases both the dysmenorrhea and the under-developed genitals are due to the same cause. Way back in 1913 in my book, "Sterility in the Male and Female, and Its Treatment," I published statistics of 146 cases of sterility and found dysmenorrhea mentioned in about half the cases. I also there quoted Kehrer who found that dysmenorrhea was only slightly more frequent in sterile women than in women who have had children. Both these statistics differ markedly from Sims who greatly emphasized the relationship between sterility and dysmenorrhea.

One must be very careful in making a prognosis as regards sterility in cases of congenital dysmenorrhea, even when examination shows markedly under-developed or even infantile sexual organs. A very embarrassing mistake in this regard was reported many years ago by the late Dr. Brothers. A mother brought her unmarried daughter to him for treatment for severe dysmenorrhea. On examination he found an under-developed acute anteflexed uterus, and told the mother and daughter that this was the cause of the dysmenorrhea and should be corrected for, if the girl married she could positively not become pregnant with such organs. About a year later both returned again to him very much excited because the daughter was pregnant, but

such faith did she have in the remarks of Dr. Brothers, that she neglected to get married.

The chief characteristic of congenital dysmenorrhea as contrasted with the acquired form is that it starts at the very commencement of the menstrual life. In these cases where there is obvious obstruction the pain usually precedes the menstrual flow and stops when the flow is established. Even if it recurs later the pain is much less. In other cases of congenital dysmenorrhea, especially when due to nervous or vascular defects, while the pain may precede the flow by several days it generally lasts throughout the entire period.

2. ACQUIRED DYSMENORRHEA

Acquired dysmenorrhea may be the result of almost any pathological gynecological condition such as uterine displacement, pelvic disease, ovarian pathology, etc. We very often get a history, in this form, of normal periods for some time after the commencement of menstrual life to be followed by dysmenorrhea due to some form of acquired pathology. Of course, an acquired pathology may be ingrafted on a congenital dysmenorrhea.

3. OTHER FORMS

In the classification of dysmenorrhea there are three other forms which do not fit in with the above classification or may be considered independent of them. They may be briefly mentioned as follows:

a. Interval dysmenorrhea, designated by the Germans as "Mittelschmerz." This is a condition which recurs in the intervals of the period and is really an ovarian condition due to ovulation between the periods. The diagnosis and treatment are the same as the ordinary type.

b. Membranous dysmenorrhea is characterized by the extrusion of a membrane, at times a complete cast of the uterus, at

each period. While in many cases the diagnosis is obvious, in some only a very careful microscopic examination of this discharge can distinguish between the membrane and ordinary menstrual clots. The etiology of this condition is very doubtful although some ingenious theories as to its cause have been advanced though by no means proven.

c. Nasal dysmenorrhea is characterized by a swelling and congestion of the genital spots in the nose. It has long been known that there is a distinct and undoubted connection between the nose and the sexual apparatus although the exact relationship between the two has not been established. It is common knowledge that in the lower animals the nose is a very important sexual organ and in many of the animals it is the chief stimulant for sexual desire in the male.

DIAGNOSIS

The diagnosis may appear easy as it is generally made by the patient herself. The main point in diagnosis, however, is to find the direct pathological cause of the condition. As previously stated this is often very difficult and may be impossible with our present methods. Every organ and function must be carefully investigated before we dare consider the case one of essential dysmenorrhea. Many of the questions of diagnosis will be referred to in the paragraph on treatment, for the correct treatment depends to a very large extent upon the proper differential diagnosis. In the so-called nasal dysmenorrhea, the diagnosis is made by the application of cocaine to the genital spots in the nose, during the menstrual period. If the pain disappears even temporarily, we may assume that the dysmenorrhea is caused by irritation from these spots, and later institute treatment accordingly.

COURSE AND PROGNOSIS

Unless treated, the dysmenorrhea may recur with each succeeding period. Pregnancy generally cures dysmenorrhea, but

no girl should be advised to get married merely for the relief of this. Moreover, in these times, the suggestion may be (and has been) entirely misinterpreted and the girl started on a career of illegitimate sexual experiences. As a rule the prognosis of the vast majority of the cases with proper treatment is excellent. The only exception to this rule is membranous dysmenorrhea in which the prognosis, despite treatment, is very poor.

TREATMENT

PROPHYLACTIC

Dysmenorrhea may be considered largely a disease of modern civilization and culture. In order to prevent its occurrence we ought to bring back our patients to as near a primitive condition as possible. Much depends upon the very initiation of the menstrual function. Every mother should fully instruct the girl, about to have her first menstruation, concerning its probable coming, its significance and the way she is to conduct herself during its time. It is not unusual for girls to have the first manifestation appear without any warning or instruction and to be terribly frightened at the sudden appearance of blood at the genitals. Some of them have become hysterical, others have been overcome with shame and have attempted to keep the event a secret, believing that it was due to some personal indiscretion and therefore pay no attention to any personal hygiene or precautions at this time.

Just before the probable advent of this first period, the parent, doctor and teacher should co-operate, so that the little girl is in the best of health not only physically but psychically. All possible out-door recreation should be encouraged, but not to the point of fatigue. School work should be lessened, anemia and constipation should be corrected and all unnecessary nervous or psychical disturbances should be removed if possible.

With the establishment of the menses the same precautions and care should be instituted every month. It must not be

thought that the rich escape because they do not need to indulge in hard work. Not at all. In many cases the social obligations of the rich are just as arduous and unhygienic as the hard work of their poorer sisters.

TREATMENT OF THE CONDITION

Dysmenorrhea being often only a symptom we should investigate every organ and function for a probable cause. It is unscientific to treat it symptomatically for an indefinite time without such search. In married women a complete gynecological examination should be made as a matter of routine to rule out sexual pathology. In young girls and generally in unmarried females such gynecological examination must be dispensed with for social and ethical reasons. If, however, there is any suspicion of the presence of serious or important pelvic pathology, or if after fair trial the dysmenorrhea is not relieved by careful treatment presently to be described, all delicacy should be laid aside for the benefit of the patient and gynecological investigation be instituted. To the trained finger a combined recto-abdominal examination may give all the information necessary, though in serious doubt we should not hesitate to make a vaginal examination.

In cases where obvious pelvic pathology exists, it should of course be corrected. This would be done anyhow even if no dysmenorrhea existed. Operative procedure for dysmenorrhea itself should only be undertaken after milder methods presently to be described have failed. The best operative procedure in these cases is rapid dilatation. In doing this, there is not the slightest indication for performing a curettage at the same time. If however, there is any suspicion of an intrauterine tumor, we should not hesitate to explore the uterus at the same time, but otherwise not. Unfortunately while the rapid dilatation often secures prompt amelioration of the symptoms, in many cases such amelioration is only temporary. To overcome this defect

some operators have advised the putting in of a stem pessary to keep the canal open, but this adds a slight danger of infection, which need not be taken. Other operators, with the same purpose in view, have recommended some of the well known operations on the cervix, which theoretically at least should be more effective than simple dilatation, but it seems to be the consensus of opinion based on a cumulative large experience that the results are no better than simple dilatation.

Cleland comes to the conclusion that in these cases the seat of the entire trouble is at the internal os, and that, by severing this powerful fibromuscular circular ring and producing a dilatation which is maintained long enough so that the muscle does not contract again, nearly all cases of dysmenorrhea can be cured or greatly relieved. Acting upon this principle his method of procedure is either to thoroughly dilate the internal os, or cut it and then pack the uterus and cervix with iodoform gauze which is left in for about a week. He reports grateful results from this method of treatment, saying that it is far superior to ordinary dilatation. I have had no personal experience with this method, but theoretically at least it sounds plausible.

Another operative measure that is undertaken concerns membranous dysmenorrhea. As said before, we know very little concerning the cause of this condition, and non-operative treatment is almost always useless. It has been said that if the uterus is repeatedly curetted just prior to each menstrual period, in time a cure will result. Few patients however are willing to submit to these repeated curettages.

There is one more operative procedure which at times works like a charm in a definite type of dysmenorrhea. I refer to the intranasal treatment as popularized in this country by Emil Mayer and Joseph Brettauer. The method of treatment looks very simple as if any tyro could do it, but I cannot too emphatically emphasize the caution that it should only be per-

formed by a skillful rhinologist. The diagnosis as to when to recommend it is in fact simple and can be made by anyone. All that is necessary is to insert a cotton applicator wet with cocaine into the nostrils during the painful part of the period. If the pain is relieved even though temporarily, it indicates that this is a case for such treatment and the patient should be advised.

This method of treatment is of value where no pelvic pathology exists and where ordinary treatment has been found valueless. It is based upon the experience of Fliess who discovered certain spots in the nose which became sensitive to the probe and were also found to become congested and to bleed easily during the menstrual periods and also at labor. These spots, now known as genital spots, may be destroyed either with the cautery or with trichloracetic acid. Mayer prefers the latter as there is less danger of synechiæ forming after the operations. The treatments are given in the two weeks between the periods. The relief of the symptoms in these cases was prompt and permanent as attested by many cases questioned years afterwards. In many of these cases the patients were disabled from work from one to three days or more every month, which certainly greatly interfered with their financial conditions or success. In many of the cases the relief was truly wonderful and instantaneous. To quote Emil Mayer: "When we recall the extreme pallor of one of these sufferers as she slowly dragged her way to the office for treatment, her firmly compressed lips and utter weariness, and then within a few minutes after a local application to her nose how her color came back, her breathing was free and she went about her duties instead of to bed as usual, we feel that we have earned her gratitude."

NON-OPERATIVE TREATMENT

This is the treatment given in the vast majority of cases. In fact the operative treatment should only be reserved for those

cases where the present treatment has been given a trial and has failed, or in those cases where operation is indicated for conditions aside from the dysmenorrhea.

In the mild cases such harmless procedures as hot sitz baths, hot rectal enemas, hot packs to the abdomen or back may be tried and are at times efficacious. In more pronounced cases a definite course of treatment should be given. In cases first seen during an attack of pain the first indication is to relieve the pain. For this purpose nothing is more efficacious than atropine given to the point of tolerance, starting with $\frac{1}{100}$ grain three times a day or oftener till its full physiological effect has been reached. Atropine has the effect in large doses of being a very powerful antispasmodic and thus relieves the severe colicky pains of the patient. It has no effect upon the backache, headache or other accompanying symptoms. If these latter symptoms are very prominent it may be combined with aspirin. In treating a patient for the first time during such an attack of pain, one should elicit a promise to have the patient come back after the period is over for a complete examination to determine if possible the cause of the dysmenorrhea.

There are two drugs which I wish to mention merely to most emphatically condemn, and they are whiskey (or gin) and morphine. Their chief danger is their marked effectiveness. Nothing will so effectively relieve the most severe pains of dysmenorrhea as either of these drugs. It is for this reason that the habit is so easily formed and so hard to break.

In those cases where the patient is seen for the first time between the periods, giving a history of severe attacks of dysmenorrhea at each period, the following mode of procedure should be followed. After a careful examination has excluded any definite pathology except perhaps an under-developed uterus and where the symptoms complained of consist in extreme severe labor-like pains coming on at each period, so that

this event is terribly dreaded by the patient, nothing works so well as the atropine treatment popularized in this country by Novak. The atropine should be started at least three days before the expected onset of menstruation, that is before the pain has actually commenced. It should also be given to the point of tolerance, therefore the dose must vary with each individual. The failure to get results is exactly due to a neglect of this point. The reason for the failure is most probably due to the fact that as physiologists assert, atropine in *small* doses stimulates muscular contractions, while in large doses it is antispasmodic. The atropine should be continued until the pain has ceased. As a rule, it is not necessary to give larger doses than $\frac{1}{100}$ grain, and if three times a day is not sufficient to relieve the pain, it may be given more often, rather than increase the dose. Given in this way, in these cases at each succeeding period, it will be found that in later periods the pain does not appear at all and finally it does not appear even if no atropine is given. I must emphasize that this treatment is of value only in cases of spasmodic dysmenorrhea, and is not expected to work where distinct pelvic pathology is present.

In order to avoid placing such a powerful drug as atropine in the hands of the patient (and this applies particularly to ignorant or non-English speaking patients who are met so frequently in dispensary practice) Litzenberg has given us his experience with benzyl benzoate as a substitute. This drug, I believe, was first brought out by Macht, who demonstrated that it has distinct antispasmodic properties, acting on the muscle cells themselves and not on the nerves supplying the muscle, as does atropine. It has been found valuable in colic generally, such as gastro-intestinal, renal, ureteral, biliary and bronchial. Its chief advantage over atropine is its low toxicity. In order to avoid the very unpleasant taste, Litzenberg recommends the following formula:

		Gm.
℞	Benzyl benzoate	10
	Mucilage of acacia	5
	Aromatic elixir of eriodictyon	35

Give from ½ to 2 teaspoonfuls, according to necessity.

I have tried the above formula with good results, but prefer the atropine in the more severe cases and generally in intelligent patients who can be relied upon in the taking of the drug.

In the type of dysmenorrhea not characterized by colicky pains but in which the so-called non-sexual symptoms predominate such as headache, backache, general abdominal discomforts, nervousness, etc., ovarian substance either in the form of ovarian extract or corpus luteum extract will at times be found useful. The relief is only temporary and the patient must take them continually while these symptoms last. Inasmuch as there is nothing habit-forming or detrimental in the repeated use of these drugs, there certainly can be no objection in repeatedly giving them where previous experience has demonstrated their utility.

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