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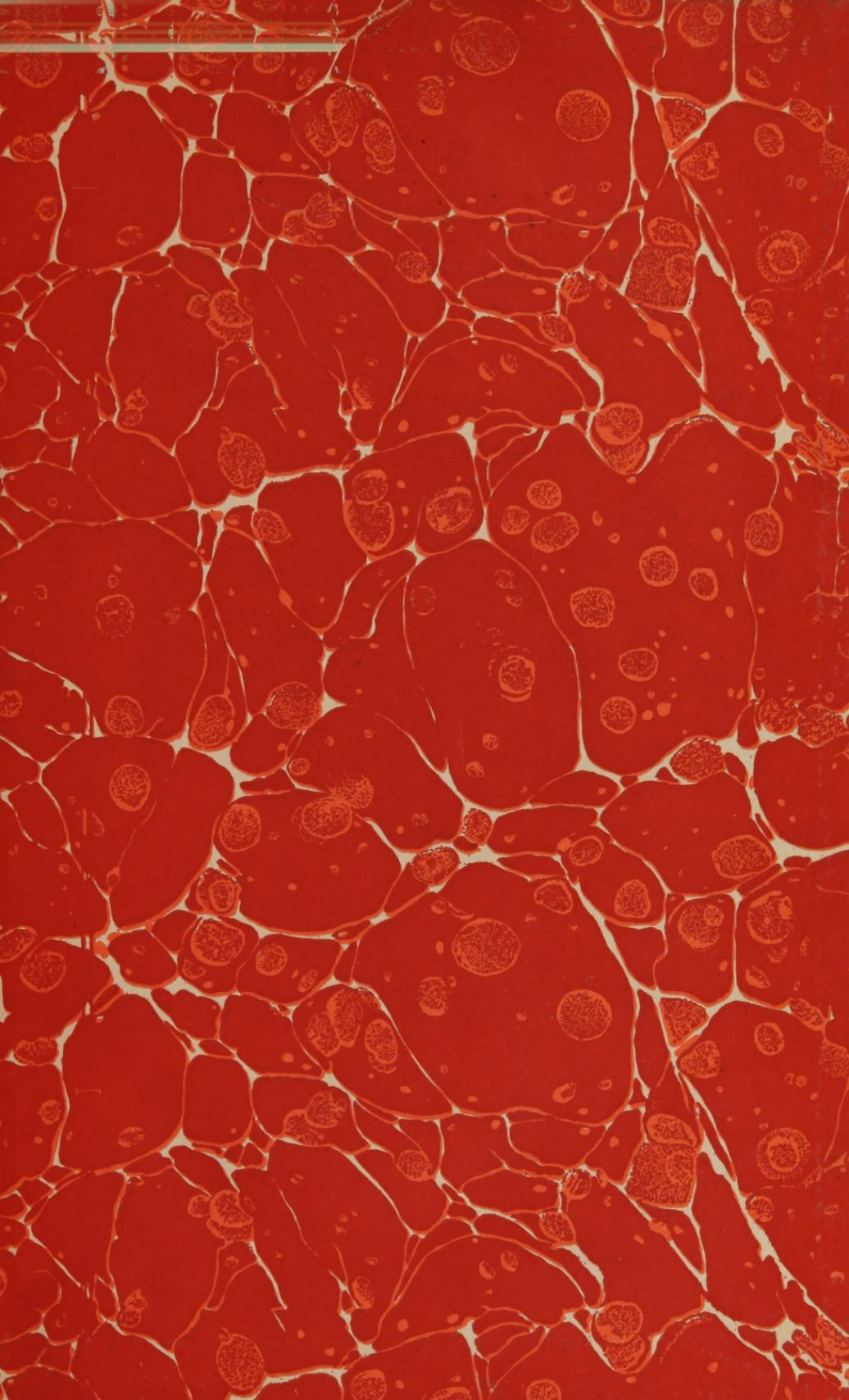
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The Hystero-Neuroses.

BY

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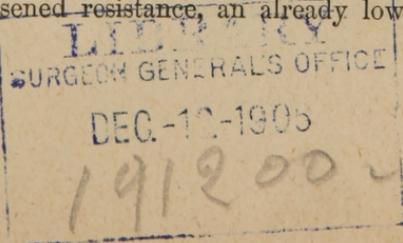
THE HYSTERO-NEUROSES.

BY GEORGE J. ENGELMANN,
St. Louis.

PART I.—GENERAL.

I. DEFINITION.

By the term hystero-neuroses, I have designated those phenomena which simulate a morbid condition in an organ which is in an anatomically healthy state, the symptoms being due, not to structural changes in the organ in which they appear, but to morbid or physiological changes in uterus and ovaries. The hystero-neurosis is a sympathetic hyperesthesia, the result of reflex action due to uterine derangement, and demonstrated to be unquestionably so dependent by being intractable to direct local medication, but yielding at once to treatment of the causative pelvic disorder; it is a symptom which may be brought under the head of the gangliopathy of Tilt, being determined by the various ramifications and connections of the ganglionic and spinal nerves and centres with the uterine and ovarian nerves, hence hystero-neuroses appear most frequently as nerve-pains, central and peripheral, as changes in the circulation, and as gastric and cardiac symptoms. The direction of nervous influences like that of the electric current is determined either by the character of the conductor or the terminal attraction: uterine irritation is transmitted either by such nerve-tract, which is already in a state of morbid irritability, to the organs supplied by its terminal fibres, or it is carried by the most direct course to such organ as submits most readily to the morbid impulse, either by reason of its lessened resistance, an already low-



ered vitality, or an existing hypersensitiveness. Both forces seek the most perfect conductor, and travel directly along such course to the point of greatest attraction, developing their full effect at the terminal radiations. Thus the irritation of the ganglionic nervous system, caused by morbid changes in uterine and ovarian tissue, is most readily conveyed to the spinal and cerebral centres, following sometimes one, sometimes another, path, and results in the lumbar or hypogastric pains, in the burning or pain in the top of the head or back of the neck. Most intimate is the connection of the ganglionic with the vaso-motor nerves; hence, changes in the uterine tissue influence, through the ganglionic centers, the vaso-motor nerves, and produce either relaxation—which we so often see made apparent by flushes, swelling, heat, and redness of the surface—or hyperactivity, marked by vascular contraction, by a chill, or coldness of the extremities; by their connection with the vagus are brought about the palpitations of the heart, the nausea and vomiting, by which the stomach tells of uterine changes. The anastomosing fibres of the solar plexus account for the gaseous distention of the abdomen, the constipation and diarrheas by which uterine changes find expression.

These symptoms are entirely distinct from the transitory and variable ones of hysteria, which I am inclined to place among the cerebro-spinal affections, and which are but indirectly influenced by the uterus and its annexa.

As hysteroneuroses, I consider only such appearances of disease, without structural changes in the organ in which they occur, which are the direct result of reflex nervous influence, dependent upon changes in uterus or ovaries, coming and going, aggravated or improved, with corresponding changes in the determining, causative disease. We must strictly eliminate coexisting symptoms, and symptoms arising from direct mechanical causes: thus, the stiffness of the leg, with the shooting pain which follows the course of the nerve, often found in ovarian and circumuterine disease at the time of the menstrual period, is not an hysteroneurosis, not a reflex

nerve-symptom, but the direct result of pressure by the congested tissues or the enlarged ovary upon the pelvic portion of the nerve; frequent and painful micturition (dysuria), as it is observed during the menstrual period, may be a neurosis pure and simple, but it is more frequently the result of increased pressure of the congested uterus upon urethra or bladder. Such symptoms as are produced directly by contact—by pressure upon tissues, nerves, or vessels—must not be confounded with a neurosis, with those symptoms determined only by reflex nerve-action.

II. VARIOUS FORMS OF HYSTERO-NEUROSES.

As these reflex neuroses are due to changes—pathological and physiological—in uterus and ovaries, we may look for their occurrence in disease, and during periods of heightened functional activity—hence, I have classified the hystero-neuroses, first, as pathological, second, physiological.

The physiological neuroses are those reflex symptoms which appear during the periods of increased functional activity, at puberty, and the menopause, during menstruation and pregnancy.¹

1. *Pathological Hystero-Neuroses.*

These are symptoms referable to and caused by a pathological condition of any part of the female sexual organism, aggravated by such causes as intensify uterine disease, though the symptoms may frequently be heightened by, or appear only during, the menstrual period.

I shall treat here of the pathological neuroses, or the reflex symptoms accompanying uterine disease, as I look upon these as the most important to the practitioner, and as the most occult and least readily recognized.

¹ This classification is the most simple, though not strictly correct, as many of those neuroses which are thereby termed physiological, because they accompany the physiological congestion, are, in fact, pathological, caused by morbid states of the uterus, but dormant until aroused by the heightened irritation of uterine disease plus physiological congestion. Yet I adhere to the terms, as they facilitate understanding.

2. *The Physiological Hystero-Neuroses.*

a. Hystero-Neuroses of Puberty; b. The Menopause.—These two most important epochs in the sexual life of woman, the coming and going of the menstrual period, are marked by increased susceptibility of the nervous system: the peculiarities of temperament, the freaks and nervous pains with which women are afflicted at these times, are well known in a general way, although they have never been thoroughly classified or understood. Even Tilt, in his classical work on *The Changes of Life in Health and Disease*, in which he enumerates and graphically describes the neuroses of the menopause, confounds the neuroses pure and simple, of certain of which he speaks as gangliopathy, with the diseases proper of the menopause. If we glance for a moment at his tables, in which he depicts the relative frequency of morbid liabilities at the change of life in 500 women, we find nervous irritability in 459, flushes in 287, pseudo-narcotism in 277, dorsal pain in 226, gangliopathy and faintness in 220, headache in 208, abdominal pain in 205, perspirations in 201; but with these he names leucorrhœa in 146 cases, which is a disease and not a neurosis, an hysterical state in 146, flooding of the bowels, biliousness, gangliopathy or strange epigastric sensations in 49, phosphatic or lithic urine in 49, diarrhœa in 45, chloro-anemia in 40, dyspepsia in 37, and so on. I have quoted this table—from which we see that those neuroses which are most common at the change of life are also among the most common of the pathological neuroses, or the neuroses accompanying uterine disease—to show the existing confusion, symptoms which are peculiar to the menopause are placed side by side with reflex symptoms which are among the most frequent evidences of uterine disease at all times, the most frequent reflex neuroses which are caused by disturbances in the female sexual organs, determined alike by pathological conditions, by the changes of puberty, menstruation, or the menopause.

Tilt, in describing the diseases of that period, has given

us a most excellent sketch of the hystero-neuroses as they are found during the entire period of female sexual life.

c. The Menstrual Hystero-Neuroses.—I have so termed those neuroses which appear at the time of the menstrual congestion, but in few cases only are they determined by the physiological state pure and simple in a healthy organ. They are mostly dependent changes, such as congestion or displacement, aggravated by the physiological condition of menstruation, their peculiarity being that they come at this time only. They are often determined by pathological conditions which in themselves are insufficient to bring about the neurosis, and only with the increased congestion or heightened nervous susceptibility accompanying the menstrual state does the neurosis appear: the pathological condition in itself being impotent to excite the symptoms which are at once developed by the additional impetus of the physiological congestion. It is upon the congestion and the increased nervous excitability of the menstrual state that these neuroses depend, greater pressure, increase of the causative irritation in the uterus, heightened functional activity, and greater susceptibility of the affected organ and its nerve-fibres; hence they appear not at the time of the sanguineous flow, but during the entire period of congestion, beginning from two or three days to one week before the appearance of the flow, and passing away two or three days after its cessation, often disappearing during its continuance, while the depletion is in progress.

d. Hystero-Neuroses of Pregnancy.—Unlike the neuroses of menstruation, those of pregnancy appear most frequently in response to physiological changes pure and simple, and less often to an aggravation of the exciting pathological state, caused by the heightened vitality and increased functional activity of the organ during the pregnant state.

These symptoms frequently appear, like the menstrual neuroses, with the congestion and enlargement immediately following conception, and cease with the evacuation of the uterine cavity and the consequent depletion and contraction.

The more common hystero-neuroses of pregnancy are known as the doubtful signs of pregnancy, and so well known are certain of these neuroses, and their connection with the pregnant state, that they are looked upon as probable signs of pregnancy, and as the earliest signs: so frequent is their occurrence that they have been looked upon as an evidence of pregnancy even by the laity, even by the ignorant among peoples civilized and savage, and by obstetric writers since the time of Hippocrates. They are determined by that congestion, enlargement, and changed nervous state which appear soon after conception takes place, long before visible and palpable changes are such as to assure us of the condition which exists. Though the reflex nervous phenomena—the hystero-neuroses—are among the first evidences of pregnancy, they are correctly known as doubtful signs, since, as we well know, they are merely the results of nutritive changes which accompany pathological as well as physiological conditions.

III. IMPORTANCE.

The importance of the neuroses—this varied conglomeration of symptoms—always peculiar, has never been appreciated, and in fact they have never been understood, never studied as a group. A trifling derangement in a sensitive organ, not sufficient to attract attention, to cause pain or even discomfort in the part affected, may be the exciting cause, and distant organs respond most violently to this slight abnormality, as the alarm-gong sounds in answer to the tap on the button of the distant station. The distribution of the sympathetic and the ganglionic systems, connecting in innumerable filaments with the ramifications of the spinal nerves, central and peripheral, leads to the most curious and unexpected reflex symptoms. These neuroses may be likened to the explosion caused in the magazine by the small spark which has ignited the fuse at a distant point; they are the symptoms by which pathological conditions, generally insignificant in character, find expression in vital organs, and,

while these phenomena may result from irritation of terminal nerves in any other part, the most numerous and the most striking are those which appear in response to genital lesions.

An injury in one part of the body is marked by pain in another. Severe attacks of asthma are often dependent upon a circumscribed hypertrophy of the mucous membrane in the posterior nares, intense headaches upon gastric disturbance, and, *vice versa*, the stomach responds to cerebral changes. Among the best examples of this peculiar reflex nerve-action are the convulsions of childhood and the symptoms of hip-disease caused by the adherent prepuce in the male infant; the convulsions of teething, which in the popular mind exist as an almost unavoidable accompaniment of the stage of development, may be reflex in their nature, the result of terminal nerve-pressure. The muco-cutaneous border with its sensitive fibres is a favorite centre, and fissures and urethral caruncles are characterized by reflex symptoms, often more annoying even than the distressing local pain.

I merely refer to these well-established reflex phenomena as identical with that great class of neuroses which are referable to the female sexual organs, and which I have described as the hystero-neuroses, and I need hardly state the self-evident fact that in the highly-sensitive nervous organization of woman we find these reflex symptoms most frequent and intense, and that they are most fully developed in response to lesions of the sexual organs, the controlling influence in the functional life of woman. While these symptoms have been practically ignored by the scientific physician, who has recognized but an insignificant group as the doubtful or early symptoms of pregnancy, they have been observed from time immemorial by the laity, and I may almost say that these neuroses of pregnancy—these doubtful signs of conception—have been accepted by the profession in acknowledgment of popular beliefs and of medical tradition from the time of Hippocrates. Thus the ancients mainly recognized the symptoms which have now become obsolete,

such as the enlargement of the neck: the Roman matron cast a fillet around the bride's throat before and after the nuptial night in order to discover whether marriage had been consummated or not—a tribute to the congestion of the thyroid in response to uterine irritation. Horse-breeders at the present day in certain districts measure the necks of their mares before and after they have been covered to determine whether the intercourse has been a fruitful one. (Goodell, *Transactions of the American Gynecological Society*, vol. i, p. 211.)

The most common and best known of these neuroses is the morning-sickness of early pregnancy, which at the same time offers a striking example of the importance of these neuroses. To the ignorance of the reflex nature of this irritation of the stomach, resulting from uterine congestion, many a young life has been sacrificed; many a young wife, happy in the expectations of motherhood, has fallen a victim to the violence of reflex nerve-action, heightened to its greatest intensity in this period of female functional activity. Sad results such as this are unfortunately too frequent; equally sad and still more obscure are those cases of asthma, dyspepsia, headache, and mental derangement which resist all efforts of the physician, and doom the sufferer to hopeless invalidism—all because a simple uterine derangement, of which the supposed disease is but a reflex symptom, is overlooked or ignored. Too long neglected, this group of symptoms should at length receive the attention which it justly merits on account of its importance: (a) Practical, (b) Scientific, and (c) Medico-legal.

a. Practical Importance.

A thorough understanding of these symptoms, these functional perversions in vital organs in response to trifling uterine lesions, is necessary, not alone to the gynecologist, but above all to the physician in his daily practice; an understanding of these symptoms is necessary, not alone for the diagnosis of uterine and ovarian disease, but for the

correct treatment of the symptom, which is often far more annoying to the patient than the disease by which it is caused. To the gynecologist these phenomena are but curious accompaniments of uterine disease, and he naturally pursues the only correct and possible method of relief: the treatment of the local disturbance. But the general practitioner who fails to recognize the neurosis toys with health, if not with life: deceived by the perfect identity of the symptoms, deceived by this semblance of disease in a perfectly healthy organ, he treats that organ for the supposed disease, and treats it in vain. The stomach is irritated, the system is ruined by constant medication, and the uterine disease, which is completely ignored, grows gradually worse; the reflex symptoms are correspondingly aggravated, more powerful medication is resorted to, and thus the health of the patient suffers, if her life is not endangered, by the error in diagnosis—the mistaking of the mere semblance, the reflection, for the disease proper. Such cases are not recognized and are not reported—they are regarded as puzzling and obscure by the attending physician, and the patient as an hysterical crank. The disease is not an unusual one, yet all usual remedies fail; the sufferer passes from hand to hand, satisfied to continue existence as an invalid, if death does not put an end to her suffering. Innumerable women have been treated for gastric troubles (mainly dyspepsia or nerve-pains), for cerebral disturbance, and for weak eyes, and have gone through the entire pharmacopeia—“taken whole drug-stores,” as they state—until they have given up all hope of improvement, and have become resigned to their fate.

Am I not justified in emphasizing the importance of these neuroses? The healthy organ in which the phenomena occur is treated to the death; the causative uterine disease is ignored because no pelvic or hypogastric pains exist, because no irregularity of menstruation occurs, or because the reflex symptoms so far exceed the trifling pelvic annoyance that the patient demands relief from that symptom which causes the greatest suffering, and both patient and physician over-

look the lesser trouble. Several cases now under my care will best exemplify the importance of these symptoms to the practitioner.

CASE I. *Gastric Hystero-Neurosis*.—Mrs. M., aged 34, aceration of the cervix; retroversion and descensus uteri, metritis and endometritis; four children, the oldest nine years of age. For the past eight years this patient has been under treatment for what every physician called gastric catarrh (neurosis of the stomach), constantly taking medicines, each of the four physicians who attended her in turn exhausting the pharmacopeia, until her stomach was indeed weakened, her system debilitated; each one had given her particular orders, forbidding such foods as he thought injurious; and, while this poor woman, who needed nourishment and stimulation, was being medicated and starved, she was urged to exercise; her house-work done, she walked or drove, and thus constantly aggravated the uterine disease. Backache or slight pelvic pains were ignored, and so treatment was continued until she was brought to bed by an exacerbation of the uterine disease, and even then the pelvic trouble would have been overlooked had not the extreme displacement of the congested uterus caused most painful dysuria, and I was consulted on account of the bladder trouble by the physician then in attendance, who had vainly urged a uterine examination nearly a year before. I found an ugly state of affairs. The ovaries were congested, the ligaments very much relaxed, the uterus greatly enlarged, the muscular tissue and the mucous membrane thickened and congested, so that I at once inaugurated treatment of the uterine and ovarian disease regardless of stomach and bladder. As the uterine congestion was reduced and the position of the organ improved, both dysuria and dyspepsia were bettered; all medication was stopped, and this patient, who had for eight years been treated as a dyspeptic, dieted and medicated, was enabled to eat with the rest. I restricted her but little, and she digested all foods alike, notwithstanding the weakening of the stomach by continued treatment and dieting. The chronic uterine disease has improved very slowly, hence occasional attacks of dyspepsia still occur; these are not due, however, to

the character of the food, but to the condition of the uterus, and at those times the stomach resents the lightest diet—milk and lime water—precisely as it does heavier food. For eight years this patient has steadily aggravated the uterine disease, has weakened her constitution, and ruined her stomach by careful dieting and gastric medication, until her health is completely broken. Physician after physician attacked the healthy stomach for the semblance of gastric disease resulting from the comparatively painless uterine disturbance.

CASE II. *Central and Peripheral Cerebral Reflexes; Failure of Treatment.*—Mrs. B., aged 32, was a sufferer from constant headaches, with exacerbations which resulted in symptoms resembling mania. No pelvic pains, no backaches, menstruation regular, patient suffers constantly, and is constantly under treatment of a local physician in her Western home; though now and then temporary improvement was visible, her condition grew steadily worse. The suffering, which had begun with dull headaches, attained such intensity that physicians were consulted in larger cities; she was plied with nervines and sedatives without the slightest benefit; her nerves were shattered, her stomach ruined, and her condition such that she rushed screaming into the street at night, and as a last resort the physician then attending suggested the insane asylum. No physician had ever examined the uterus or inquired as to the state of the reproductive organs, as every one was perfectly satisfied with her statement that menstruation was regular, and her back free from pain. Influenced by female friends and by her own belief and hope in the possibility of a causative uterine disease, she consulted me. I found an indurated, hyperplastic uterus, with a large, hard cervix, and the remnants of an old laceration, the ligaments indurated, and indications of a perimetritis at an earlier day. Nervines and sedatives were stopped, and local treatment inaugurated. While I have not been able to overcome the symptoms, they have improved very much; a constant headache remains, but the excessive nervous irritability and maniacal symptoms have ceased. Notwithstanding the long duration of the disease, and the injury done the stomach and nervous system by chloral and even stronger remedies, a three months' treatment of the metritis and endometritis served

to make life more comfortable, to relieve the more violent symptoms, and to give this patient the hope of recovery, who had been upon the point of being thrust into an insane asylum for the semblance of mental disturbance, these violent reflex-cerebral symptoms resulting from an apparently symptomless uterine disease.

CASE III. *Vomiting of Pregnancy resists Medication, but yields at once to Uterine Applications.*—Mrs. X., an only daughter, a bright, happy wife, pregnant with her first child, was attacked by nausea and vomiting. Treated by various physicians, homeopaths and allopaths, her condition grew steadily worse. The treatment was of course directed toward the organ affected with the semblance of disease—the stomach. Medicine after medicine was tried; the vomiting grew worse, more frequent, until, when I saw her, without food for weeks, this young bride, four months before the very picture of health and beauty, was upon the point of death—a haggard, emaciated wreck. Applications to the eroded and congested cervix and the inflamed mucous membrane stopped the vomiting within twelve hours; but, notwithstanding this satisfactory response, death speedily followed, as the violence and long duration of the neurosis had sapped all vitality. I do not hesitate to state that, if the disease proper, the endocervicitis, had been treated in time, a few simple applications would have sufficed for the relief of the slight cervical catarrh and erosion, which, by the violence of the reflex symptoms, proved fatal in the end.

These are indeed extreme cases, yet not altogether uncommon, and does not ignorance of these phenomena appear criminal when we see the persistent and misdirected treatment of the symptoms lead to years of suffering, to invalidism, and death, while a few trifling applications to the uterus in the early stages would have afforded immediate relief?

b. Scientific Importance.

Important as a thorough understanding of these phenomena is to the practitioner, it is hardly less so to the student; as—

1. It serves an important end in the correct development of medical science, the neuroses being the link which binds specialism and general medicine; and

2. It is of value to the anatomist and physiologist in guiding him in the study of the anastomosing fibres of the ganglionic and spinal systems and their relative functions.

1. This era of medical specialism, to which we owe in so great a measure the marvelous progress of medical science, and the brilliant developments in all its branches, has its faults as well, and the most grievous, which inevitably tends to deterioration, is the close limitation to specialism. The physician is lost in the specialist; the man of science becomes a mechanic, who may be skillful in a laryngological operation or a uterine manipulation, but the system, the nervous organization, the circulation, the great vital forces are forgotten in the one organ of the particular specialist, and no common bond exists between the specialists who treat these widely different parts. But this is a dangerous course, as Virchow has so justly emphasized in an address delivered some years ago, no man can be a thorough specialist who is not a good physician. The practical importance—the intensity of these reflex phenomena—demands attention, and forces the specialist from the narrow confines of a single organ upon broader ground, and necessitates a return to the thorough study of general medicine. Even more, this grand group of symptoms, emanating from an obscure localized irritation, affecting important organs most diverse in their phases, connecting distant parts by a chain of ganglionic and cerebro-spinal nerves, involving the system in all its parts, forms a bond of union between the various specialties. It is a common centre toward which all must converge—a common ground upon which all may unite.

A gastric neurosis may be such as to puzzle the practitioner, whether the stomach, the uterus, or the nervous system is at fault, and whether relief may be obtained by gynecological treatment, by gastric medication and diet, or by treatment of the nervous system. A neurosis of the eye will

necessitate a careful examination of the eye, the brain, the kidneys, and the uterus. It is by concentration on the part of the scientific practitioner of the day that medical progress has been furthered; but this concentration soon tends to limitation, and, while many are benefited, not a few suffer. I have mentioned the sad case of a patient, now under treatment for endometritis, metritis, and descensus uteri, who has been for eight years a sufferer from a gastric neurosis, and who has been under constant treatment for this most apparent symptom. Medication, of course, proved completely useless, yet it was tried again and again by physician after physician, as her failing health was attributed to the semblance of gastric disease, while the insidious uterine lesion escaped detection, as it was not announced by menstrual pain or backache, and slowly but surely progressed until it had undermined her entire system. The ramification of the ganglionic and spinal nerves throughout the body may be compared to a network of electric wires, and, while the irritation of the uterine terminals may find expression in chest or brain, the converse is equally true. The reproductive organs respond readily to a cerebral impulse by the intertwining of the ganglionic and cerebro-spinal system; morbid changes in the nerve-centres may determine functional changes in distant organs by the response of the terminal fibres to the central impulse, and in woman none respond more readily than those of the sexual organs.

The effect of sudden emotion, of joy or fear, upon rectal and vesical nerves is well known: uterine hemorrhage, or the sudden checking of the monthly flow, may be caused by a mental impression. It is not uncommon to see an amenorrhea in emigrants: the change of life, the leaving of home and friends, produces a powerful mental impression, which results in a disturbance of the uterine function and consequent symptoms, such as backache and hypogastric pains; so that in this case we have a morbid condition of the nervous system marked by the symptoms of uterine disease, which the thoughtless specialist would treat as such. More common

and more striking is the picture so graphically drawn by Goodell ("Neurasthenia and Womb Disease," *Transactions of the American Gynecological Society*, vol. iii, page 31) of the overtaxed school-girl who begins to fail, loses her appetite, grows pale, is distressed by headache, backache, spineache, and a sense of exhaustion; her catamenia, hitherto without suffering, become painful; her linen is stained by an exhausting leucorrhœa, and bladder trouble sets in; all the symptoms of uterine disease appear, and she is subjected to a painful examination, and unnecessary and humiliating treatment. Now, while I will not say with Goodell that "a moral rape is committed," the physician is guilty of a grievous error, and, as the author truly says, the patient drags herself from one consulting-room to another, until, finally, in despair she settles down on a sofa in a darkened room, and lapses into invalidism.

Such are some of the sad results of confined and false specialism, best exemplified in cases of reflex neuroses, which are hence important to specialist and general practitioner alike; and I believe that the study of these symptoms will serve not only to check the narrow limitation of specialism, but to unite the practitioner of general medicine and the widely-separated specialists.

2. A careful observation of these phenomena must result in establishing much as yet undetermined in regard to the functions and ramifications of the ganglionic system. By means of well-authenticated pathological facts, the obscurities existing in anatomy and physiology may be cleared; hence the scientific importance of these reflex symptoms; and not until the anatomical relations and physiological functions of the various nerve-tracts have been traced from the terminal plates to the central ganglia will these curious reflexes be fully understood.

c. Medico-Legal Importance.

The dangerous phases assumed by the cerebral neuroses give an aspect of legal import to the study of these phenom-

ena (the hystero-neuroses), and upon the correct diagnosis of certain of these reflexes depend the good name, if not the liberty and even life, of the patient. The unfortunate invalid who is under the sway of irresistible impulses, whose actions are determined by a mere morbid reflection of uterine or ovarian impulses, is made to suffer alike with the willful criminal unless protected by medical science. As early as 1845 English judges recognized the power of the reproductive organs upon the mind of woman (Tilt, page 192), and they refused to inflict punishment upon the unfortunate mother who had murdered her child in an attack of puerperal mania. (Regina *vs.* Burk, Central Criminal Court, June, 1845. Murder of the child proven, but acquittal on the plea of disordered menstruation. Amelia G. Snowswell, tried at Maidstone, March 20, 1855; acquitted on same ground.) Most common among these central neuroses, which may give rise to legal investigation, are the actions of women under the influence of puerperal insanity, leading to infanticide, homicide, kleptomania, dipsomania, and suicidal mania, which appear either as pathological or as menstrual neuroses. The irritability, varying temper, and moral perversion accompanying uterine disease, and tending to exacerbation during the menopause, is liable to alienate the affections, and to force an innocent, loving wife into the divorce court.

Tilt truly says (page 192): "Judges as enlightened and merciful have admitted the doctrine of uncontrollable impulses in cases of puerperal insanity; if they admit that parturition determines uncontrollable impulses, they must allow the possible occurrence of the same impulse at all the critical periods of woman's life, during puberty, pregnancy, lactation, the menstrual period, and cessation."

This curious dependence of moral perversion upon local changes is a subject worthy of the most serious consideration on the ground of—

(a) its *practical importance* to the gynecologist, that he may detect uterine disease when the ordinary symptoms are

wanting; to the general practitioner, that he may correctly diagnose and not maltreat but overcome suffering, frequently in patients who may be easily relieved, and yet become lingering victims to the treatment of phantom disease;

(b) its *scientific interest*, as it forces the specialist from his narrow confines to the broad fields of scientific medicine, and serves to reunite the widely-separated interests of diverging specialties; as they aid the anatomist and the physiologist in tracing the anastomosing fibres of ganglionic and spinal nerves;

(c) the *legal import* of a correct definition, by which the hand of justice is tempered and the innocent and afflicted are preserved from the punishment of the guilty.

IV. HISTORY.

However well known the fact has been that curious symptoms on the part of various organs are referable to changes in the female genitalia, this knowledge has found general credence among the laity alone. Known to Greek and Roman authors, the neuroses as early symptoms of pregnancy alone have entered more fully into medical writings; alienists, more especially the French, have appreciated the influence of these organs upon the mind, yet the neuroses as such have never been fully appreciated; isolated cases, startling phenomena have now and then been reported, but our text-books do not accord the subject the attention it merits.

Hippocrates already mentions certain genital reflexes as symptoms of pregnancy; Marcé, Tuke, and others, toward the end of the last century and the beginning of the present, have carefully studied the puerperal psychoses, and vaguely indicate their dependence upon changes in the reproductive organs; with the development of our physiological knowledge isolated cases of reflex disturbances were recognized, and during the last twenty years sporadic investigations have appeared, quite frequent of late, but no decided progress was made, no permanent interest in the subject was aroused;

even the most important of these observations seem to have left no impression upon the professional mind.

A distinct series of hystero-psychoses has been described by Mayer, of Berlin; Fordyce Barker, in his work on *Uterine Disease as an Exciting Cause of Insanity*, has cited characteristic cases; and Dr. Edgar Holden has described a most striking series of pharyngeal neuroses; but few, with the exception of the above mentioned, seem to have fully appreciated the existence of so well defined a group of symptoms, characterized by their positive and striking dependence upon uterine or ovarian disease. Thus Hodge, in the sixth chapter of his work on *Diseases of Women*, records cases which plainly belong among the hystero-neuroses as homologous with those which are decidedly hysterical, evidently without a proper appreciation of the causative relation in either case. Some such reflexes are mentioned by Tilt in his chapter on gangliopathy, but he places them on a par with those which are purely hysterical, and ascribes all to disease of the ganglionic nerves—diseases to which he says women at the change of life are especially subject. Both authors relate those cases indiscriminately, and in such connection that it would but confuse the reader to refer to them. My attention was first attracted to this class of symptoms by the distention of the epigastrium, which so frequently precedes the catamenial flow, and which I have described as the most common menstrual hystero-neurosis of the stomach. Since the appearance of my paper on the "Hystero-Neuroses" (*Transactions of the American Gynecological Society*, vol. iii, 1878), the literature on this subject has rapidly increased, and yet I believe that it merits more careful investigation, and deserves a recognition in gynecological text-books which is not yet accorded it.

Tilt, in his work on the *Diseases of the Change of Life*, describes these reflex phenomena most vividly, and, though he refers them to pathological or physiological changes in ovaries or uterus, he does not define the direct causative relation, nor does he clearly estimate this absolute

dependence, since he seeks relief by medication and lays but little stress upon local treatment, which, in a true neurosis, is the most rational and direct means of cure, and, with the exception of sedatives, the only. He records the symptoms without fully appreciating their dependence, and considers them among the diseases peculiar to that period of life.

Esquirol frequently refers to the dependence of various forms and phases of insanity upon changes in the reproductive organs, the exacerbation of mental disease at the menstrual period, its inception at puberty or the menopause; yet rarely is a proof of the causative relation established by the restoration of a healthy mental state by gynecological treatment, and so only can the existence of a hystero-neurosis proper be proved.

The studies of Hegar are most interesting: he has been attracted to these marvellous phenomena by his observation of ovarian disease, and has pointed out to the profession the importance which attaches to these symptoms, which, by their diversity, unite upon themselves the varying interests of all branches of the profession.

Undoubtedly these phenomena are determined mainly by the influence of the ganglionic nervous system; to the uterine ganglia an irritation of the terminal fibres is communicated, and thus the link is established by which the impulse can be directed toward any of the functional organs of the body, all organs of nutritive life being supplied with ganglia or a ganglionic plexus. The largest is in the pit of the stomach—the solar plexus—hence gastric neuroses are the most common, distention of the stomach, faintness, perverted appetite. The vagus, itself an important tract, is in direct connection with the ganglionic centres, and carries the uterine impulse to heart, lungs, and stomach; and no reflex, next to the gastric, is more common than the cardiac: palpitation, pain, and all the symptoms of heart disease. Few are more annoying than the bronchial, especially the asthmatic, attacks. This same nerve, so intimately connected with the ganglionic centres, is the bridge which connects this system to the

spinal and cerebral centres, and admits of the direct transmission of the uterine impulse to the brain, hence the nerve-pains and mental phenomena. The ganglionic system directly follows the blood-vessels to the capillary circulation, so that we may readily appreciate the influence of uterine and ovarian impulse upon the circulation; the flushes, sweats, clammy coldness of hands and feet, are the expression given to uterine irritation by the vaso-motor nerves. No one neurosis is always referable to one and the same uterine or ovarian lesion, as far as I have observed.

The irritation of the genital terminals I believe due to compression by the surrounding congested, hyperplastic edematous, or contracted tissues, and this is transmitted by the most available and homogeneous conductor to the point of greatest attraction. It may be likened to the electric current which seeks through the network of wires the largest metallic surface over the most perfect metallic connection. The irritation of the uterine terminals is transmitted over nerve-fibres which are already in a state of morbid activity, and is thus guided to the nearest ganglionic centre, or it seeks by the most direct path a responsive central plexus, which is itself in an unstable equilibrium, with heightened susceptibility to impression; why, we can not say. The effect of compression upon nerve terminals is more clearly demonstrated in the infantile convulsions, which disappear when the cause is relieved by lancing a gum or by stretching the prepuce. In osseous structures the immediate site can be determined, and the surgeon gives relief by opening the unyielding canal. Yet I would not assume this as the one and only cause of genital neuroses, as is done by Ohr ("Genital Reflex Neuroses in the Female," *American Journal of Obstetrics*, vol. xvi, Nos. 1 and 2, 1883). The cause may be an exposure of the nerve as in an erosion, or a compression by congestion or hyperplasia from within, by a narrowing of the uterine canal by small growths, induration of the mucous membrane, or a flexion, from without by superimposed structures. Compression of the ovarian nerve-fibres is caused

in the same way, especially by induration, chronic interstitial inflammation, yet I have rarely traced a reflex symptom distinctly to ovarian cause. This irritation of the terminal fibre may extend along the course of the nerve, and, if continued for a length of time, may result in a true morbid condition along the irritated tract.

The continuance of such reflex neuroses after removal of the cause is well exemplified by the following case, which, at the same time, conveys to us most clearly the therapeutic principles which should govern the treatment of the hystero-neuroses :

CASE IV. *Continuance of Characteristic Hystero-Neuroses after Removal of Uterus and Ovaries ; Cure by Galvanic Treatment of the Causative Uterine Terminals.*—Patient was referred to the department for nervous diseases as an incurable—after failure of all treatment, local and general—by the surgeon who had, with signal success, removed uterus and ovaries to save his patient, who had been rapidly failing with the development of a *sarcoma uteri*. After the operation her general condition improved steadily, her strength returned, and she was enabled to resume her usual duties in the enjoyment of good health. Such uterine pains as had existed before disappeared, or, at least, diminished, among others a not infrequent uterine reflex, a pain in heel and ankles. This well-being was of short duration. Although her physical condition seemed perfect, the pelvic viscera in a most satisfactory state, certain of the reflexes—the hystero-neuroses which had existed before the operation, and had temporarily disappeared after the removal of the uterus—returned, and increased rapidly to an intensity hitherto unknown. The pains in heel and ankle spread to the foot, and became so severe as to interfere with her duties, and at times even to prevent walking or standing altogether ; and, what appears still more strange, other typical uterine reflexes, which patient had not known hitherto, made their appearance and attained unusual intensity, especially the burning heat in the top of the head. As before stated, her previous attendant had exhausted all efforts, and, failing to afford relief, referred his patient, as a hopeless case, to the nerve department of the

polyclinic. Prof. Hermann treated the affected parts, applying the sedative qualities of the electric current to the top of the head and to the feet. Now—mark the result—temporary improvement followed, all pains disappeared for some hours after each application, but invariably they returned, though less severe, and she was obliged to seek relief again and again. She was at least able to walk since under Prof. Hermann's care.

I accidentally entered Dr. H.'s clinic while this patient was under treatment, and, as the doctor briefly recounted the symptoms, I assured him that he must refer the case to my department—that this suffering was clearly a uterine reflex. I cannot deny that I was somewhat astonished by the information that uterus and ovaries had been removed; nevertheless, I desired to see the patient, and Dr. H. kindly transferred her to my care. Vaginal canal and pelvic tissues appeared to be in good condition, but, as I looked upon the distressing symptoms as uterine reflexes, a corresponding treatment was accordingly inaugurated. Positive vagino-abdominal galvanism was applied 20 milliampères, for four minutes, medium plate as negative pole on the abdomen. This treatment, directed to the irritated uterine nerves precisely as if the organ had been still in place, gave greater relief than all applications heretofore, and after the third seance the pains and burning in the head and the agonizing pain in the heels had almost completely disappeared.

The case is one of the most striking I have seen, and affords the most incontrovertible evidence of the continuance of reflex symptoms after removal of the exciting cause, and the dependence, in this case at least, of the reflex upon a morbid irritability of the uterine nerve-fibres, as proved by the treatment; in others, such continuance may be due to a hyperactivity or hyperesthesia of the ganglia or nerve-terminals in the responding organ, as is especially the case in the eye. The result of the various treatments employed is characteristic of the therapy called for in genito-reflex neurosis: 1. Treatment of the symptom is useless. 2. Sedative applications to the nerve-fibres at the distal terminus, at the site of the symptom, may afford temporary relief. 3. To effect a cure the cause

must be removed, and if this be not possible we must resort to sedative action upon the causative uterine terminals.

V. CAUSE.

The exciting cause of genito-reflex neuroses is to be sought in an irritation of the terminal nerves, which is communicated to connecting fibres of ganglionic or spinal nerves, and thus conveyed to the responding organ, and the reflex is excited by pressure upon or irritation of the nerve terminations within the uterine or ovarian tissue, caused by congestion, or by the distention of the peritoneal covering through enlargement of the organ. Either of these theories would seem plausible when we consider the coexistence of the reflex symptom and the uterine engorgement preceding the flow, which is especially marked in flexions and in chronic inflammations; the neurosis generally appears two or three days before the menstrual flow, during the period of engorgement, and continues for several days after its cessation, though it may cease during the continuance of the flow. Under ordinary circumstances the uterine engorgement is relieved by the flow from the congested capillaries, and the reflex symptoms disappear; but, when the catamenial discharge has been checked by local or general changes, disturbed menstruation, amenorrhea, this means of escape is not afforded, and the neurosis continues. A violent asthmatic attack is caused by a flexion of the uterus, and ceases within fifteen minutes after this flexion is overcome; the circulation is restored, but the congestion can be but little reduced in that time. The symptoms may result from the pressure upon nerve-terminals in the fundus by reason of the congestion following the obstruction of the venous circulation, or, what appears more likely in this particular case, it may be due mechanically to pressure in the angle itself. In physiological as well as in pathological conditions, we may expect pressure upon nerve-terminals from congestion or hypertrophy of tissue at puberty, during menstruation and pregnancy, at the time of the menopause, and in disease; this may occur

during the fluctuations in circulation previous to the final depletion, and when this takes place the reflex symptoms disappear.

Tilt refers reflex symptoms mainly to the ovary; likewise Hegar; especially Schroeder, who urges the performance of oöphorectomy for the relief of violent reflex symptoms, even, as he states, if disease of the ovarian tissue cannot be detected. The uterus he ignores, and yet the great mass of cases which I have described as hysteroneuroses, and proved to be such by their disappearance upon treatment of the uterine disease, were mostly referable to the uterus—few to the ovaries. However great the influence which the ovary is generally supposed to exert upon the entire system, especially the nervous organization of woman, my study of the hysteroneuroses has proved most conclusively that the importance of the ovary in this respect has been overestimated, and that it is the uterus in which the controlling influence centres.

VI. DIAGNOSIS.

The differential diagnosis between the pathological state and a reflex neurosis—however simple it may appear to distinguish between disease and the mere semblance of disease—is not always easy. The afflicted organ, in which the reflex neurosis appears, will be found in a perfectly healthy condition, with no structural changes, yet the symptoms of disease are so well portrayed that the most expert will be deceived, as the structural changes, often slight even in disease, can not always be readily observed; only the transparent structure of the eye admits of ready differentiation. In other tissues it is often impossible to distinguish between slight inflammation and a distention of the capillaries due to vaso-motor paralysis; and many of the vaso-motor reflexes present all the features of the disease proper. The difficulty of diagnosis culminates in the dermatoses in which phantom and disease blend; the reflex symptom presents even the structural changes of the disease, which itself is possibly only a vaso-motor effect.

It is the existence of neurosis or disease which must be determined; the peculiar nerve connections which lead to the reflex, however interesting from a scientific point, are of no importance to the practitioner. It is for him to determine the absence of structural changes in the functionally deranged organ, in order that he may not annoy his patient by injudicious medication, and to detect the immediate cause of the disturbance in order that he may discover the morbid condition, perhaps otherwise not indicated, and by properly directed treatment relieve the reflex symptoms as well as the local disease in the causative organ. The existence of neuroses can of course be determined by the absence of structural changes in the afflicted part, but this is not always possible. We must resort to other means.

1. *A neurosis is probable and may be suspected—*

a. By the existence of violent symptoms without corresponding pathological changes or febrile reaction.

b. By the existence of lesions, uterine or ovarian.

c. By the failure of proper remedies to afford relief.

d. By the aggravation of symptoms in the afflicted organ corresponding to exacerbation of uterine disease.

2. *A neurosis is proven—*

a. If the symptoms are not aggravated by causes which are known to aggravate existing pathological changes in the organ affected. Thus, the use of indigestible food will not aggravate a gastric neurosis, while the most violent symptoms may appear in response to a diet which would seem indicated in disease proper.

b. If the symptoms are aggravated by causes from which exacerbation of uterine disease may be expected.

c. Improvement of symptoms upon treatment of uterine or ovarian disease regardless of any interference with the organ in which the neurosis appears.

d. By a cessation of symptoms upon improvement or cure of uterine disease.

VII. TREATMENT.

The treatment of the hystero-neuroses may be—

a. Curative, by the treatment of the causative disease ;
and,

b. Palliative, by the use of nervines and sedatives, or the direct action of electricity upon the irritated nerve-tract.

a. The diagnosis established, the most satisfactory and correct treatment of a reflex neurosis, however violent, is the treatment of the causative uterine disease, regardless of the neurotic symptoms. Mild remedies to mitigate the severity of the symptoms may be employed, but permanent relief or cure can not be expected until efficient treatment of the causative disease is inaugurated. The neurosis may disappear after a few treatments with but slight amelioration of the genital trouble, or it may continue until an approximately normal condition is established.

b. A reflex neurosis may be relieved, and even overcome, by the administration of nervines and sedatives and by the use of electricity, by the sedative influence of the current upon the irritated uterine terminals ; and, although this is by no means a method upon which reliance can invariably be placed, it is worthy of trial. Violent symptoms, such as bronchial or gastric reflexes, may yield to the bromides, but, unless a successful treatment of the uterine lesion accompany this medication, a relapse is liable to occur. Since I have observed the instantaneous disappearance of persistent neuroses under the galvanic treatment of uterine or ovarian affections, I have repeatedly and successfully attempted their treatment by electric application to the uterine terminals, and I can say that, if it be of importance to relieve the neurosis as speedily as possible, this should be attempted, and as uterine treatment is inaugurated the sedative action of the current should be applied to the nerve-fibres in the causative organ.

The morning-sickness of pregnancy still resists the persistent efforts of medical science, for the simple reason that

medication is persistently directed to the affected organ, and the phantom of disease is persistently plied with all the weapons from the great arsenal of our *materia medica*. Even in this simple case the strict causative relation of the reflex symptoms to the uterine condition is unheeded. Like all reflex neuroses, the morning-sickness and often the violent vomiting of pregnancy yield readily and positively to local treatment. If it be a pathological neurosis, originating in a congested condition of the cervix, an erosion, or an endocervicitis, it can easily be overcome. If it be a pathological neurosis due to distention of the uterus, a scarification may prove efficient; but to a certainty this symptom will yield to an evacuation of the uterine cavity. We have no better example than the gastric neurosis of pregnancy for guidance in treatment of the hystero-neuroses. Relief of the most violent vomiting may be obtained by a single application of carbolic acid to the cervical canal or of a tannated tampon to the eroded cervix. It may not yield at once: a prolonged treatment of the local lesion may be necessary, but the symptoms are mitigated as local improvement is obtained. Heroic medication of the stomach is not only useless but injurious. Nervines and sedatives may afford relief, not by medication of the gastric mucosa, but by allaying the irritability of the nervous system. A complete deadening of the gastric nerves by cocaine will, as a rule, afford only temporary relief, while this astringent sedative applied to the cervix is more likely to attain the desired result. It is by action on the uterine terminals that the rebellious stomach must be quieted, and not through the gastric nerves. If gastric medication were abandoned and uterine treatment inaugurated, little difficulty would be experienced with this frequent and annoying symptom, which the obstetrician is glad to escape; so much so that, in one of the latest and most able works, the author advises the physician to send the patient to her mother—in other words, get her out of the way, and don't attempt treatment—and Lusk gives the same view of the subject. Cure is certain, but through the uterus only; and, if other means

fail, premature labor must be inaugurated. Gastric medication as an adjuvant is not contra-indicated, but violent treatment of the stomach must be condemned as useless and ruinous.

Schroeder advises the removal of the ovary, notwithstanding the absence of structural changes, for the relief of these perplexing reflex symptoms. It is now generally accepted that removal of the ovaries is only admissible after all efforts at treatment have failed, and, let me add, after the sedative action of galvanism has been tried. But, as the cause is by no means in the ovaries alone, the patient can not be certain of relief even after she has made this sacrifice, and has risked her life upon the assurance of her physician that oöphorectomy is her only hope. The uterus is more liable to influence the system and to determine nerve-reflexes than the ovary. This position has been proved by those cases in which suffering continued after removal of these organs, and, because the neurosis in other cases has abated in time, the advocates of this course claim justification. I believe that relief may be so obtained, though the causative lesion is uterine and not ovarian, as the *indirect* effect of oöphorectomy. Involution follows this operation, a lessening of the uterine impulse results, and hence we may expect relief, though the ovary itself is not directly causative.

VIII. PROGNOSIS.

The prognosis in a hystero-neurosis, however violent, is favorable, as a rule, though it is impossible to predict with certainty. Until the immediate cause—the local nerve-lesion—is revealed, the prognosis is shrouded in mystery, and can be told by the result of treatment only. At times, relief of the most violent symptoms is sudden, the result of a trifling interference without any very apparent improvement in the local condition: a single astringent application, a rectification of position, may cause the most annoying symptoms to vanish. Again, it is slow, coming only with visible improvement in the uterine condition. I

have seen the most distressing epileptiform attacks cease instantaneously upon a dilatation of the uterine canal; a persistent melancholia, with excessive nervous irritability, yield within a few hours after the closing of a lacerated cervix; even a sallow, sickly hue of the face, which had persisted for years, change within a few days to a fresh, bright complexion after a conical excision of the cervix for the relief of laceration and hyperplasia. The vomiting of pregnancy, which had emaciated the sufferer to the last degree, ceased upon the application of the tannated tampon; likewise a pessary or a tampon properly applied will produce an immediate response in lung, heart, or brain. I have seen an agonizing asthma cease shortly after the placing of a pessary, intense cardiac pains and insomnia vanish upon the insertion of a tampon, and a single application of electricity cause a violent dyspnea with great nervous depression to disappear, even during the application, while the patient was still upon the table, though haunted by suffering and reduced to invalidism for over two years. Again, the improvement comes but slowly with restoration of a healthy condition of uterus and ovaries; or, if it has existed for any length of time, the neurosis may abate but slowly, to cease long after the local lesion has been overcome. This is especially noticeable in those neuroses and psychoses resulting from laceration of the cervix and its sequences; as, after oöphorectomy, the neurosis may not disappear until many months after the performance of Emmet's operation; but, as a rule, unless it has been most violent in character, and has continued for a long term of years, complete restoration of healthy functional action and permanent relief may be expected upon proper treatment of the causative uterine lesion; but, if the neurosis has been severe and long continued, a weakness of the nerves implicated may remain, and the morbid action of the governing ganglia so long continued may be perpetuated. In a case of gastric neurosis, which had continued for eight years, I was astonished to find the stomach in a fairly healthy condition, notwithstanding eight years of medication and diet, and the

constitutional debility of the patient. A certain weakness may be expected to remain in those cases, and in some a perverted nerve-action is likewise perpetuated. Even violent psychoses, such as mania, melancholia, and epilepsy, will disappear completely upon relief of the uterine lesion, but the reflex neuroses of the eye offer a less favorable prognosis; if continued for a length of time, a weakness of that important organ is likely to remain, and, in certain forms of ophthalmic neurosis, though of short duration, functional changes are perpetuated. With this exception, the prognosis of the reflex disturbances, referable to the female reproductive organs, is an excellent one, provided the part be not abused by misdirected treatment, and the efforts of the practitioner centre upon the causative genital condition.

PART II.—SPECIAL.

HYSTERO-NEUROSES OF INDIVIDUAL ORGANS—THE VARIOUS
REFLEX FUNCTIONAL DISTURBANCES REFERABLE TO
THE FEMALE SEXUAL APPARATUS.

I. NERVOUS SYSTEM.

THE impressionable nervous system of woman is the most susceptible of all organs, and responds most readily to peripheral irritation; every vibration of the nerve-fluid in the genital terminals meets with a sympathetic reverberation, and is often re-echoed a hundred-fold in the spinal and cerebral centres, which reflect even the physiological action of the reproductive organs. During the entire period of female sexual life, variations of any kind in these great centres, in which the functional life of woman is concentrated, evokes ready response in the nervous system. So intimately are these two most potent factors of the female organism linked that, while the nervous system signalizes uterine and ovarian changes, the sexual organs respond readily to central vibrations; nervous debility is marked by leucorrhœa and uterine pains; powerful nerve-impressions by hemorrhage or cessation of the physiological flow.

Perverted action of the nervous system, which appears as a reflex symptom in response to a morbid uterine or ovarian stimulus, may be either central, on the part of the brain, or peripheral, on the part of the spinal nerves. The peripheral neuroses or nerve-pains are more common as constant or pathological neuroses, referable to uterine or ovarian disease; while the central neuroses, psychoses, more frequently signalize physiological waves, and result from the powerful impressions made by the great epochs in the functional life of woman, puberty, menstruation, parturition, and the menopause.

a. The Brain ; Cerebral Hystero-Neuroses or Hystero-Psychoses.

Uterine and ovarian disease is frequently characterized by nerve-depression or irritability, loss of memory, insomnia, or uncontrollable desire for sleep in the daytime, vague fear of misfortune, and dread of insanity. These are the mildest and most common of the central reflexes. Perversion of the moral sense, epileptiform attacks, melancholia, and mania are the more severe forms which are referable to the physiological changes, menstruation, parturition, and the menopause. It is difficult to draw the line between ganglionic reflexes and true cerebral symptoms. The neuroses present so true a fac-simile of the diseases which they simulate that the differential diagnosis is difficult. Continued observation or treatment, the recurrence of an attack with each menstrual period, or the improvement of the condition upon the inauguration of uterine treatment, indicate that it is a reflex symptom, a neurosis, and that all therapeutic efforts must be directed toward the relief of the uterine disease. I must emphasize that I confine myself exclusively to those symptoms which are proved to be strictly dependent upon uterine or ovarian irritation, and respond to changes in these parts as readily as the electric bell does to pressure upon a distant button. These psychoses, though presenting a complete perversion of moral and mental faculties, are distinguished from

the true central lesion by the favorable prognosis of the one and the dark future of the other ; while the reflex symptoms readily yield to proper uterine treatment, the true psychosis is of a much more serious nature. While the fact has always been appreciated that a certain relation exists between the impressionable mind of woman and the reproductive organs, while it has been well known that the diseases of the mind in their development and in their various phases are closely connected with the vibrations of sexual life, but little positive evidence has been introduced as to the direct dependence of the mental state upon the uterine condition, much less have those forms of insanity been defined which are mere reflections of functional derangement or of disease and malposition of the womb. I must say, as I did in my first paper on the hystero-neuroses, that the causative connection, though vaguely evident, has as yet been distinctly defined by only a few.

Alienists have always acknowledged an influence of the sexual organs upon the mental functions: all works on insanity bear evidence of this, but the statements made are generally very vague. Thus Bucknill, Tuke, Esquirol, and others cite those frequent cases of sexual excitement, and the disgusting exhibitions of many insane patients, as instances of the dependence of mental derangements upon disorders of the sexual organs.

Such cases may be entirely excluded, as venereal excitement is not only not an indication, but even a rare concomitant, of the hystero-psychoses. Other alienists, however, relate well-marked cases, which distinctly show the causative connection, and insist on the importance of uterine examinations in the treatment of the insane.

Esquirol especially refers to the frequent exacerbations of mental disease, its occurrence and recurrence at the period of functional activity in the reproductive organs ; yet he does not appear to appreciate the immediate causative relation, and certainly does not limit his treatment to the treatment of the uterine state, nor does he even lay stress upon this. Gyne-

ecological text-books give us but little information upon this point. Our earliest knowledge we owe to Louis Mayer,¹ of Berlin, Fordyce Barker, of New York, and Horatio Storer,² of Boston. But within the last decade both gynecologists and alienists have been attracted to the intricacy and importance of these peculiar phenomena; from the great number of striking but still unexplained observations, we shall soon be able to determine with greater certainty the extent of the influence exerted by the genital changes upon the mental state, and the accumulated evidence indicates an undoubted causative dependence in certain cases. Among the numerous publications which have resulted, I must note one of the peculiar positions taken: *Gynecology, Neuroses, and Psychoses: a Protest against Reckless Gynecological Treatment for Nervous Disorders*, L. Bremer, M. D. Does it not appear strange that an alienist should complain of the encroachment of the gynecologist, as injury can be done only by an ignoring of the reproductive organs? If uterine disease should exist as a concomitant of mental aberration, local treatment of the existing disease is unquestionably indicated, whether the psychosis be in any way dependent upon it or not; if a morbid condition of the reproductive organs exists, this must be relieved, whatever its relation be to the mental disturbance, and, should the latter be a resultant reflex symptom, the only possible correct course has been taken. No harm can be done by treatment of a uterine lesion when co-existing with mental disease, and, though there be no direct causative relation, the mental disturbance will often improve, as it does with the improvement of any functional derangement—as an exacerbation takes place during the period of uterine congestion, during menstruation or pregnancy, though there be no direct causative connection. But the alienist who overlooks a causative local lesion, and treats a reflex symptom as a true psychosis, does his patient a criminal wrong. It is,

¹ "Die Beziehungen der krankhaften Zustände und Vorgänge in den Sexual-Organen des Weibes zu Geistesstörungen," Berlin, 1869.

² Storer, *The Course and Treatment of Reflex Insanity in Women*.

perhaps, a difficult task to eliminate the hystero-psychosis proper—those cases of mental alienation which have been proved to be dependent upon and caused by uterine disease; if they are not rare, they are at least little known as yet, and will remain so until uterine examination and therapeutics become an acknowledged factor in the treatment of the insane; the relation can be established with certainty by the crucial test of treatment only. The nervous system and the reproductive organs—these two governing centres of female life—co-respond even when not in direct causative relation. A sympathy exists, as it is marked by the exacerbation of mental disease with pregnancy, menstruation, and the menopause, hence it is difficult, if not impossible, to determine fully the precise relationship and to differentiate between direct causative connection and mere correspondence or sympathetic exacerbation.

Uterine disease may accompany the mental affection and yet in no way influence its course, and, again, morbid brain-action may be the causative element which produces irregularities in the functional activity of the sexual organs.

The labors of Schroeter in this direction deserve to be better known.¹ He has carefully observed two hundred and twelve female patients during a six-years' service in a well-regulated insane asylum, and finds the large majority of these women afflicted with menstrual irregularities.

When menstruation was normal, he found the mental aberration but trifling. Incipient mental derangement was generally accompanied by the appearance of some abnormality of the previously regular catamenia, which became more patent as the insanity developed; but in no instance was the patient restored by regulating the menstrual flow.

The author makes the existence of a certain sympathetic relation between these organs very evident, but in his cases the menstrual derangements seem to be secondary to, and dependent upon, the psychoses.

¹ "Das Verhalten der Menstruation bei Psychosen," *Beiträge zur Geburtshilfe und Gynäkologie*, III, 3, p. 293, Berlin, 1875.

Classification.—While we may classify the hystero-psychoses, like all of the neuroses, as constant or pathological—those due to morbid conditions, on the one hand, and on the other those accompanying the physiological states of puberty, menstruation, parturition, and the menopause—it is true of this group, as it is of all hystero-neuroses, that the impression is often referable to a pathological condition, more or less marked, to which the nervous system has accommodated itself, and hence it responds only to the exacerbation of this pathological state by the additional impulse of the physiological congestion. The indications for the treatment are correspondingly well defined: a search for the existing uterine deviation and relief, or, at least, relief of the temporary congestion, and, if this prove ineffectual, a systematic quieting of the uterine nerve-terminals by the galvanic current. I cannot refer certain of the mental conditions to certain uterine or ovarian lesions, though one period seems to tend more to the development of one psychosis than another. But, if a weakness exists, a tendency to a certain form of cerebral disturbance, this will be developed by a morbid intensification of the uterine stimulus, and, though it be allayed and a healthy action restored, the chain is established, and the return of genital irritation, at however late a period, will be marked by the same cerebral response. The woman who in childhood has been affected with chorea may expect a return of the disease with the advent of puberty or of pregnancy, if her nervous system be in a sensitive state, or a pathological variation accompany the physiological congestion of the sexual organs. A psychosis which has appeared at puberty may be looked for as an accompaniment of the menstrual congestion or the menopause at any time that circumstances occur which favor a morbid hyperactivity; the intense nervous excitement of menstruation may develop into maniacal symptoms with the increased congestion of pregnancy. I have seen symptoms of melancholia develop with the advent of puberty in a girl who had inherited an excessively sensitive nervous system, which had caused her

much annoyance in childhood; I have seen both melancholia and mania developing in one parturition repeated at the next; but, what is more sad, a maniacal attack which had persisted for three months at puberty, and had left the mind of the sufferer free throughout all her functional life, returns at the menopause, and, under peculiarly unfavorable external conditions, threatens to become permanent. Had the surroundings been favorable, as they were at the time of puberty, I am sure that this second attack would have passed off as readily as the first. I can but quote the words of For-dyce Barker, in speaking of those cases of insanity which are developed immediately after marriage, as the most pitiable of all the conditions under which insanity is developed as a reflex irritation of the brain from disease of the sexual organs; and here, again, I recall such recurrence, with the first nuptial embrace, in a bright, healthy, happy bride, of an attack of melancholia, to which she had been a victim during two months at the time of puberty.

Symptoms.—Phases of mental or nervous derangement, well known to every physician, which reflect a morbid state of uterus or ovaries, are the nervous prostration or great nervous irritability which form so common an accompaniment of pelvic disease, and are so indicative of functional changes. Tilt finds these conditions in four hundred and fifty-nine out of five hundred of the patients examined by him for irregularities during the menopause. This lack of energy, listlessness, and nervous depression, as well as excessive irritability, are perhaps the most frequent of the mental reflexes; then comes the loss of memory, insomnia, or an irresistible desire for sleep during the daytime; a depressing fear of something terrible about to happen. A dread of insanity, though a frequent resultant from uterine disease, is one of the most common psychoses of pregnancy, and a sad burden to the young wife who is oppressed with the vague fear of death, and, instead of looking forward with joy to a happy future, she is in tears, depressed, certain of a fatal termination of the expected labor. Complete change of the

mental and even the moral state is a reflex common alike to disease and physiological changes. A girl with a bright, happy disposition, becomes depressed, downcast with the advent of puberty, to resume her natural cheerfulness when the menses have been fully established; an amiable, cheerful woman becomes discouraged, dissatisfied, believes herself deceived by her friends, offends and insults those nearest and dearest to her during the exacerbation of uterine disease by the menstrual congestion; a bright disposition yields to peevishness or melancholia through disease or the physiological changes of pregnancy or the menopause. The more intense psychoses, deep-seated melancholia, and mania, are more liable to reflect the intense physiological changes of parturition, puberty, or the menopause, and these intense morbid delusions find expression in suicidal attempts or murderous attacks upon a new-born infant. Delusions are often referable to pathological changes, but become more marked by the increased stimulus of menstruation or other physiological congestions; hence they are more frequently referred to these conditions than to their true cause, the pathological change in the reproductive organs.

We are guided in our diagnosis of a hemiplegia or a paraplegia, reflex in its nature, by the fact that the disease proper is most liable to occur in old age, while the symptoms as a reflex psychosis appear most commonly in the young. In the male child, it is almost a characteristic mark of the adherent prepuce, while in infants of both sexes it may appear as the result of intestinal irritation; again we see these symptoms as an accompaniment of puberty continuing until a healthy functional activity of the reproductive organs is established. Like chorea, aphonia, lameness of the limbs on one side, more or less marked hemiplegia, paraplegia, but most commonly the former, are found most frequently during the period of development. Numbness, tingling of the extremities, especially the fingers, are more likely to appear as an evidence of disease. Among these psychoses are the maniacal attacks which reflect the intense

genital stimulus of marriage and parturition, the melancholia of puberty, the thoughts of death which haunt the expectant mother, and the mental and moral perversions so frequently accompanying uterine disease; the latter are characteristic as well of the inauguration of woman's sexual life as of the terminal period, during which love is changed to hate, a kind, gentle disposition to one that is treacherous and malevolent. As Tilt has already told us, much domestic unhappiness is due to morbid uterine stimulus: as an ugly disposition takes the place of one heretofore passive and gentle, the kindly mother grows indifferent to her child, the thrifty housekeeper appears as a spendthrift; in short, the good qualities are perverted, and such evil impulses as may have lain dormant take full possession of the unfortunate victim.

I have cited only such of the psychoses as I have myself observed, and, as is but natural, these are the less violent—the more intense are referred to our alienists; and, unfortunately, notwithstanding all that has been written, the full importance of these reflexes is by no means sufficiently appreciated by them, and patients, who are brought to the asylum or to the specialist with maniacal attacks, or the more marked forms of mental disturbance, are treated for the disease which is so closely copied by the reflex phantom. The full bearing of the reflex irritation is not acknowledged, and they are dosed with nervines, while the speculum, by which the causative disease may perhaps be easily relieved, is not thought of. Hence, with the exception of puerperal mania, and those comparatively rare attacks which occur while the patient is under the care of gynecologists, those who suffer from this phantom disease are merged with the great mass of the insane or the mentally afflicted, and, notwithstanding the observations and the writings of such keen observers as Esquirol, Mayer, and others, who constantly call attention to the undulations of mental symptoms with the functional waves of reproductive life, the positive dependence is not established; hence the key to the relief of the

fettered mind is not yet found, and it is impossible to say how frequent are the more violent of the reflex psychoses.

Violent epileptiform attacks, among the most intense of the reflex symptoms, and as a rule referable to pathological conditions, occur also as the accompaniment of pregnancy and menstruation, but even when appearing at these times they are mostly due to morbid changes in the uterus.

CASE V. *Aphonia, Chorea, and Hemiplegia due to Amenorrhea during the Advent of Puberty.*—Miss X., from Buffalo, who had suffered from a light attack of chorea minor during early childhood, was brought to me with many of the symptoms of hemiplegia, an aphonia which was complete for hours at a time, and a slight return of chorea. Being an only daughter, an unusually sweet and amiable child, and treated for several months without benefit, her mother was in great distress. The diagnosis, however, was simple: the girl in her fourteenth year had grown rapidly, and was fast approaching womanhood; her figure was developing, a faint flow had appeared several times at irregular intervals. The symptoms varied greatly in intensity, with the most complete semblance of disease when under the influence of the emotions, or after bodily exertion; the movements of the tongue were at all times imperfect, but, when tired or excited by an unexpected noise or the sudden entry of a visitor, the aphonia was complete: at times the limbs relaxed as if paralyzed, at times they twitched under the uncontrollable tremor of chorea. She had been treated for several months with such remedies as are usual in cases of chorea, and, as is so commonly done with young girls suffering with the symptoms, direct or indirect, of uterine disease, she was urged to take exercise; in the earlier stages of the disease to ride, to see as much company as possible; mind and body, both in need of rest, were forced to exertion, and the irritation of the sexual organs was increased.

I looked upon the symptoms as purely of a reflex nature, and they were proved to be so by the good result of the treatment, directed only to the establishing of the menstrual function. Abdominal and spino-abdominal faradism was applied, as I be-

lieved it right to attempt this, and not to inaugurate a direct uterine treatment unless absolutely necessary ; at the same time, the current was applied to the spinal column, the cervical nerves, and the throat. But, although this may have afforded relief, the cure is unquestionably due to the development of a healthy menstrual function by abdomino-spinal faradism. Within six weeks, the young lady left for her home with full control of all her muscles, the menstrual flow free, without a trace of the symptoms but a short time ago so threatening.

CASE VI. *Psychosis and Neurosis of Puberty. Left Hemiplegia, Partial Aphonia, Choking Sensations, Tingling of the Extremities, Mental Depression, due to Amenorrhea during Puberty.*—Miss L., from Alabama, a young lady of sixteen, of good figure, but imperfectly developed, presented a case similar to the last, the chorea of the one being replaced by a hemiplegia, at times well marked, in the other. Although the amenorrhea might have been referable to chlorosis, the existence of an endocervicitis and slight endometritis, with aggravated virginal anteflexion, rendered the dependence of the distressing reflex symptoms upon morbid uterine conditions more plausible, and the retarded development seemed referable rather to the disturbance in the genitalia. The correctness of the diagnosis was soon verified by the result of local treatment: utero-abdominal faradism, vagino-abdominal faradism for the purpose of stimulating functional activity of uterus and ovaries, and negative utero-abdominal galvanism, with currents of 15 to 25 milliampères (5 minutes, cotton-wrapped applicator as negative pole in utero, medium plate as positive pole on abdomen over fundus, 9 volts), as a direct uterine stimulus, and a mild alterative application to the lining membrane. Tonics were also given. After the second treatment the menstrual flow appeared, the first in the past six months, and with it came an amelioration of all the symptoms: heaviness of the tongue and hemiplegia disappeared ; choking sensations, tingling in the extremities, though lessened, still persisted, and yielded but slowly during the six weeks' treatment, disappearing with the endocervicitis. The cure of the slight uterine abnormality, the improvement in the circulation of the pelvic viscera, first marked by the coming of the menstrual flow, seemed as by a

sudden impulse to stimulate retarded development; this girl, in whom the period of puberty had so long continued, bloomed forth all at once, and the child that came returned to her home a woman, as her mother wrote to me.

In this case the symptoms were in part due to imperfect functional activity, in part to morbid conditions; the more marked psychoses, melancholia, and hemiplegia yielded at once with the appearance of the monthly flow, while the tingling of the extremities and choking sensations, being dependent upon the endocervicitis, resisted until this had been relieved.

CASE VII. *Menstrual Psychosis; Melancholia with Maniacal Attacks accompanying the Menstrual Congestion, Continuing for Ten Days, returning regularly with each Period after the First Appearance of the Psychosis immediately after Marriage; Uterus Duplex; Retroversion; Endometritis; Partition of the Vaginal Canal. Treatment of the Local Lesion regardless of the Mental Symptoms. Cure.*—Mrs. K., from Illinois, farmer's wife, twenty-four years of age, strong, of good constitution, and well developed; can recall no symptoms in her earlier life indicative of uterine or mental disturbance with the exception of slight menstrual pains. Consummation of the marital rights was followed by an attack of melancholia, a strangely changed mental condition, and this attack returned with each menstruation, continuing for a period of from eight to ten and sometimes fourteen days; she was depressed, sad, the symptoms, as described by her husband, giving evidence of a well-marked melancholia. She seemed to attend mechanically to the more necessary household duties, being perfectly rational in the brief inter-menstrual period, in full control of her mental faculties, willing and able to attend to her work—to all appearances, in perfect health and sound in mind. During the last months her melancholia—this reflex menstrual psychosis—began to assume a more threatening aspect, taking the form of low maniacal attacks. The usual treatment had been inaugurated, the attending physician evidently regarding the case as one of mental aberration. Dr. Binney, of Mount Olive, Illinois, being consulted, was at once led to suspect the reflex nature of the disease by reason of the monthly recurrence and its development at the time of

marriage, the local lesion being indicated by the existence of spinal and hypogastric pains, and hence he referred the patient to me.

January 13, 1887, I saw this lady for the first time. Examination revealed a uterus duplex; both fundi enlarged, on the floor of the pelvis, retroflexed, and retroverted; the external os and cervical canal in each very narrow, and the endometrium diseased. Treatment, however, was impossible until the vaginal septum had been removed, as it rendered the organ on the left inaccessible.

January 14th, the vaginal septum was excised under anti-septic precautions, and the electro-cauterization of the cavities of both uteri undertaken. The negative pole, a delicate copper probe, with a current of 50 milliampères, was applied to the endometrium; and after this the largest possible instrument, an ordinary sound, was introduced into the cervical canal with a current of 100 milliampères, for three minutes, and forced toward the internal os, for the purpose of dilatation. The bowels had been thoroughly evacuated, the parts were dusted with iodoform, the fundus elevated with the elastic tampon, and the patient instructed to lie in the semi-prone position. Before the wound had healed and before further treatment was possible, the menstrual flow came on without any of the usual accompaniments, without any untoward symptoms, direct or reflex; the patient was comfortable and quite rational, perfectly quiet, not even nervous, and her eyes clear and bright. During the following inter-menstrual period, she remained in the hospital department of the polyclinic, and treatment was continued: galvanism, negative electro-cauterization of the endometrium, with mild astringent applications, and the elastic tampon to overcome the displacement.

Mrs. K. proved one of the most satisfactory patients we have had under treatment. Careful in obeying instructions, quiet and clear-headed, entirely free from the annoying nervousness so common to uterine disease, the local condition rapidly improved; a second menstrual period passed off without the slightest evidence of any irregularity either direct or reflex, uterine or cerebral. The patient was not dismissed, however, as I desired to keep her under observation until a

perfectly normal condition of the pelvic viscera was attained. Devotedly attached to her husband, she gave way to an intense home-sickness against which she had long struggled. Daily she grew more anxious to return to her home, and this intense anxiety culminated in a relapse into that state of melancholia which had previously been the accompaniment of the menstrual congestion. Her husband was telegraphed for, but before he arrived reason had fled.

In this patient the severe nervous strain, which in others would have led to irritability, exacerbation of local or general symptoms, resulted in a return of the melancholia which heretofore had appeared only in response to the morbid uterine stimulus when intensified by the menstrual congestion. The force of the uterine irritation had been allayed by improvement in the existing morbid condition, so that it proved powerless to evolve a response even under the heightened pressure of the menstrual excitement; but the tension of the nervous system, strained to the utmost, was such that it proved unable to resist the influence of even the greatly diminished local irritation: before, it had been the stronger pressure upon the trigger which caused the explosion, now it was the weakening of the spring which forced it to yield to but trifling pressure. Believing that under favorable conditions no relapse would occur, I urged her immediate return home, as the cause of her trouble was evident, homesickness; her condition was one of melancholia, tending to mania. Unconscious of her surroundings, her eyes unsteady, without the light of reason, she recognized no one but her husband, for whom she constantly called, and whose momentary absence caused a wild despair. My diagnosis was verified: upon his coming and the promise of a speedy journey homeward, she at once became quiet, and within a few days reason returned. Her health has been greatly improved, she no longer complains of pelvic pains, and several periods have passed without either local or reflex symptoms, with a mind clear and unruffled.

CASE VIII. *Violent Epileptiform Attacks during Pregnancy relieved by Cauterization of the Eroded Cervix.*¹—Mrs. O., aged twenty-eight, menstruated at the age of fifteen, married at

¹ "A Hystero-Psychosis," *St. Louis Clinical Record*, 1878.

twenty-four, has always been healthy ; gave evidence of no hereditary taint ; menstruation, perfectly normal before and after marriage, is never painful ; has had one miscarriage in the sixth week, soon after marriage ; has since borne two children, the youngest of which is eighteen months old. A few weeks after the last confinement she first complained of that heaviness of the head, with dizziness and languor, from which she has suffered ever since, together with epileptiform attacks which appeared at about the same time—at first in a very mild form, once or twice a month, as an oppression of the chest and a shortness of breath, which would pass away in the course of five or ten minutes. These attacks rapidly increased in frequency and in severity, always beginning in the same way with a shortness of breath, with an oppression of the chest—a feeling of constriction—then twitching of the fingers, with spasmodic closing of the hands, and she becomes unconscious ; convulsive motions of the arms and opisthotonus follow. This is sometimes so intense that the heels almost touch the head, and the contraction of the dorsal muscles has been so sudden and so violent that the patient has hurled herself from the middle of the bed upon the floor by a single effort. During the attack, which lasts from ten to fifteen minutes, she is totally unconscious, the eyes closed, hands not firmly clinched, thumbs not turned in ; then a state of relaxation follows. During the last month she was confined to her bed, the attacks were severe and quite frequent, and her condition grew constantly more unbearable notwithstanding the liberal use of chloral and bromide of potash, which were properly prescribed by the physician in attendance. As the patient did not improve, Dr. H. Greiner was called in. He pursued a similar course of treatment, adding opium injections. By an oversight on the part of an attendant a teaspoonful of the strong tincture of opium was administered internally, but even this did not check the attacks, which appeared three or four times a day, continuing with great intensity from ten to fifteen minutes at a time.

March 18, 1878, I first saw Mrs. O. in consultation with Dr. Greiner. We had hardly entered the room when her hands began to twitch nervously, her eyes closed, her head was

plunged backward and buried in the bedding in violent opisthotonus. The spasm yielded for a moment, to return with increased severity, with violent contractions of the dorsal muscles, hurling the patient from one side to the other, so that she was with difficulty held down by the combined efforts of those about. After the attack, which had lasted twelve minutes, a stupor supervened. Her husband was constantly by her side, as in these convulsive contractions, by which she was bent almost into a circle, she was in danger at any moment of hurling herself from the bed, as if thrown from a spring-board, and it was only possible for her husband to prevent injury by holding her in his arms until the muscles relaxed, catching her as she bounded upward, head and feet almost in contact. Upon recovering, she complained of dorsal and hypogastric pains and heaviness of the head, which had persisted for weeks, with occasional nausea and vomiting, more particularly in the morning; the conjunctiva was slightly injected, the pupils normal, their reaction perfect but slow; she had a dull, stupid look, and was slow in her answers. The uterus was enlarged, the cervix lacerated, eroded, and congested, the erosion sensitive; one period had been missed. The eroded cervix was thoroughly cauterized with nitric acid, and a glycerine cotton tampon with tannic acid was introduced into the vagina.

With the exception of a slight spasm on the evening of the 18th, the epileptiform attacks did not recur from the time of the application of the nitric acid until the 22d, notwithstanding the discontinuance of all sedatives. On the 24th the patient had a severe attack, for which Dr. Greiner was obliged to resort to chloroform. This was the last, but nausea and vomiting steadily increased until, on the 26th, they had become most distressing, but this I looked upon as a reflex of pregnancy. A sponge-tent was introduced in order to favor the expulsion of the ovum which occurred on the 31st. I did not see the patient until two days later, and found her remarkably changed: her complexion was better; she had lost that pale, bleached appearance and distressed look; the vomiting had ceased with the dilatation of the canal and the expulsion of the ovum, and the epileptiform attacks had yielded instantaneously to the cauterization of the cervix, returning but once in a severe attack on

the 24th. Two weeks after the miscarriage Mrs. O. was attending to the lighter duties of the household, feeling more vigorous and more cheerful than she had at any time since the birth of her last child, to which the laceration and erosion are referable.

In this case we have an hysterо-epilepsy proper in a most aggravated form, of sixteen months' duration, checked by a single application of nitric acid to the eroded cervix, and cured by the second. Co-existing are the nausea and vomiting, the reflex gastro-neurosis of pregnancy, which yielded only to the dilatation of the canal, and was in no way affected by the cauterization which overcame the psychosis; the latter evidently referable to the erosion of the cervix, the former to the congestion of the muscular tissue or lining membrane.

Two years later I saw this patient under precisely similar circumstances, with the same terrible epileptiform attacks, but, though the symptoms abated after the same cervical application, they were in this second case not overcome until the canal had been dilated by the sponge-tent, and complete recovery did not take place until after the expulsion of the ovum; proving that in this attack the psychosis—which had before been referable to a morbid condition, the erosion of the cervix—was in this instance clearly dependent upon the pregnant state.

CASE IX. *Recurring Puerperal Melancholia.*—Mrs. X., wife of a *confrère*, a healthy matron of twenty-nine, happy in all her surroundings, free from all evidence of pelvic disease, began to show symptoms of mental aberration in the second week of her first confinement. A local cause was sought for, and remnants of placental tissue removed, yet no change took place. Constitutional treatment proved ineffective; local applications were not possible on account of the condition of the patient, and not permitted by her; a deep melancholia, varied at times with maniacal attacks, followed, and not until involution had been completed did any improvement take place. With a restoration of a normal condition of the reproductive

organs the mental faculties returned, and the patient continued in the best of health, robust in body, cheerful in mind.

Three years after this period conception again occurred, pregnancy was marred by no unfavorable symptoms, and labor progressed favorably ; a healthy child was born, but within a few days a return of the same symptoms was threatened, and for two months the patient was guarded with the utmost care. No explosion occurred, yet she was constantly upon the verge of mental alienation, and not until involution had taken place did a healthy state return.

The case is an exceptionally well-defined example of a recurrent physiological reflex, the psychosis appearing during the puerperium, independent of pathological conditions, and continuing throughout this entire period, notwithstanding all that the love of a devoted husband and the care of watchful nurses and expert physicians could do, and recurred with the return of similar physiological conditions in a healthy body, with a healthy mind and healthy reproductive organs, notwithstanding the precautions taken to avert the expected and dreaded condition.

CASE X. *Recurring Physiological Hystero-Psychosis. Melancholia with Maniacal Attacks accompanying Puberty and the Menopause.*—Mrs. K., a bright, sunny girl in childhood, gave way to melancholia in her sixteenth year with the advent of puberty. For some three or four months she was in a state of religious mania, shrinking from contact with the world, fearful of hurt or accident, singing psalms, and begging her family to join in her religious exercises ; with full development of the menstrual function, a normal mental condition returned. During an active life, a healthy condition of mind and body was retained, even during menstruation and pregnancy ; but, as the menopause approached, occasional attacks of a similar nature recurred, as patient was in a state of constant mental anxiety, and haunted by fear in her domestic infelicity. Her marital relations were not happy : she was in great dread of her husband, who threatened and maltreated her, and with the cessation of the menses this condition became one of mania. At times in great fear of others ; always expecting an accident ; fearing, if her children were out at play,

“that the trees would fall upon them, or that lightning would strike them”; above all, she was in dread of being buried alive. Religious conceptions gave color to her delusions, but in the main they were governed by fear of her husband; and the cruelty of the man, aggravated by his wife’s misfortune, led to bodily injury, which, in her present mental state, will, I fear, result in confirmed and permanent mania; while, under more favorable circumstances, with a happy home life, I am sure that this hysterо-psychosis of cessation would have ceased as readily as did the first reflex, at the time of puberty, when the functional wave had died out—like the ship at sea, upon which the tidal wave crushes down, she passes through the ordeal unscathed if her timbers are strong, but is wrecked if worm-eaten ribs support her frame.

This is a recurrent physiological reflex under adverse conditions, contrasting, in this respect, with the one previously cited.

CASE XI. *A Pathological Hystero-Psychosis, referable to a Retroflexion of the Uterus, first appearing after Marriage, Checked by the Placing of a Pessary and by Reposition of the Uterus.*—I cite this striking case from the practice of Dr. J. Cheston Morris, of Philadelphia, who has kindly placed the history at my disposal.

Mrs. G. W. L., aged forty, had continued in good health, free from nervous or mental disturbance, until the appearance of the first epileptic attack, three weeks after marriage. These attacks, at first mild, gradually increased in severity, and were followed by nausea, headache, and intense depression, so completely overcoming the sufferer that, in the agony of each attack, she despaired of living through another. Patient had been treated in various ways, and most heroically, under all the various theories of epilepsy, even to losing a number of sound teeth in hopes of curing a neuralgic condition of the superior maxillary branch of the fifth pair, which at one time was supposed to be accountable for this sad condition. Her general health was fair; no uterine symptoms had been detected; the only child was eight years of age.¹

¹ I quote the words of Dr. Morris, who himself records the opinion of the previous attendant when he says that no uterine symptom existed, though no dis-

When seen by Dr. Morris, fifteen years after the occurrence of the first attack, he found some retroversion and a small warty growth on the posterior lip. This was excised, the base touched with nitric acid, the uterus replaced, and a Hodge pessary inserted; a careful diet was prescribed, and bromide of potash and Plummer's pills were given. With the removal of the growth and the reposition of the uterus, these attacks suddenly ceased.

As the husband had kept strict account of his wife's terrible condition, we know that in those fifteen years she has had six hundred and fifty-one of these attacks. Six months after this one treatment and cure, a single slight attack appeared, but since then, and four years have passed, the patient has continued in the enjoyment of perfect health.

This striking case, which so thoroughly demonstrates the direct causative relation between the psychoses and the uterine disease, is but one of many I have observed and might record, and I will but refer briefly to another.

CASE XII. *Pathological Hystero-Psychosis in a Virgin* (Case II, "The Hystero-Neuroses," *Transactions American Gynecological Society*, 1878).—A robust, well-developed girl of seventeen, suffering from daily epileptiform attacks, was relieved by the cure of the causative erosion and endocervicitis. A single application of nitric acid to the cervix checked the attacks for five days, and complete relief was afforded by cure of the endocervicitis by means of slippery-elm tents and occasional applications to the inflamed cervical mucosa. While cauterization of the erosion lessened the violence of the reflex psychosis, it did not cease until the endocervicitis had been checked, and thereupon the pain disappeared, the head became clear, and the complexion improved.

Prof. Barker, in his memorable paper, "Uterine Disease as an Exciting Cause of Insanity" (*Journal of the Gynecological Society*), has shown that if a woman, after confinement, continued sterility after the birth of one child would lead us to suspect some serious lesion of the reproductive organs, most probably an injury of the uterus referable to this one confinement.

logical Society of Boston, May, 1872, page 347), cites an equally characteristic case, in which insanity was caused by a displacement of the uterus, and reposition of the extremely retroverted and enlarged organ was followed by immediate disappearance of the mental disturbance. To use his own words, "I found the uterus retroverted, packed down, so that it required some force to replace it. As soon as this was done, she loudly ejaculated, with a kind of satisfied grunt, 'There, now!' and at once ceased spitting, became perfectly quiet, and before I left the room felt happy. On visiting her next morning, I was surprised to see her sitting at the breakfast-table smiling and happy."

The above described are true cases of hysterio-epilepsy—as I define it: epilepsy directly dependent upon uterine disease, a strictly genito-reflex psychosis, which is widely different from the hysterio-epilepsy of Charcot and others, marked by sexual hallucination, the insanity which is principally manifested by morbid cravings and sexual hallucinations, and said by alienists to be pure exaltations. The insanity of old maids, though in connection with uterine or ovarian disease, has never been proved to be strictly a reflex, an hysterio-psychosis, or an hysterio-epilepsy.

CASE XIII. *Pathological Reflex. Melancholia and Nervous Irritability, due to Laceration of the Cervix, cured by Emmet's Operation.*—Mrs. S., from Illinois, suffering from mental and physical prostration, great nervous depression, was referred to me on account of spinal and hypogastric pains. Her symptoms were sufficiently explained by a retroversion of the enlarged uterus, laceration of the cervix and perineum, metritis, and endometritis. Local treatment was inaugurated, and the subsequent improvement of the uterine lesion was accompanied by a corresponding improvement in the general health of the patient, while the mental condition remained unchanged.

The melancholia and nervous depression, being in no way affected by the decided change in the uterine inflammation, I referred the psychosis to the laceration, and decided upon an

operation ; at the same sitting, the patient once under the anæsthetic, the endometrium was curetted, and both lacerations of the cervix and perineum closed. The uterus was reduced in size, the vagina very much narrowed, and a strong perineum established ; also a small, healthy cervix ; but the smaller left angle of the cervical laceration did not perfectly unite, although all parts were covered by healthy mucous membrane, and no raw surface remained, so that I looked upon the object as accomplished. Still, the mental condition remained unchanged, and I ascribed the imperfect result, the continuance of the mental depression to the slight retroversion which remained.

The patient, a farmer's wife, upon whom a household and three little children depended, looked forward anxiously to perfect restoration, and remained for treatment, which was conducted with all possible care, and a perfectly healthy condition of all pelvic organs was finally attained. No change, however, was effected in the mental status, and I advised the patient to go home, and continue the use of douches and tampons, giving tonics, urging a milk-diet, all to no purpose. Six months thereafter she returned, entered the polyclinic, and treatment was resumed ; again to no purpose. Melancholia continued ; patient was languid, with a dull, heavy appearance, indifferent to everything about her ; irritable when in contact with others, so that she was disagreeable to resident physician and patients, and her treatment became an annoyance to me. Seeing no result whatsoever, I determined to resort to a second operation. Though the cervix was small, and the os appeared merely like an enlarged oval, not at all unusual for a multipara, lined with perfectly healthy mucous membrane, I again pared the left side, which had not perfectly united, and closed it with three catgut sutures. From the moment of her recovery from the chloroform her disposition was changed ; her eyes were bright, the persistent melancholia had disappeared, and a pleasant smile now greeted her fellow-patients in place of irritable avoidance which they had met with before. She was soon on her feet, a comfort and help to the other patients while she remained in the ward.

Although complete involution had been accomplished by the first operation, the mental disposition, depression, and irri-

tability were in nowise changed, and not until a complete closure had been effected, and an os established hardly large enough to admit the sound, was this altered ; but, from the very moment that this angle was united by the suture, the morbid mental symptoms disappeared, characterizing the marked dependence of the psychosis upon a trifling localized lesion.

b. The Nervous System. Hystero-Neuroses Proper, Genito-Reflex Nervous Disturbances.

The terminal fibres of spinal and cerebral nerves give ready evidence of uterine and ovarian disturbance ; whether the impulse is conveyed through the ganglionic system or the pneumogastric, spinal and cerebral nerves respond to uterine irritation either throughout the entire body or in circumscribed areas upon any one part.

Uterine changes are reflected in the course of the spinal column, in the hypogastric and lumbar regions, on the top of the head, the occiput, the wrist and ankles, toes, knees, in fact, upon any part of the body. Most common of all these are the spinal and hypogastric pains, together with the pain on the top of the head and in the back of the neck, so that these symptoms have become pathognomonic of uterine disease. Tilt, out of his 500 patients examined during the menopause, finds dorsal pains in 226, and abdominal pains in 205 ; in fact, so thoroughly have these pains become assimilated in the popular mind with uterine disease, that the physician will find it difficult to convince a patient that she could possibly have any disturbance of the reproductive organs if the backache and hypogastric pains are wanting, and, if in addition no menstrual irregularity exists, this becomes simply impossible. While these symptoms may remain permanent in one patient, varying with the vacillations of the condition upon which they depend, they change most rapidly in others, so much so, that they are likened to rheumatic pains, sometimes in one place, sometimes in another, moving about constantly.

As a rule, certain pains exist in one and the same patient,

and vary with the causative condition ; like all other hystero-neuroses, they are usually dependent upon a pathological condition, aggravated by functional congestions, menstruation, or pregnancy ; but may also occur at the time of the physiological congestion only.

These symptoms usually appear two or three days before the menstrual flow, with the coming of the uterine and ovarian congestion, and cease upon the second or third day after the flow has stopped ; during its continuance they may disappear. If the neuroses persist, continuing throughout the intermenstrual period, they are intensified during the time of physiological congestions. It is a characteristic mark of a reflex neurosis that, like uterine disease, it is aggravated by exertion, exposure to cold, and menstruation—I may add, by every physiological wave ; but, as certain of these symptoms disappear during the continuance of the menstrual flow, they may disappear likewise during the period of pregnancy. They are more frequent and more intense during puberty and the menopause, as they are during the menstrual period.

The most common and best known of these symptoms are the dorsal pains, the pain in the small of the back, either limited to that point or extending, like the pain of labor, from the spine toward the hypogastric region ; this pain may also occur between the shoulder-blades. The hypogastric pain is usually upon the affected side, that is, the side of the cervical laceration, the side of greatest ovarian irritation or of periuterine disease ; like the higher dorsal pain, it may be at the height of the shoulder-blades but lateral. This hypogastric pain, which is a reflex neurosis, must not be confounded with the actual pain of cellulitis or the pain from localized pressure, and careful differentiation is necessary, as certain of these reflex nerve-pains closely resemble inflammatory pains, and those which arise from direct pressure, either upon sensitive organs, or upon a nerve, as upon the sciatic, and then extend along its course down the leg. While the one is superficial and diffuse, the other is deep-seated, often more clearly circumscribed, and, if from nerve-pressure, fol-

lows the central nerve-tract so perfectly that this can be traced by the pain as in a dissection.

A very frequent sensation is that of quivering in the abdomen, likened by some to the quivering of a mass of jelly; mostly an evidence of ovarian congestion or cervical laceration, and mistaken for movements of the child by those longing for pregnancy. Pain, burning, and pressure on the top of the head, are extremely common, and the spot feels warm to the touch, or is so sensitive that the comb is painful. Pain in the nape of the neck, and drawing back of the occiput, as in *opisthotonus*, likened by the experienced to the evidences of cerebro-spinal meningitis, are likewise frequent; more rare is that feeling of drawing upward of the neck and back of the head. Less common, but still frequent, is the feeling of an encircling band, the symptom being referred by some to the waist, by others to chest or head—a painful sensation of compression as by an iron band.

Pains in the ankle and in the wrists are frequent, referable, as a rule, to the side of the pelvis in which the diseased part lies from which the reflex originates. These pains may appear in the soles of the feet, in the heels, or in the toes; they may be so intense as to make walking impossible. In a patient afflicted with ovarian disease and bedridden, I have seen the pain in the heels so intense that it was with the greatest difficulty that a comfortable position could be found for her; she was obliged to lie on her back, so that her heels must almost inevitably touch the bed in some way, and even the light contact with the bedding caused agony.

These superficial pains—genito-reflex nerve-symptoms—arising from reflex irritation, in localized groups of terminal nerves, may appear in any part of the body; over the heart they cause the dread of cardiac disease, with cardiac and precordial pains; in the shoulders, in the chest, they resemble rheumatism. While they may exist in any part, those named are the most common and characteristic. Many a patient afflicted with uterine disease, without local symptoms, is sent by the unsuccessful family physician to an eminent neurolo-

gist for her nervousness, or to a watering-place for gastric or cardiac rheumatism. Even while writing this, in a European watering-place, I meet an American lady from the far West, who has been sent abroad to prominent physicians for treatment of an unyielding gastric and muscular rheumatism. These authorities have sent her to this Spa, to overcome what they have diagnosed nervousness and nervous debility; the iron waters and salt baths, which have truly regenerated her merely debilitated sister, have failed completely in her case. Naturally so, a uterine disease is evidently the cause of this reflex neurosis, which simulates the above maladies, and no Spa can overcome this causative affliction. Unfortunately she is but one of many who gradually sink into invalidism under continued treatment of this phantom disease, the genito-reflex neurosis.

Most frequent (and in the order named) are the spinal and hypogastric pains, the pains in the top of the head, back of the neck, quivering in the abdomen, pains in the wrist, ankle, and heels. The pain of coccydenia, while at times referable directly to pressure or disease of the bone or surrounding membranes, is liable to be a reflex neurosis, a concentration of spinal pains in the terminal bone.

So common and so well known is this dependence and the fluctuation of these pains with the improvement or exacerbation of local conditions, that I need but briefly mention a few striking cases:

CASE XIV. *A Pathological Genito-Reflex Neurosis; Intense Spinal Pains due to Laceration of the Cervix; Complete Disappearance immediately after Operation.*—Mrs. X., from Mississippi, a beautiful octofoon, was completely debilitated by the intense backaché from which she had suffered since the birth of a child some three years previously. She had been constantly under treatment, local and general, without relief. Applications of all kinds had been tried, blisters, cauterly to the spine, the usual remedies to the uterus and cervix, with but temporary improvement at times. Relief was but rarely afforded, and then for a short time only.

Emmet's operation was performed, but no anesthetic given, as the patient preferred to do without. Before she was removed from the table, from the moment the sutures had been united, the pain ceased; with slight assistance she walked to her bed, happy in the complete relief afforded. During convalescence, she was free from all pain, and felt perfectly comfortable. Upon the eighth day the sutures were removed; only partial union had taken place, and from the time of the removal of the sutures, as the surfaces fell apart, her backache returned. After the cessation of the next menstrual period, a second operation was performed with precisely the same result; the backache ceased as soon as the parts were firmly united. I was unfortunately obliged to perform the operation under the most unfavorable surroundings in a filthy hospital, and I am unable to speak of the final result, as the patient was carried away by septic poison. I cite the case, however, to show the dependence of this spinal pain upon a local cause—in this instance, the laceration—and not, as is usually supposed to be the case, upon uterine displacement, traction upon ligaments, or pressure of the enlarged fundus upon the spinal column.

CASE XV. *Pathological Genito-Reflex Neurosis; Relief by a Single Well-placed Tampon.*—Mrs. X., from East St. Louis, suffering with a variety of reflex neuroses, insomnia, pain in the region of the heart and below the liver, especially violent, so that cardiac and hepatic disease were supposed by the patient to exist, notwithstanding all I could say, and the assurances to the contrary of the various specialists consulted. Repeated examinations of heart and liver revealed a healthy condition of those organs. The patient was afflicted with the usual concomitants of lacerations of the cervix and perineum, endometritis, uterine enlargement, retroversion, and, later, perimetritis. Many of the symptoms were relieved, and her general health was greatly improved by operation on the cervix and perineum, but the neurotic pains, insomnia, and pains in the region of the heart and liver remained, hence treatment was again resorted to. Great relief was afforded by utero-abdominal faradization; reposition of the uterus was attempted by an elastic tampon; still, though improved at times, the above-mentioned pains persisted.

The patient was under constant care in the gynecological department of the polyclinic, and the routine treatment was continued. Coming by accident on an off-day, she was attended by a member of the staff, hitherto unfamiliar with her case. Dr. T. E. Holland, who forced a reposition of the retroverted uterus much more violently than had been before attempted, causing the patient great pain. Two days later she returned, completely relieved. She had suffered very much from the treatment, and experienced a feeling, as she expressed it, of something giving way, but from that moment the annoying pain ceased, and she slept soundly throughout the night—the persistent and annoying insomnia had vanished. Notwithstanding the pain caused locally by the tampon, the effect was a most happy one; the distressing mental and nervous condition of the patient yielded at once, and gave way to perfect well-being.

CASE XVI. *Reflex Neurosis, dependent upon Uterine Disease, relieved by Uterine Galvanism, by Sedative Applications to the Irritated Uterine Terminals.*—Mrs. H., suffering from a laceration of the cervix, with the consequent train of symptoms, endometritis, retroversion of the enlarged uterus, a congested and everted cervix, was afflicted with a series of violent reflex phenomena, dyspeptic symptoms, palpitations of the heart, dyspnea, spinal pains, hypogastric pains, with a most annoying quivering in the abdomen, headaches, and insomnia. Emmett's operation was proposed, but preparatory to this I advised treatment for the purpose of overcoming the more violent inflammatory symptoms, especially the endometritis. As treatment progressed, her general condition improved, but the reflex symptoms were not alleviated. I had once resorted to electro-cauterization of the uterus with no more than slight improvement. Two days later I determined upon an electropuncture, inserting a platinum needle, in connection with the negative pole, to the depth of one inch into the engorged cervical tissue, the positive dispersing plate being placed upon the abdomen, a current of 100 milliampères was passed for three minutes, and before the expiration of the sitting the patient gave a sigh of relief and expressed her complete well-being. As she stepped off the table her motions were free, and when

she returned three days later she informed me that she was perfectly well, her appetite was excellent, sleep perfect, the dyspnea had disappeared, she had taken long walks, and was no longer troubled by the reflex neuroses, pain in back and sides, and abdominal quivering.

This is one of those cases of a reflex neurosis relieved by the sedative action of the remedy upon the irritated uterine nerve-terminals, and not by improvement in the uterine disease, as the symptoms had persisted, notwithstanding the change for the better in the local lesion, but disappeared at once apparently by the action of the electric current accidentally directed immediately to the suffering nerve.

CASE XVII. *Continuance of Genito-Reflex Neuroses, after Complete Extirpation of Uterus and Ovaries, cured by the Sedative Action of Galvanism to the Irritated Nerve-tracts.*—Mrs. K. had been subjected to the extirpation of uterus and ovaries on account of a uterine sarcoma, which was causing a rapid failing in health. After the operation, from which she rapidly recovered, her general condition improved greatly, she gained in flesh and general appearance, and lost the cachectic look which had previously existed. The burning pain in the top of the head, which had annoyed her so much, disappeared for a time after the operation, but soon returned greatly increased in intensity, and with it appeared that pain in the ankles, shoulders, and soles of the feet, which is characteristic of uterine and ovarian disease. These symptoms were so annoying that, after persistent treatment by the physician who had operated so successfully, she was referred as an incurable neurotic to Prof. Hermann of the department of nervous diseases (St. Louis polyclinic).

When this patient came under Prof. Hermann's care, she was hardly able to walk, so intense was the pain in feet and ankles on both sides. He treated this as a nervous disease, as he did the pain in the top of the head, affording relief by each application of electricity to the afflicted part; she was rendered more comfortable, better able to walk, but it became necessary to repeat the treatment, as the relief afforded was but temporary. Entering the clinic-room by accident, while this patient was under treatment, Prof. Hermann related her symptoms to

me, and I at once urged that the case be turned over to the gynecological clinic, as it was evidently one of uterine disease. I was not a little astonished to hear that uterus and ovaries had been removed, yet urged the treatment of the patient upon the supposition of an irritation of the uterine terminals. She was accordingly referred to the gynecological department and treatment inaugurated as for a reflex neurosis, arising from pelvic disease, vagino-abdominal galvanism was applied, the negative vaginal electrode to the *cul-de-sac*, the positive abdominal plate directly over this upon the abdominal walls. After the first application greater relief was experienced than had ever been obtained by direct treatment of the affected parts; pains in head and feet both were greatly improved, and after the third treatment they practically disappeared, to return, however, after an interval of time. The patient came but a few times after this, and I have seen nothing more of her, whether relieved or not by the treatment I can not say—certain it is that the pains in head and heels were relieved more rapidly and more completely by the application to the uterine tracts than to the site of pain.

I have cited this case in evidence of the fact that reflex neuroses may be induced by a continuance of the irritation in a nerve-fibre even after the causative terminal is removed; the impulse emanated from the stump of the uterine fibres at its point of amputation, precisely as it had from the terminal before its removal. As a pain of former years is often felt in a foot long after amputation of the leg, which must be referred to morbid action in the nerve at the point of amputation, so did this uterine fibre determine a reflex action as if the causative terminal was still under the influence of morbid action. The result is at the same time an evidence of the possibility of affording relief in case of reflex neuroses by sedative action upon the affected nerve-terminals, though the morbid condition which causes the impulse may continue.

II. THE CIRCULATION.

The circulatory system throughout the entire body is under the direct control of the vaso-motor nerves, which follow its innumerable ramifications from the cardiac centre to

its capillary meshes. By reason of the direct connection of the ganglionic fibres with the vaso-motor nerves, these readily respond to changes, morbid or physiological, which may take place in the vital centres. No system gives evidence of these reflex impressions more rapidly or more vividly than the circulatory. In response to peripheral stimulus, we see the hot flush of the dilated capillaries, or the cold pallor of the contracted vessels which mark the undulations in the vaso-motor fibres, on the one hand; paralysis, increased tension, on the other. All nerve-action finds a ready reflex in the vaso-motor system, so much so that we involuntarily regard this as an index of the emotions and the secret workings of the mind. Hardly less than the changes in the great cerebral centre are the waves emanating from the reproductive organs delineated by these sensitive fibres. Hippocrates has already called attention to shivering and an unusual development of heat as a sign of pregnancy, symptoms of a purely reflex nature, and not in any way referable to the increased vascular development accompanying the physiological hypertrophy.

So intimate and so intricate is the relation existing between the vaso-motor nerves, uterus, and ovaries, and the central nervous system, that it is not always easy to trace the existing relation and to determine cause and effect; a peripheral congestion or hemorrhage may be a simple concomitant or a natural result of pelvic congestion, or it may be a reflex symptom. The circulatory system may respond to uterine or ovarian irritation in its entirety, or in any one of its parts, as it is governed throughout by the accompanying fibres and ganglia, which control its every action as truly and as promptly as a steam-valve does the workings of the engine; hence, genital irritation may be characterized by symptoms on the part of the heart or portions of the peripheral system, especially superficial capillaries upon the skin, or this reflex may be general throughout the entire peripheral system, made evident by chill or fever; or, as is more usually the case, it is localized and recognized by the coldness of hands

or feet, or by the flushes of the face. Coldness of extremities is a frequent symptom of uterine disease; palpitations of the heart, irregularity of the heart's action, usually intermittent, accompany morbid conditions. Ovarian disease is often marked by flushes; by the hot flushes of the face which we frequently find at the change of life, where it may, however, be dependent upon irregularity of the circulation. These symptoms, so varying in their nature—all, however, the result of contraction or relaxation of portions of the vascular system in response to morbid stimulus carried from uterus and ovaries to the vaso-motor nerves through the ganglionic system—may be classified as:

1. Cardiac or central; and,
2. Vascular or peripheral.

1. Cardiac or Central Circulatory Reflexes.

As the heart's action varies with the emotions and the state of the mind, so it responds to a variety of uterine or ovarian states, both physiological and pathological. I will not enter upon the difficult differential diagnosis between physiological hyperactivity and the reflexes of pregnancy, as observation alone can determine the origin of symptoms referable in part to one, in part to the other cause, and I shall speak only of the true or pathological reflexes as the same phenomena may exist as menstrual neuroses, and neurosis of puberty and the menopause.

a. Palpitations of the heart.—This is among the most common of the hystero-neuroses, as it is the most frequent response to emotional impulse; but not until this violent beating of the heart has been proved to be a uterine reflex, by cessation upon uterine treatment, can its origin be definitely determined, as the same symptom is referable to so many other causes.

b. Rapidity of the heart's action, frequently accompanied by intermission, I have repeatedly observed as a symptom of uterine disease, annoying the operator, who may be in doubt

as to the propriety of using anesthesia until he has fully solved the question of cardiac disease.

The direct dependence of cardiac action upon ovarian changes is strikingly evident in the sudden slowing of the heart-beat upon constriction of the ovarian nerve. So striking is this symptom that repeatedly has the careful assistant, while giving the anesthetic for me, called a halt, and inaugurated resuscitation as the pulse fell from 80 to 34 at the moment of ligating the ovarian pedicle. My attention being thus called to the matter, I have observed the same reaction in almost every instance, and have assured myself of the direct dependence of the heart's action upon the ovarian impulse by the loosening of the ligature, in response to which the beat at once returned to the previous frequency. Dr. Hodgen, our lamented surgeon, informed me that he had observed the same phenomenon in ligating the spermatic vessels before removal of the testicles. While a very rapid beat of the heart, 120 to 130 in a minute, may accompany uterine and ovarian disease, this is often varied by an intermission more or less regular, sometimes one in six or eight, even in three or four, and again it may be observed repeatedly in rapid succession, and not again for minutes.

c. Pains in the heart, such as may simulate an endocarditis, are frequently complained of by women suffering from uterine disease, or when in a state of functional change during menstruation and at the change of life. Occasionally it is precordial, more like a rheumatic pain, or it may appear as a feeling of compression, as if by an iron band, which is spoken of.

These symptoms, violent palpitations, or irregularity of the heart's action, and pains in the cardiac region, so nearly simulate heart disease, that a careful examination may be necessary before the giving of an anesthetic; and so deceptive are they that I have repeatedly sent the sufferer to a specialist for examination, notwithstanding that, as in other neuroses, we have a reasonable assurance of the reflex nature of the symptom by its exacerbation at the menstrual period

or upon a slight cold or exertion, such as would aggravate the existing uterine symptoms; and upon this I would lay, perhaps, greater stress than upon the negative evidence of auscultation and percussion, which assure us only of the absence of disease.

The cardiac reflexes of pregnancy are more obscure, as actual circulatory changes exist at the time, and it is impossible to demonstrate their true nature by removal of the cause; hence I have not touched upon these, and have cited only such as have been clearly proved to be reflex in their nature by their prompt cessation upon cessation of the cause of the trouble.

The cardiac neuroses, more than those of other organs, have of late received attention on the part of careful observers. They are symptoms of extreme importance from a practical and diagnostic point of view. I need only refer to the results of an erroneous diagnosis in the case of a patient seeking insurance: she is debarred from all its advantages on account of a slight, possibly unnoticed, uterine disease, which produces the deceptive vaso-motor reflex. The neurosis is mistaken for the disease proper, and her family are deprived of the benefits of life insurance.

Although the phantom is distinct from the disease, its reflex nature is by no means practically appreciated, as it should be even by those who have given attention to the subject. One of the most instructive articles is the chapter on neuroses of the heart ("Functional Diseases of the Heart's Action, Angina-Pectoris, and Exophthalmic Goitre," by Austin Flint) in *Pepper's System of Medicine*, Volume III, page 750, in which the symptoms are clearly outlined, but their treatment as a reflex disease hardly demonstrated with sufficient emphasis. The cardiac neuroses are here considered as a whole, from whatever source they may originate.

The cardiac hystero-neuroses have also been well described by H. J. Boldt, M. D., in a paper on "Cardiac Neuroses in Connection with Ovarian and Uterine Disease" (read before the New York Academy of Medicine, *American*

Journal of Obstetrics)—he prefers the term reflex cardiac disturbance for those fluctuations which present symptoms similar to those attended with organic lesions, deeming the term “neurosis” faulty, as these troubles are either of reflex origin or arise in the cardiac gangliæ. Boldt believes these functional affections of the heart, unaccompanied by inflammatory changes, to appear as reflex symptoms in eight per cent. of all uterine diseases, and divides them into four classes: 1, palpitation; 2, disturbance of rhythm (irregularity); 3, suspension of one distinct beat (intermittency); 4, angina-pectoris. Class 1 is the most frequent neurosis, being caused by the emotions; class 2 is caused by a modification of the rhythmic discharge in the cardiac gangliæ—it may be congenital or the result of emotion, as passion, grief, joy. Angina-pectoris, the most painful of all the neuroses, so closely resembles the symptoms of organic lesion that only an examination of the heart during the attack would exclude this. The pain is often felt radiating down the left shoulder, arm, and hand, in which formication is at times observed. These attacks are intermittent, the patient being entirely free in the interval; the heart’s action is at times feeble, at times irregular, and painful spots are found over the region of the heart. The functional disturbance, he correctly says, may be cured by attention to the pelvic disease; but in chronic cases attention to the pelvic disorder alone will not suffice, systemic treatment being necessary. This is more or less true of all hysteroneuroses, yet some become more firmly established than others; those of the eye are the most persistent, as we have seen. While in their early stages the cardiac neuroses respond readily to changes in the uterine condition, at a later stage, when the molecular disturbance in the contracting nerve-fibrils is long continued, it will persist after removal of the causative stimulus. Though constitutional medication may assist in treatment, and is always desirable in chronic cases, this alone should not be relied on if a cure is to be achieved.

2. *Vascular or Peripheral Circulatory Neuroses.*

These may be general or local, referable to the entire system, like the fever, or limited to a circumscribed region, internal or external: upon the extremities cold feet, on the face a flush; upon the mucous membrane of throat or lungs a laryngitis or an asthma.

a. General Peripheral Neuroses.—The most marked of these are chills and fevers, which can be unquestionably referred to changes in the reproductive organs. The chlorosis, which is often observed at the change of life, and in connection with uterine disease, has been considered by some as a circulatory disturbance attending the ovarian nisus; and it has been explained as a resultant of the ovarian impulse in an already ill-balanced circulation. As I have myself not satisfactorily demonstrated the direct causative relations, I am unable to assert the positive reflex nature of chlorosis. The chills, known to the sufferer herself as nervous chills, are more readily referable to local changes; but most characteristic and most deceptive are the fevers, with or without elevation of pulse, apparently a partial paralysis of the entire vaso-motor system.

This peculiar peripheral hystero-neurosis of the circulatory system appears either as a resultant of some exacerbation of the morbid uterine stimulus, now and then, after undue exertion or other cause of aggravation, or as an accompaniment of the physiological wave, with the intensity and with the regularity of a malarial attack. It was the occurrence of these reflex fevers that called my attention to the peculiar periodicity in certain of the symptoms of uterine disease; and I have described them more fully in a paper read before the Gynecological Section of the Eighth International Congress.¹ The fever comes with a certain intensity of the uterine irritation, and subsides whenever the morbid stimulus sinks below the given point. Thus in some patients the fever

¹ "The Periodicity of Symptoms of Uterine Disease," by George J. Engelmann.
—*Transactions of Section of Obstetrics of the Eighth International Congress.*

occurs only after unusual irritation and aggravation of the causative uterine disease; in others, it is constant, and subsides only when every precaution is taken, and every, even the ordinary, irritation is removed. I have occasionally seen patients with a constant slight heat, called fever, which ceased and yielded to a normal temperature only upon rest in bed; whenever the friction of the eroded cervix against the vaginal walls was prevented by a recumbent position, the fever ceased, walking or standing would aggravate it. Those symptoms which come with a daily periodicity and monthly recurrence—coming like a malarial attack, daily at a certain hour, at a certain time of the menstrual period—seemed to be confined to the malarial regions, such as the Mississippi Valley. That this periodicity is not due to the febrile condition or in any way referable to malarial origin has been proved by the absolute inertness of antiperiodic remedies, and the positive correspondence of the vacillation with the uterine symptoms. The fact that these symptoms have been but rarely if ever observed elsewhere necessitates the conclusion that this periodicity is referable to some intercurrent malarial influence, but it can be only the periodicity of nerve-action, indirectly so influenced, as the typical recurrence is the only point of resemblance.

The symptoms in which I have observed this periodicity are fever, pelvic pain, nerve pain, and discharge; fever and pelvic pain are the most frequent. Most striking in our malarial region is the appearance of high intermittent fever of strictly miasmatic type, which is not influenced by chinin, and unquestionably dependent upon uterine disease, as proved by the disappearance of the fever with the improvement in the condition of the womb. Cause and effect are made evident by the failure of antiperiodic medication and the success of local treatment without accompanying medication, the disappearance of periodic symptoms with the restoration of the diseased uterus to its normal and healthy state.

CASE XVIII. *Intermittent Fever toward the Close of the Inter-menstrual Period.*—Mrs. S., from Illinois, aged thirty-two, in

good circumstances, the mother of four children, had been suffering more or less since the birth of her youngest child, five years ago, from debility, nervous prostration, backache, and pelvic pains. Her condition was such that she was under constant treatment, yet no signs of improvement appeared; on the contrary, her condition grew slowly worse, so that she was unable to attend to her household duties, and came to St. Louis to consult me.

I found the uterus anteflexed, indurated, and enlarged, in consequence of the existing subinvolution, with a catarrhal condition of the mucosa of cervix and fundus, and the latter hypertrophied. In addition to the symptoms already mentioned, the patient suffered, at the close of each intermenstrual period from an intense and debilitating intermittent fever. This fever, with acceleration of pulse and rise of temperature, appeared upon the fifth day before the coming of the menstrual flow, at eleven o'clock in the morning, reaching its acme at one, continuing during the afternoon and passing away in the evening. It thus returned day after day until the coming of the menstrual flow. For several years this intermittent, apparently malarial fever had recurred before each menstrual period, and from the time of its first appearance her attendant (her uncle), one of the ablest and most respected physicians in that section of the State, thoroughly conversant with malaria and all its varied forms, had in vain attempted to subdue it until he had exhausted antiperiodic medication.

Quinine had been given until the stomach was affected and the patient rebelled against its continuance.

This was the first case of the kind I had observed, and when the fever came on, so thoroughly identical with a malarial fever in all its symptoms, the inaugural chilly sensation, the pains in back and loins radiating down toward into the thighs, especially the bilious tinge of the face, I did not doubt its miasmatic origin, and concluded to treat it as such, much to the horror and disgust of the patient, a very sensible and observing lady, who assured me over and over again that these fevers had invariably taken the same course, and disappeared with the coming of the flow, whether she had taken chinin or not, and that

she even felt worse when medication was attempted, as the frequent use of chinin had made it obnoxious to her.

Nevertheless, believing the previous treatment to have been inefficient, I gave eight grains of calomel, which I followed with thirty of chinin, repeating the chinin before each attack of fever. I failed completely to change its course.

I then suspended all medication and allowed the next period to pass without medication of any kind. The fever returned as usual, but was no more severe than with the use of chinin.

As treatment progressed the severity of the fever diminished, and ceased altogether after I dilated and curetted the uterine cavity. Some months later I dismissed the patient, who returned to her home and her household duties in the full enjoyment of health. This occurred ten years ago, and, although Mrs. S. has now and then suffered from slight intercurrent diseases, the premenstrual intermittent fever has never returned.

CASE XIX. *Intermittent Fever in the Middle of the Intermenstrual Period.*—Miss A., aged nineteen, a well-developed brunette, in the most comfortable circumstances (the patients to whom I here refer come from the higher walks of life), who had but recently left school, where she had overexcited herself like so many American girls, suffered from neurasthenia, indifference, prostration, backache, pain in the head. Her home is in a beautiful and healthy portion of Missouri, yet for almost a year she suffered, in the middle of each intermenstrual period, from a severe intermittent fever, which recurred upon three successive days. Every possible attention was bestowed upon this only daughter by anxious parents: she had been under the treatment of the best physicians, especially one able practitioner, a near relative, yet neither medical skill nor change of climate accomplished any perceptible change in her condition.

When she was placed under my care I discovered an enlarged, slightly moveable retroflected uterus, with marked endocervicitis, accompanied by the symptoms usually characteristic of such disease, the only peculiar and unusual feature being the attack of intermittent fever which invariably came on the 11th, 12th, and 13th day after the cessation of the monthly flow, in the middle of the intermenstrual period. The attending physician, supposing it to be malarial, had never failed to give chinin,

and repeated his medication, which had been varied in every possible manner each month, because it was supposed, notwithstanding the regularity of its return, that the progress and the continuance of the fever were at least checked by the antiperiodic treatment. Quinine was taken again and again though the system began to revolt as the recurrence of these burning fevers told severely on the delicate sufferer.

I had but inaugurated local treatment when the period of these dreaded fevers approached, and I well knew that it would return as the disease was not yet sufficiently under control; but experience had also taught me the utter inefficiency of chinin or medication of any kind (nervines relieve the condition somewhat and make it more bearable).

I explained this to patient and friends, prepared them for the coming of the fever, but at the same time assured them that it would cease as usual without medication, and probably never again return. The attack came at the usual time, at ten o'clock on the evening of the 11th day after the cessation of the menstrual flow, and continued during the night. Upon my visit next morning she was entirely free from fever, but in the evening it returned as usual; dreading its continuance the patient's mother anxiously demanded the giving of chinin, but finally desisted upon my assuring her of the futility of the remedy. During the night of the third attack, on the 13th day of the intermenstrual period, I was sent for, that I might assure myself of the intensity of the fever, and in hopes that I would then be induced to give chinin. The patient was certainly in a desperate condition, almost delirious, face flushed, hot, eyes congested, skin dry and hot, throat and lips parched, and her mother naturally dreaded a repetition, and again urged the giving of chinin, threatening to give it herself, in the firm belief that it was the use of this remedy only which had cut short all former attacks on the third day. It was with difficulty that I succeeded in urging her to refrain from its use. The fever disappeared without the use of chinin after the third attack, just as it did when large doses had been given; and one month later, when local treatment had sufficiently progressed, the condition of the uterus had improved, and the flexion and endocervicitis had been relieved, no fever appeared, to the

great relief of every one, and the much-dreaded period was passed with perfect comfort. All other symptoms steadily improved, and the fever has not since returned, time sufficient (four years) having now elapsed.

b. Localized Genito-Reflex Vascular Neuroses.—Among the peripheral vascular reflexes which are localized, we find most commonly the flushes, rush of blood to the face and head, the burning in the top of the head, the burning in the side; more rarely, heat in the extremities, a red nose, cold hands or feet, dry or clammy, blotches like an erythema upon different parts of the body, even ecchymosis, sweats, hypersecretion, and bleeding, which upon the mucous membrane may be compared to the erythema and the ecchymosis upon the skin. Certain of these symptoms, such as acne rosacea and lichen, I shall discuss under the dermatoses. Tilt, in his analysis of 500 patients examined during the menopause, has observed the flushes in 287, perspiration in 201, sweats in 89, burning of legs and feet in 2, hot hands in 3. The flushes, apparently so frequent at the time of the menopause, are by no means equally common as a reflex or pelvic disease, but all the more noticeable as the patients contrast so strikingly with the usual sallowness which mark these conditions.

The reflex nature of these phenomena can often be demonstrated at will with the certainty of a chemical test, as, for instance, in a lady now under treatment for the last few days, during which short time the burning in the top of the head, like the general fever, has somewhat diminished, but at all times it can be stopped by perfect quiet and a recumbent position in bed, by which the causative uterine irritation is removed.

CASE XX. Genito-Reflex Peripheral Neurosis.—Paralysis of vaso-motor nerves, flushed appearance, especially marked on face and neck, small uterine fibroma, metritis, endometritis, and oöphoritis. Disappearance upon improvement before complete cure of the local disease.

Mrs. M., aged thirty-six, married eighteen years, sterile, stout, and of a deceptively healthy appearance, strong constitution, has been a sufferer since the time of her marriage from chronic uterine and ovarian disease, and under treatment during the entire period of her suffering. When first seen by me, in October, 1885, she was completely prostrated, suffering from various reflex symptoms, the pelvic disease in no way marked by local symptoms. The intense cerebral pain and insomnia, which led almost to mental aberration, were the symptoms which called for relief. While the face and greater part of the upper extremities were suffused with an almost constant flush, the feet were icy cold, and she complained of a feeling of internal chilliness, as she expressed it, "as if all the blood had centred in her face and head, leaving her inner organs icy." Persistent treatment, directed especially to the ovarian congestion and the stenosis and hyperplasia of the uterus, caused the reflex symptoms to lessen, and a healthy cutaneous circulation was re-established. Coldness of the feet was improved, the flush disappeared from the face, and even excitement caused but a temporary and slight reappearance.

In January, 1887, I was summoned to the residence of Mrs. M., whom I had not seen for the past six months, and whose condition had been bearable during this time. Physical exertion and mental excitement had caused an aggravation of her trouble, especially an exacerbation of the nervous symptoms and aggravation of the insomnia; the cerebral pains of the menstrual period amounted almost to mental aberration. The flush had returned. I may here remark that, before its entire disappearance, with decided improvement of the local condition, a temporary lessening of the symptoms had always followed slight dilatation of the narrowed canal with slippery-elm tents. The conditions not being favorable to treatment at home, I referred the patient to a European colleague, and have not heard from her since.¹

¹ *August, 1887.*—I regret the necessity of adding that the lady so far has not been benefited; much that would have been advantageous has been more than counterbalanced by the peculiar course pursued. Several of the physicians abroad, who had been consulted, evidently looked upon the full, flushed face as

This constant flush, so painful especially to a lady having already a full, healthy face, is still less disagreeable than a facial flush more limited in extent, as it sometimes occurs, for instance, upon the nose.

This paralysis of the vaso-motor nerves may be confined to isolated ramifications, and then appears as an erythema; small blotches, perhaps of the size of a quarter or half a dollar, on face, chest, or back. Usually this is an accompaniment of the menstrual congestion, or of an exacerbation of uterine disease, rarely a permanent neurosis. So, also, the ecchymoses, which are usually of similar size, less frequently only the size of a pea. In those cases in which I have observed them, they occurred as the accompaniment of uterine and ovarian disease of long standing, and in one instance as a neurosis of puberty.

The tumefactions which sometimes occur are similar in size and distribution, perhaps of the size of half a walnut, usually the evidence of menstrual exacerbation of uterine disease.

The burning in the top of the head is so frequent that it has come to be a most acceptable evidence of uterine and ovarian disease; but this reflex paralysis of the vaso-motor nerves, which is made evident not only by the sensation of heat to the patient, but by the feeling of heat to the examining hand, must not be confounded with the pain in the top of the head, which is distinctly a nervous reflex (peripheral nerve reflex).

Cold hands and feet are likewise common genito-reflex vaso-motor symptoms, and not by any means, as is generally supposed, the result of impaired nutrition, anemia, and long existing disease. That they exist most frequently as a direct reflex is proved by improvement upon treatment of the causative disease, or aggravation with exacerbation of uterine disease upon exertion, or cold, or with the coming of the menstrual congestion.

the result of over-indulgence in spirits, and placed her upon the Oertel diet and walking cure. The puffed, flushed face, produced by the peculiar reflex vaso-motor disturbance, is indeed a curse to those so afflicted.

Perspirations, local and general, more commonly local, are occasionally met with ; at times, like other of the vascular reflexes, upon that side of the body upon which we find the causative disease—upon the left side, if the laceration of the cervix, the diseased ovary, or a certain uterine inflammation be upon that side. The bleeding from the navel, from the eyes, nose, mouth, is rarely found, but does occur as a reflex symptom, not to be confounded with a vicarious menstruation or a localized peripheral congestion which is the result of an impeded flow from the uterus.

CASE XXI. *Genito-Reflex Vaso-Motor Paralysis ; Monthly Bleeding from the Navel.*—Miss R., aged twenty-six, a slight blonde, originally of healthy constitution, now greatly impaired by a succession of severe diseases during childhood and puberty, came to me for relief from dysmenorrhœal pains, the recurrence of a pleuritic attack, which had once before terminated in purulent effusion, interfered with the progress of the treatment, and after recovery the thoracic disease, by which the constitution of the patient had been undermined, mainly demanded attention, and I could only endeavor to relieve the more violent of the uterine symptoms, as a satisfactory improvement was not to be expected in a patient so enfeebled by thoracic disease. Among the symptoms which accompanied the menstrual exacerbation was a slight oozing of blood from the navel, which had been treated in vain by the family physician of the patient in a neighboring State ; but, after a partially successful uterine treatment, the symptoms abated, to return, some months after cessation of local treatment, with an exacerbation of uterine disease.

CASE XXII. Mrs. X., who had been under the care of various physicians, mentioned, among her numerous ailments—the direct and indirect resultants of uterine disease—a menstrual bleeding from the nose, ears, mouth, and the corners of the eyes ; a statement very much doubted at the time, but since proved. She informed us that, for the past year, with an aggravation of pelvic trouble, these slight local hemorrhages had appeared, and occurred with greater severity whenever cold or exertion caused an increase of local suffering.

The reflex neuroses of the circulatory system can not be classed among the most annoying, as they are rarely so severe as to cause great suffering. Like all other reflexes, they yield readily to a proper uterine therapy, while relief is most commonly and vainly attempted by direct treatment. The palpitations of the heart, the burning in the top of the head, and cold feet, are among the most common, and available as diagnostic signs of pelvic disease. Disagreeable to the patient are the cold feet, from which relief is vainly sought by hot water and hot bricks in the bed in winter. The feeling is a most disagreeable one and annoying, as but little comfort is experienced from the heating of the bed. In this, and in the nervous irritability caused, the reflex symptom differs from the cold feet, which are a simple evidence of sluggish circulation.

Among the more common of the peripheral vascular neuroses are the heat and burning in the side—not the burning of internal inflammation, but a reflex vaso-motor symptom, like the flush of the face or the burning in the top of the head, a pelvic burning most frequently the accompaniment of ovarian disease, and generally limited to the side of the abdomen upon which the diseased ovary lies.

III. RESPIRATORY TRACT.

Through the connections of the pneumogastric with the pelvic nerves and ganglia an intimate relation is established between the respiratory and reproductive organs, and the morbid impulse conveyed by irritation of the uterine and ovarian terminals meets with prompt response in the respiratory organs, which results in symptoms on the part of pharynx, larynx, and bronchii, so closely resembling disease proper, with pathological changes, that a correct diagnosis without the aid of tentative treatment is often impossible. So little appreciated is the possibility of such reflex origin that the patient becomes a martyr to medication, and, unless by chance local symptoms reveal uterine disease and thus indicate the line of treatment, the entire materia medica may

be exhausted in vain attempts to cure what is supposed to be a pharyngitis, a laryngitis, or an asthma.

Respiratory reflexes likewise occur as a response to irregularities of the stomach, so that gastric laryngitis and pharyngitis have become recognized forms of throat disease, and asthma is looked upon more and more as purely nervous, a reflex vaso-motor affection. Dr. Glasgow, in a recent paper ("Etiology and Mechanism of Asthma," *American Journal of Medical Science*, July, 1887, page 111), admits that asthma occurs at many of the critical periods of female life, and that a marked connection exists between the cavernous bodies and the uterine changes. Dr. Glasgow states that many women at the menstrual period have a vaso-motor excitement with great turgescence of the cavernous bodies and the mucous membrane.

1. *Hystero-Neuroses of the Pharynx.*—These neuroses, resembling a true pharyngitis in every detail, with the absence of only the febrile symptoms, I have observed only as menstrual neuroses due to uterine disease, appearing with the menstrual congestion, with uterine or general pelvic disease.

The entire pharynx may be affected, but more commonly the reflex is confined to the side corresponding to the side of the diseased pelvic viscus or to the side of the most intense morbid changes in the reproductive organ. The symptoms of disease are so manifest that the practitioner can hardly be blamed for resorting to astringent applications and internal medication unless he be warned by the peculiarities of the disease—marked among them the monthly recurrence, regardless of temperature or exposure, which we should hardly expect in a simple pharyngitis. The cases which I have observed had all been previously treated by various practitioners, and at last, as they appeared so persistent and unyielding, with most powerful remedies, of course always to no purpose. Like all other reflex phenomena, the reflex pharyngitis and tonsillitis are inaccessible to local treatment, while they yield at once to improvement of the uterine or ovarian condition.

CASE XXIII. *Genito-Reflex Pharyngitis with Tonsillitis, recurring monthly, unyielding to Local Medication, overcome by Treatment of the Pelvic Disease; Causative Endometritis, Oöphoritis, and Perimetritis, most intense on the Right Side, like the Pharyngeal Symptoms.*—Miss B., from B., aged twenty-three, had enjoyed good health until exposed to a severe cold by breaking through the ice while skating; the inflammatory conditions thereby excited in the pelvic viscera, developing and imperceptibly progressing, have finally undermined her entire constitution. Upon examination I found an endometritis with metritis and cervicitis, also cellulitis, especially marked in the right side like the oöphoritis. The patient complained of palpitations of the heart, general nervous prostration, weakness of the eyes, globus hystericus, and an inflammation of the throat, recurring with each menstrual period; the pharynx sensitive, the mucous membrane congested, the tonsil enlarged, especially on the right side. A few days before the appearance of the menstrual flow the tonsil begins to hypertrophy, and, regardless of any treatment, this swelling of the tonsil and congestion of the mucous membrane continue until the cessation of the flow. The patient, generally costive, is afflicted with a menstrual diarrhoea, which appears, like the pharyngitis, with the menstrual congestion, a few days before the coming of the flow, and disappears during its continuance, to return for two days after cessation of the discharge.

I saw this patient before I had been attracted to the study of the hystero-neuroses, and paid but little attention to the pharyngeal symptoms. As she had come to me with well-marked uterine and ovarian disease, no treatment was attempted for the supposed pharyngeal disease, especially as I was told that the family physician, who had treated this recurring affection for many months, proposed to cut out the right tonsil, which was the one most inflamed during the attack, as all previous efforts had failed. Miss B. had been under treatment but two weeks when the menstrual flow appeared; the pharyngeal attack preceded the flow as usual, but in a milder degree; the menstrual diarrhoea, however, appeared in a greatly aggravated form. My interest was now thoroughly aroused, and I attempted no treatment whatsoever directly for the pharyngeal

disease. With continued improvement in the pelvic symptoms, the third period passed without any intestinal or pharyngeal reaction; neither diarrhoea, nor pain or swelling of the tonsil.

This is one of several cases, precisely similar in character, which have come under my observation. I must add that all occurred in young girls. Whether this was an accidental coincidence or not I am unable to say. It is needless to relate histories of cases so similar in their nature—pelvic disease accompanied by a menstrual pharyngitis, with swelling of the tonsil, in one instance with follicular ulceration, reappearing monthly with the menstrual congestion, and ceasing soon after the disappearance of the flow; in another, in which examination and uterine treatment was not permitted, the reflex pharyngitis resisted all treatment by myself and at the hands of others; always worse, with an exacerbation of the menstrual pains, improving only with an amelioration of the pelvic symptoms, to disappear after years with an improvement, local and general, brought about by rest, great care, and constitutional treatment. Several striking cases of this kind are recorded in that valuable paper on "Pharyngeal Neuroses due to Uterine Disease," by Dr. Edgar Holden, of Newark, N. J., published in the August number of the *New York Medical Journal* for 1877.

Dr. Holden gathers four instructive cases from a number which have come under his observation. In all but one the patients were well-to-do, only one unmarried; the youngest twenty-four; the eldest, who had borne seven children, forty-three, approaching the change of life; two of them remarkably healthy and robust. The sufferings of the patients were continual and severe. Their complaints were about the same: of intense aching pain just behind the whole length of the posterior pillars of the palate; sore throat extending up and down the sides; pain, varying in intensity, often worse after fatigue, rarely lancinating, more of a slow, torturing ache.

In no case did the most careful examination, rhinoscopic and laryngeal, reveal any signs of disease in the parts com-

plained of. The patients had been treated by Dr. Holden and by others for subacute pharyngitis with local applications of nitrate of silver or chloride of zinc—sometimes without benefit, sometimes with temporary relief, but in no instance with perfect success.

In the second case mentioned by Dr. Holden, after the treatment of the throat difficulty had been abandoned, the success being but partial, the patient came to him for treatment of her dysmenorrhea, due to ante flexion and endocervicitis. The erosion and inflammation were successfully treated and the pharyngeal trouble disappeared, recurring at times, and permanent relief finally followed the removal of the extreme anteversion.

2. *Laryngeal Neuroses*.—By far more frequent are the laryngeal neuroses, marked by an intractable and disagreeable cough, short and hacking or spasmodic, accompanying the advent of puberty, or referable to malposition or disease of the uterus. As in most of these reflex semblances of disease, examination reveals a healthy larynx, the vocal cords of a glistening white, slightly reddened by the constant exertion, if the attacks are severe or the cough constant and frequent. This neurosis may accompany the irregularities of menstruation, especially during the advent of puberty, and disappear when the function is well established, but usually it is referable to a stenosis of the canal or a uterine catarrh, perhaps with painful dysmenorrhea, and the coughing spell is coincident with the period of most intense menstrual pain. Its reflex nature is thoroughly characterized by the ready disappearance upon proper uterine treatment, and an utter indifference to laryngeal medication and manipulation, though sedatives will relieve. As soon as the uterine disorder is improved the cough ceases.

We must not confound with this hysteroneurosis hysterical aponia, or the laryngismus in nervous and hysterical women, those distressing paroxysmal attacks of coughing or of suffocation and strangulation which are as harmless as they are alarming, and disappear as rapidly as they come. These

we might call nerve-reflexes, not referable to a certain genital lesion, fluctuating with its changes, coming with each menstrual period or with uterine exacerbation, but, like other hysterical symptoms, dependent upon the emotions.

3. *Hystero-Neuroses of the Bronchii, Genito-Reflex Bronchial Symptoms.*—When the bronchial filaments of the pneumogastric and those of the plexus-pulmonalis respond to uterine irritation the hystero-neuroses of the bronchii are developed, which are often most intense in character and, like all other reflex symptoms, absolutely inaccessible to such medication as would appear indicated for the disease which is simulated. Unless the key is found, and the often trifling genital lesion discovered from which the impulse is imparted, it is impossible to relieve the violence of the bronchial reflex which may so harass the patient that health is impaired and the constitution undermined. As Barnes, in his paper on the “Relation of Pregnancy to General Pathology,”¹ says: “There seems to exist a striking solidarity between the uterus and the respiratory functions; the first is supplemental of the second. A notable proportion of the materials of the blood is expelled by the menstrual flux, and this fact explains the small activity of the pulmonary function while the uterus is active. With cessation of uterine activity at the menopause, the lung function assumes greater activity, the quantity of carbonic acid exhaled is increased as if to regain the level below which the menstrual flux had kept it, and, with the thorough establishment of the menstrual flow, the increased exhalation of carbonic acid which accompanies healthy development and continues in boys, remains stationary.”

An intimate relation exists between these important functional centres, and Barnes has described rather the coexisting and resulting symptoms, not the direct reflexes which form a most important group; but the lungs and bronchii, by reason of the direct connection of the pneumogastric with cerebral and ganglionic centres, are also liable to be excited to reflex activity by a trifling stimulus imparted by other terminal irri-

¹ *Transactions American Gynecological Society*, 1876, vol. i, p. 141.

tations, especially from the nasal mucosa. The violent asthmatic attacks which sometimes occur as reflex symptoms were first recorded by Voltolini, and referred by him to nasal polypi, and even now the best known of the bronchial neuroses are those which appear in response to morbid states of the posterior nares.

Hack (*Berliner klinische Wochenschrift*, No. 25, 1882) enumerates some of the more striking of these reflex neuroses. He has observed epilepsy, uncontrollable cough, asthma, and violent attacks of sneezing in response to such nasal irritation. Like the uterine-reflexes, these nasal neuroses are confined as a rule to the side of the nasal disease, if that be unilateral; thus, a left hemicrania appears in response to a chronic catarrh of the left nasal mucosa.

Fraenkel has devoted much attention to the subject, and the remarkable cures achieved in asthmatic attacks, however violent, when of a reflex nature, by the galvano-cauterization of the indurated mucosa, aroused the delusive hope in certain recent writers, by false generalization from individual cases, that that form of asthma known as hay-fever might be overcome by such cauterization.

Hack dwells at length upon the practical import of these reflex neuroses, and he gives expression to the same thought which I have so often enunciated—"that however marked the causative relation in these cases, however well known the dependence of such reflex symptoms, practically this is ignored by the profession. The treatment in all cases is directed to the site of the symptom, and the patient is plied in vain with remedies, while a simple treatment, often a single application, might give relief if directed to the site from which the reflex emanates." Unquestionably these reflex neuroses, whatever be their nature, though theoretically accepted, are practically disregarded. It seems but natural that an organ so intimately associated in function and in nerve connection with the genitalia, so susceptible to reflex irritation, should respond readily to uterine stimulus.

The most common of these bronchial hystero-neuroses

appear in the form of an irrepressible cough, a dyspnea more or less violent, and the asthmatic attack, although either of the morbid conditions to which the bronchii are subject may be simulated. A true reflex neurosis, however violent, is always unaccompanied by structural changes, and may be demonstrated with the certainty of a laboratory experiment in cases where the determining uterine status can be removed and reproduced at will—for instance, if this be a non-adherent, movable flexion, as in the following case, already cited as Case IX in my first paper on the hystero-neuroses :

CASE XXIV (*Case IX*). *Genito-Reflex Dyspnea, Uterine Asthma ; Instantaneous Relief by Reposition of the Retroflexed Uterus.*—Mrs. S. I first saw in consultation with Dr. Otto Greiner, of St. Louis, by whose courtesy I am enabled to give the full history. The patient was an exceedingly irritable, nervous woman, of forty-two, who had had four children ; formerly healthy and strong, she had become emaciated to the last degree, with a careworn, haggard look ; menstruation in former years was comparatively regular, and unaccompanied by pain.

In October, 1875, she began to suffer from nightly attacks of asthma. When these attacks first appeared, they presented all the symptoms of a nervous or hysterical asthma, with bronchial cough and expectoration toward the end of the attack as the asthma subsided. Coming every night, soon after eleven o'clock, they would continue for an hour or more, according to their severity, and then disappear, leaving the patient entirely free from the annoying symptoms ; but as the disease progressed her suffering became continuous, the trouble persisting, though in a milder form, throughout the entire day.

The case had gone from hand to hand, and the pharmacopeia had been exhausted by the numerous physicians consulted ; she herself, supposing a prolapse, had inserted various kinds of pessaries. From these facts, Dr. Greiner, when called in, suspected that the bronchial trouble might be in some way connected with a morbid condition of the uterus, and he was confirmed in this by the marked exacerbations a few days pre-

vious to the menstrual period, the bronchial asthma continuing unabated throughout the entire duration of the uterine congestion, and gradually yielding in intensity as the catamenial flow disappeared. The symptoms always abated more or less after the cessation of the flow, but continued throughout the intermenstrual period, again to become more violent at the approach of the next period.

Notwithstanding the grave symptoms, auscultation and percussion revealed but little; while, upon vaginal examination, Dr. Greiner found an elongated, acutely-retroflexed uterus, movable and straightened by the probe without much difficulty. He introduced a sponge-tent; the patient soon began to feel more comfortable, and in less than twelve hours the annoying cough and asthma which had so long troubled her entirely disappeared. An intra-uterine stem, ingeniously constructed to suit the case by Dr. Greiner, was next introduced, and, as long as it could be borne without irritating the mucosa, the cough and asthma ceased.

The symptoms, as I have myself several times observed, would abate soon after the introduction of the stem, to cease entirely within a few hours, but upon removal of the instrument the former suffering was sure to return in from five to twenty-four hours.

The bronchial symptoms responded with the greatest certainty and regularity to a change in the position of the womb.

Retroversion pessaries did but little good, some even proving injurious; pressure, even the slightest, on the posterior wall of the corpus uteri caused intense pain and a fearful exacerbation of the symptoms, as was demonstrated by a glycerine cotton tampon which had been introduced with a view of elevating the fundus.

At last the stem could no longer be borne, and the patient's suffering became so unbearable at the time of the catamenia, while she was free from the asthma for two weeks of the intermenstrual period, that I determined to bring about the menopause by Battley's operation. I removed both ovaries, and the patient, enfeebled by long suffering, died on the sixth day after the operation.

The post-mortem examination showed the lungs to be almost normal, somewhat emphysematous, but the bronchi free, nowhere enlarged, their mucous membrane perhaps a trifle thickened; thus it was evident that the dyspnea and the severe and continuous cough with muco-purulent sputum was a purely nervous phenomenon, and clinical experiment had shown the causation to be uterine.

(*Case X.*)—An analogous case, characterized, moreover, by the recurrence consequent upon uterine disease of a physiological reflex of puberty, is related by Prof. Hegar of Freiburg.¹ The patient, a maiden lady, thirty-one years of age, had been troubled during the period of puberty with an annoying cough, which returned in her twenty-sixth year and grew constantly more troublesome; she complained of intense cervical and hypogastric pains, bearing down and other uterine pains, loss of appetite, but above all, of the hoarse, irritating, and constant cough, which was only temporarily relieved by the use of strong opiates; menstruation was profuse and painful. Examination revealed an ante flexion, with chronic metritis and oöphoritis.

The introduction of an intra-uterine stem pessary afforded almost instant relief from the terrible coughing spells, precisely as in my case, where it was used to overcome the retroflexion, and Prof. Hegar's further experience with the stem was perfectly analogous to my own. It seemed to act unfavorably in other ways, so that as the period approached he was obliged to remove it; in from three to four hours after the removal the attacks returned with all their former severity. The stems were used for several months, but although the cough was checked the pain, irritation, and menorrhagia grew unbearable, and the use of the instrument was given up. Electricity as well as all medication failed, and the extirpation of the uterus and the ovaries was determined upon, as the condition of the patient was such that she must apparently soon succumb, and it was highly probable that the cough would subside upon removal of the uterus and ovaries. The operation was successfully performed, and up to the date of the writing of the article, three months after the extirpation, the

¹ *Wiener med. Presse*, 1877, Nos. 14, 15, 16, 17.

cough had not reappeared. Similar cases are cited by Chroback,¹ Grünewald,² and Tripier.³

Hodge gives a number of cases in point. After referring to that tired feeling of the chest and the nervous cough—the dry, the hard, and the paroxysmal cough coexistent with the irritable uterus—he cites several which are decided bronchial hystero-neuroses, as their dependence upon uterine disease is made plainly manifest.

CASE XXV. *Genito-Reflex Dyspnea, Uterine Asthma, disappearing upon Relief of the Causative Uterine Disturbance by Conception.*—Mrs. X., forty-eight years of age, had for many years been a sufferer from terrific attacks of asthma, was in no way affected by internal medication, but somewhat relieved by cauterization of the sensitive area of the nasal mucosa by my friend Dr. Glasgow, who kindly gave me the details of the case. Though somewhat ameliorated and diminished in intensity, the disease persisted until conception took place, when a perfectly healthy functional activity of the respiratory organs was re-established, and up to date, the eighth month of pregnancy, breathing has been perfectly normal, and no evidence, even the slightest, of the before so violent asthma has been observed.

CASE XXVI. *Bronchial Hystero-Neurosis of Pregnancy.*—Mrs. X. consulted my friend Dr. Glasgow on account of a persistent asthma which had developed with conception, persisted throughout pregnancy, and was still continuing, then in the seventh month. The patient is a lady in whose family a disposition to asthma has existed, and in other members of the family the attacks have been brought about by very trifling exciting causes; in one sister a slight cold appeared as the impelling cause, in another a laryngeal trouble, both responding to proper treatment. The reflex nature of the attack in this instance was made evident, not alone by the peculiar coincidence of its appearance with conception, but by the utter failure of constitutional and local treatment from which relief could be expected.

¹ *Wiener med. Presse*, 1869, Nos. 1 and 2.

² *Petersburger med. Zeitschr.*, 1875, p. 575.

³ *Leçons de Forme et de Situation de l'Uterus*, etc. Paris, 1874, p. 87. Observ. XXII, XXIII.

While in the first case a displacement of the uterus, possibly a retroflexion, or a narrowing of the canal, which had excited the reflex symptom, was overcome by the functional changes consequent upon pregnancy, and thus, the cause being removed, the bronchial reflex abated, in the second, the physiological hypertrophy of the uterus due to pregnancy seemed to produce the irritation which resulted in the bronchial response. Most likely with parturition, the emptying of the cavity and the contraction of the organ, the reflex symptoms will abate.¹

CASE XXVII. *Bronchial Hystero-Neurosis, Cheyne-Stokes Respiration and Pleuritic Pains determined by the Menstrual Exacerbation of Chronic Uterine Disease.*—Mrs. C., from Warrensburg, Mo., aged twenty-six, consulted me in November, 1886. Examination revealed laceration of cervix and perineum, erosion of the congested and everted lips, retroflexion of the enlarged uterus, and metritis, endometritis, and oöphoritis. Intense backache was the only symptom characteristic of these morbid conditions, which resulted from a first and only labor three years ago, and which had caused complete nervous and physical prostration and a variety of reflex neuroses, prominent among which seemed those of the pneumogastric, pain in the heart, palpitations, exciting a fear of heart disease, nausea, belching, distention of the stomach, and Cheyne-Stokes respiration; while cardiac and gastric symptoms persisted in a milder form, a violent exacerbation, together with a development of pulmonary symptoms, accompanied the menstrual congestion, the thoracic pain, and the peculiar respiration so characteristic of pulmonary disease, that I requested the opinion of my friend Dr. Glasgow in the case. Although the breathing was characteristic, and the patient gave a history of repeated attacks of pleurisy and "lung fever," he could detect no pathological changes, and assured Mrs. C., as I had done, that her lungs were in a perfectly healthy state notwithstanding the distressing symptoms.

We observed this neurosis, which had appeared with the development of pelvic disease for the past year, during two

¹ Dr. Glasgow has kindly informed me since that his expectations have been realized, that the asthmatic attack, which persisted throughout pregnancy regardless of treatment, ceased immediately after confinement.

menstrual periods. It was most intense, the peculiar respiration most marked during the violent menstrual attack following her journey to the city, by which the uterine symptoms had been aggravated. The period following this, after the inauguration of treatment, and after the patient had had an opportunity to rest properly, passed off with all symptoms less severe.

As treatment progressed and the displacement was relieved, the inflammation reduced, the erosion healed, the bronchial neurosis ceased, likewise the cardiac. The gastric symptoms alone remained, but in a milder form. With constant improvement the menstrual pains constantly diminished, and the bronchial neurosis has never reappeared.

CASE XXVIII. *Genito-Reflex Dyspnea and Cardiac Neurosis*.—Difficulty of breathing, palpitation of the heart, distention of the stomach, resulting from laceration of the cervix and consequent hyperplasia with descensus uteri. Persistent or pathological neurosis permanently checked by galvanism to the uterine terminals.

The patient, Mrs. H., had been a constant sufferer from violent reflex neuroses excited by uterine disease, and her insomnia added to the bodily and nervous prostration. In this case the palpitation of the heart and dyspnea were so marked that, after walking fifty steps, the patient had to keep her mouth open and gasp for air. She could not walk up a single flight of stairs without resting a few times, rarely attempting to walk two squares to market. The neuroses were constant or pathological, with a slight exacerbation at the menstrual period, and after cold or exertion, by which the uterine disease was aggravated.

Before resorting to operation upon the lacerated cervix, I decided to relieve the inflammatory symptoms with mild astringent applications to the endometrium, medication to cervix and *cul-de-sac* by powders and medicated cotton, and reposition of the uterus by the elastic tampon. As the uterine congestion diminished, discharge and erosion bettered, her suffering was lessened; she slept more, and complained less of palpitation and dyspnea; still she was unable to walk up-stairs, or any distance on level ground, with comfort. Believing that

the hyperplasia of the uterine would be more readily reduced by galvanism I resorted to electrolysis by galvano-puncture in addition to the before-mentioned treatment. A platinum needle attached to the negative pole of the galvanic battery was inserted to the depth of one inch into the indurated uterine tissue, the positive dispersing plate upon the abdomen: a current of 40 milliampères was employed for five minutes. Two days later the same treatment was repeated; while still upon the table the patient gave a sigh of relief, and before leaving the room told me that she now felt well. I did not see her for three days, and when she returned she appeared in the best of spirits, completely relieved of all the annoying reflex symptoms. She slept soundly throughout the entire night, could walk any distance, even go rapidly up-stairs without any discomfort. The dyspnea had entirely disappeared, and by the operation, undertaken soon after, her health was completely restored.

The sudden disappearance of the violent neurosis in this case is evidently due to the sedative action of galvanism, as it is not possible that a single treatment could so suddenly cause so great an amelioration of the uterine disease as to remove the exciting cause of the reflex neurosis, but as so pointedly shown in Case IV, in which the reflex neuroses, which persisted after the removal of uterus and ovaries, were relieved by galvanic treatment of the irritated nerve-terminals in which the molecular disturbance excited by uterine disease had continued after the removal of the exciting cause, so I believe in this case, the morbid nerve-irritation was overcome by the galvanic current, and thus the reflex neuroses checked while the causative disease continued.

IV. THE GASTRO-INTESTINAL CANAL—REFLEX GASTRO-INTESTINAL NEUROSES.

Though not so strange or so striking as many of the other phenomena resulting from uterine disease, the reflex neuroses of the gastro-intestinal tract are important to the practitioner, especially on account of the frequency and occasional vio-

lence of the most common of these reflexes, the gastric neurosis of pregnancy. We will consider :

1. The hysteroneuroses of the stomach.
2. Those of the intestines.

1. *The Genito-Reflex Gastro-Neurosis*.—Fullness in the epigastric region, gaseous distention of the stomach, loss of appetite, belching, nausea and vomiting—all the symptoms of indigestion, even of gastritis, may be determined by morbid or physiological changes in the reproductive organs. Like other neuroses, without medication, these annoying troubles gradually disappear as the uterine disorder yields to local treatment; while, before the inauguration of such treatment, any remedies that may be given to ease the suffering caused by the apparent gastritis will be either fruitless or will at best afford but partial and temporary relief; sedatives and anodynes alone allay the intensity of the symptoms. The semblance of disease is so perfect that, unless the monthly recurrence or the existence of known pathological or physiological uterine changes be verified, a tentative treatment only will determine whether it be a mere phantom of disease or the result of actual pathological changes.

Gastric neuroses occur in response to physiological or pathological changes, and we need scarcely consider all the varieties, often trifling in character; the most important are the nausea and vomiting of pregnancy, often with fatal termination, and the gaseous distention of menstruation; belching, nausea, and vomiting as a menstrual neurosis, dependent upon the exacerbation of uterine disease with the monthly congestion, may be most violent in character. The diseased sexual organs may excite the gastric nerve through the sympathetic, and it is claimed by Jaffe ("Dyspepsia uterina," *Memo-rabilia*, 1886, No. 4, Frankfurt-on-the-Main) that the reflex vomiting is brought about by irritation of the vomer centre by a morbid stimulus imparted by reflex action to branches of the vagus or gastric nerves.

The insidious control exercised upon the stomach by the reproductive organs is well marked by the frequency of the

epigastric faintness, which is a direct resultant of uterine changes, physiological and pathological. As Tilt expresses it, the vagus is a bridge which unites the central portion of both nervous systems, resembling both, not well isolated, often anastomosing with the sympathetic, which helps to form the celiac plexus, so that affections of the vagus and the epigastric ganglia generally coincide, and the viscera by their ganglia react upon the brain, and a paralysis of the epigastric centres causes this uneasy sensation in the pit of the stomach, the feeling of sinking and faintness, nausea, weakness, and perverted appetite. Hyperesthesia or paralysis of the solar ganglia and celiac plexus may result from uterine disease. Tilt, however, overestimates the frequency or importance of this gangliopathy, as he calls it. Though it may be more frequent in response to the changes of the menopause, it does not play so important a role as a reflex to uterine disease or the earlier physiological congestions. Those spells of faintness, this sinking and feeling of emptiness, which we also find in patients suffering from uterine disease, are a direct reflex occasioned by uterine or ovarian congestion, as is evident by their direct cessation upon an improvement in the uterine condition. Were they a mere resultant of constitutional debility caused by uterine disease, relief would not immediately follow local improvement, but would result only from an improvement in the tone of the system, which is, however, but slowly effected after a cure of the pelvic disturbance.

This epigastric faintness, though annoying, is not of as much importance even during the menopause as it is supposed to be by Tilt, who finds it in two hundred and twenty out of five hundred of his cases, and claims that "women voluntarily unfasten their stays and clothing on account of their liability to gangliopathy; and for this reason many of my patients have left off their stays," he says. A striking example of an explanation suited to the wishes of the writer. This leaving off of corsets and unfastening of stays is not in the main to avoid the epigastric pressure, but to prevent that

downward pressure of the intestines upon the reproductive organs, and of these downward into the pelvis, by which an exacerbation of uterine and ovarian symptoms is caused. Pressure from above is injurious, as descensus takes place when the patient is in the erect posture, and the hint is thus given by Nature to the physician that he instruct his patients to avoid those dangerous garments altogether, and to support their clothing from the shoulders, that they may prevent this injurious pressure.

a. Constant, Strictly Pathological Hystero-Neuroses of the Stomach.—Belching, nausea, and vomiting, caused by reflex irritation of the gastric nerve, are less frequently a permanent accompaniment of uterine disease; more commonly they are excited by the menstrual congestion. So closely resembling the various forms of dyspepsia and the well-known gastric symptoms, they are usually treated as such, and, I regret to say, notwithstanding the strong arguments and the striking cases cited in my first paper, I seemed to remain alone in my ideas as to the causative relation of these phenomena; but lately the reflex nature of these symptoms has been more fully appreciated, as we see from the case cited by Jaffe.

CASE XXIX. *Pathological Genito-Reflex Gastro-Neurosis.*—*Symptoms of Gastric Catarrh; Cure by Treatment of Existing Endometritis.*—Patient, twenty-three years of age, suffering greatly from nervous prostration, complained of heartburn, eructations, and vomiting after meals. Constitutional treatment was at first resorted to; iron and other tonics were given, without effect. The stomach-pump even was tried, and showed a perfectly healthy condition of the gastric mucosa; the stomach was clear of secretions, not over-acid. The uterine symptoms, which had been neglected on account of their apparently trifling importance as compared to the gastric and constitutional condition, were now examined into, and a douche was ordered. The stomach grew worse, evidently in consequence of the irritation caused by the examination. As the vaginal injection proved useless, local treatment was insisted upon;

the uterus was anteflexed, the body enlarged, the mucosa diseased ; the curette was resorted to for the relief of the endometritis, and the cavity thoroughly cleansed ; the belching and vomiting ceased at once, and the stomach was restored to a healthy condition, but after a time the dyspeptic symptoms slowly reappeared, though not with that severity, and without vomiting.

This is evidently a reflex neurosis, well demonstrated by the imperfect treatment of the case. Metritis and endometritis of long standing are not suddenly cured by a single curetting, although the diseased mucous membrane is much improved, and an opportunity given for cure by prolonged treatment. With the improvement following the curetting, the reflex symptoms ceased, but, as the advantage was not followed up, the uterine condition again grew slowly worse, and with it the gastric neurosis reappeared. Had curative treatment been inaugurated immediately after the operation, a permanent cure would have been effected.

CASE XXX. *Pathological Gastro-Neurosis*.—Mrs. W., aged twenty-seven, began to menstruate in her fifteenth year, has always been regular, with pain on the first day, and a profuse flow. Married at seventeen, she bore two healthy children. She first began to complain six years ago of lassitude, headache, backache, and unusually profuse menstruation ; at the same time gastric symptoms developed ; her stomach was continually deranged, weak, with a feeling of fullness after taking any, even the lightest, food. She was under treatment for almost two years for the uterine derangement, but experienced so little relief that she ceased all medication for the next two years, when her suffering increased, and she consulted me in the spring of 1875.

Combined with pelvic complaints were all the symptoms of a chronic catarrh of the stomach.

I found a slight prolapse of the tumefied, retroverted uterus, the lower lip elongated, hard, and nodular, and an eroded, granulating surface surrounding the os ; the bowels irregular, often bloated. During the menstrual period there was profuse and

continued hemorrhagic flow, which I found it difficult to check. Suspecting a granular condition of the uterine cavity, I made a digital examination after dilating with sponge-tents, and removed the excrescences with a scoop. The operation was followed by speedy recovery, and with the improvement of her pelvic suffering the distressing gastric symptoms disappeared, although I had before in vain sought to remedy the evil with bismuth, pepsin, nux vomica, and similar agents.

At a later date I was obliged to insert a Hodge pessary, as the retroversion became more marked and caused annoyance, backache, bearing-down pains, and a slight return of the stomach trouble. The instrument at once relieved both pelvic and gastric trouble; but at times, when she has not worn it for several days, her digestion again suffers.

CASE XXXI.—Several equally marked cases have been recently reported. The first was by Dr. Wm. M. Chamberlain, at a meeting of the New York Obstetrical Society, September 19, 1876.¹

In this case the point of irritation at which reflex action was excited is supposed to have been at the os internum, as this was the seat of a small fibroid which acted as a ball-valve, and when it closed the canal the stomach trouble appeared. Not medication, but removal of the fibroid brought relief to the sufferer from so-called chronic gastric disease.

Patient thirty years of age; married. Has one child, now five years old, after the birth of which symptoms of uterine disease began to appear. During gestation the nausea and vomiting had been excessive; three years later she had gastric trouble, nausea, vomiting, and a boring burning pain in the epigastric region; no food could be retained, so that for twenty-seven days she was kept alive by enemata. She slowly improved, and finally recovered.

This patient again became pregnant, and all the old symptoms recurred. At this time Dr. Chamberlain first saw the patient in the second month of her pregnancy, and, finding the pregnancy to be complicated with large uterine fibroids, one smaller one being within the cervix, determined to produce abortion. He began dilating at 11 A. M., and at 7 P. M. vomit-

¹ *Am. Jour. Obstet.*, January, 1877, p. 98.

ing, pain, and all other distressing gastric symptoms had ceased. They began to diminish in two hours, and five hours afterward she ate a hearty meal. When the cervical canal was open and unobstructed, the patient was comfortable, but with every labor pain, as the fibroid was forced down and the valve closed, the nausea, gastralgia, etc., returned.

Dr. Chamberlain justly remarks that the old trouble two years ago was undoubtedly uterine in its origin, as the last was distinctly proved to be.

CASE XXXII.—This case, a “sympathetic hystero-neurosis of the stomach,” by Dr. Formento, of New York, appeared in the July number of the *American Journal of Obstetrics* of 1877. Intractable vomiting and hysterical convulsions lasting for several years, caused by the indurated conical cervix with stenosis of the canal, were cured by incision and dilatation. The patient was a healthy lady of twenty-one, who had known no uterine suffering save a somewhat painful though irregular menstruation previous to marriage. The vomiting, unaccompanied by any pain in the epigastric region or other symptom indicating organic disease of the alimentary apparatus, at first appeared soon after marriage, then coming only in the morning when the stomach was empty. It gradually became more frequent, coming at all times, before and after meals, often provoked by some unpleasant sensation or a slight moral impression. The patient soon lost flesh; there was extreme prostration with perversion of moral and intellectual faculties. Finally these disorders of innervation went so far as to produce convulsions with complete loss of consciousness, general, and at times partial anesthesia, or, during certain attacks, extreme hyperesthesia; at times phenomena of catalepsy, or trismus, ophisthotonus, contractions of pharynx, esophagus, etc. These occurrences often took place several times during the month, menstruation continuing regular, neither more difficult nor less copious than normal.

Several physicians had been consulted; antispasmodics, tonics, hydropathy, electricity, sea-baths, mineral waters, blisters, morphia hypodermically, etc., had all been tried in vain. Dr. Formento found an abnormal sensibility of the external organs, a narrow vagina, a conical, hard, resistant cervix, of a

deep-red color and smooth surface; the external os scarcely visible and impermeable even to the smallest sound; the uterus normal in size and position.

The cervical canal was enlarged by bilateral incision in its entire length, especially at its two orifices, and before the incision healed the vomiting had ceased; the external genitals and cervix became more natural, the congestion disappeared, and a large sound could be readily introduced to the normal depth; all suffering was relieved, and the patient became cheerful, strong, and healthy.

This satisfactory condition continued for nine or ten months following the operation, when the derangements of the stomach and nervous system again began to appear. Upon examination the os and cervical canal were found to have become considerably narrower than they were two months after the operation; this was now repeated, the same immediate and remarkable amelioration following and continuing for over a year; then again, for the third and fourth times, the knife was resorted to. After a period varying from ten to sixteen months, the return of the same disorders compelled Dr. Formento to have recourse to the same method of treatment, always with the same good result.

The symptoms in different patients necessarily vary, but more in intensity than in kind. I have cited these cases at length in order to elicit the gastric symptoms as they appeared in each, and more particularly to demonstrate the causative relation existing between the affections of the stomach and the uterus, and the dependence of these reflex phenomena upon chronic uterine disease. However frequent these cases have come under my observation, I have seen none more characteristic than those cited in my first paper.

b. Menstrual Hystero-Neuroses of the Stomach.—While nausea, hiccough, or vomiting may appear at a menstrual hystero-neuroses, the most frequent of the menstrual hystero-neuroses is the gaseous distention of the stomach, accompanied by either pain, nausea, or vomiting, the menstrual hystero-neuroses of the stomach par excellence. It was the

frequency of this peculiar symptom and its strict dependence upon the uterine condition which first called my attention to the reflex neuroses, and I believe that I am safe in saying that at least one-third or one-fourth of all female patients suffering from pelvic disease have this enlargement of the stomach at the time of the menstrual engorgement, so that this swelling which appears, not with the flow, but a few days earlier, with the uterine congestion, may be looked upon almost as an indication of the approaching catamenia. This neurosis accompanies almost every menstrual disorder, and yet it is not referred to in our text-books, and is but little known to the practitioner in its relation to the female sexual organs, so that a case of this kind when observed is usually treated as an indigestion or a gastritis; 64 of the 174 patients in the female hospital in this city in 1876 and 1877 suffered from the menstrual hystero-neurosis of the stomach—36 per cent. I made these examinations repeatedly at intervals of several months, examining indiscriminately patients from surgical, medical, venereal, and lying-in wards, and I always attained about the same per cent.; 34 out of 94 patients examined in July, 1876, complained of the menstrual swelling, and when, after a complete change of inmates, the rounds were again made, in August, 1877, 29 sufferers were found among 80 patients.

SYMPTOMS OF THE MENSTRUAL HYSTERO-NEUROSI8 OF THE STOMACH.

Swelling only, or with pain and indigestion.....	46 per cent.
Swelling with nausea.....	19 “
Swelling with nausea and vomiting.....	16 “
Nausea, often with pain, very slight swelling.....	19 “

TIME OF APPEARANCE OF THE SYMPTOMS IN RELATION TO THE MENSTRUAL FLOW.

Immediately preceding, or together with, the appearance of the flow.....	10·6 per cent.
1-2 days before appearance of the flow.....	37·9 “
2-3 days before appearance of the flow.....	27·3 “
3-4 days before appearance of the flow.....	9·0 “
5-6 days before appearance of the flow.....	3·0 “
7 days, more or less, before the appearance of the flow	10·6 “
In middle of inter-menstrual period.....	1·5 “

DISAPPEARANCE OF THE NEUROSIS.

With appearance of the menstrual flow.....	61·8 per cent.
On the first and second day of the flow.....	25·4 “
With cessation of the flow.....	12·7 “

DURATION OF THE NEUROSIS.

Several hours.....	3·7 per cent.
1-2 days.....	11·2 “
2-3 days.....	42·6 “
3-4 days.....	14·8 “
4-5 days.....	7·4 “
6-8 days.....	20·3 “

Symptoms.—The symptoms of this neurosis are somewhat varied ; its appearance is, however, always ushered in by a distention of the epigastric region, more rarely of the entire upper part of the abdomen. The patient will always speak of the “swelling of the stomach,” which often becomes so marked that the clothing must be very much loosened if it be worn at all. The enlargement is, in almost all cases, confined to the epigastric region, which is tense, sensitive to the touch, and extremely tympanitic.

This flatulent distention is frequently accompanied by more or less pain in the stomach, cramps, and bearing-down pains, or cramps and pains passing from the stomach down into the back.

The backache and headache, or fullness of the head, which so often precede and accompany difficult menstruation, generally complicate the neurosis of the stomach.

In at least one-third of the cases (35 per cent.) nausea succeeds the swelling, and, when once established, continues until the cessation of the neurosis. In more aggravated cases the gastric discomfort is such as to produce vomiting, but this only when the neurosis is at its height, shortly before the flow, and it ceases, as all other symptoms do, with the appearance of the catamenia. In only 16 per cent. of the cases was the distention accompanied by vomiting, and then not regularly with every period, but only when all the symptoms were intensified. Sometimes we find indigestion, frequent anorexia, but in some instances a very good

appetite, notwithstanding the nausea; the flatulent distention of the stomach as a reflex phenomenon is not necessarily accompanied by that disgust for food which is a symptom of gastric disease.

Time of Appearance and Duration of the Neurosis.—This neurosis of the stomach generally (65 per cent. of the cases) makes its appearance from one to three days before the catamenia; beginning with the distention of the epigastrium, the symptoms increase and reach their climax just before the coming of the flow, and they disappear (62 per cent. of the cases) when the engorged uterus finds relief in the escape of the sanguineous fluid.

In some cases the symptoms do not appear until the coming of the flow (10·6 per cent.), and rarely are they found as early as the fourth (9 per cent.) or the fifth and sixth day (3 per cent.) before its appearance. In 10·6 per cent. of my cases they came on a week previous to the flow, lasting until its appearance, and in two cases, in the middle of the intermenstrual period.

These gastric symptoms generally disappear at once when the menstrual discharge comes on; occasionally they continue until the flow is freely established on the first or second day (25·4 per cent.); less frequently (12·7 per cent.) do they last throughout the entire duration of the period. The average duration of the menstrual hystero-neurosis of the stomach is consequently from one to three days (54·0 per cent.), seldom but a few hours (3·7 per cent.); in 14·8 per cent. it was from three to four days, in 7·4 per cent. from four to five days, but again more often (20·3 per cent.) from six to eight days.

Time of Development of the Neurosis.—Only 34 of the 70 cases observed were carefully questioned as to the time at which the distention of the epigastrium, in connection with the catamenia, had been developed. Of these 34 patients, 25 (73·5 per cent.) had observed this more or less annoying symptom from the time they first menstruated, and it had returned regularly with each period, always preceding the

flow, so that they had learned to look upon it as a part of the suffering to which they were doomed during the continuance of their sexual life. It is probable that, for reasons such as this, the advice of the physician is not often sought by women suffering with this trouble, and when he is consulted, as in several instances related to me, it is in aggravated cases which are naturally looked upon as very serious forms of gastric derangement, because his attention has never been called to the milder forms of this affection or to its causes and relations. It might be of interest to add that the age at which menstruation appeared varied greatly, ranging from the eleventh to the nineteenth year.

In the nine other patients (25·5 per cent.), the neurosis appeared later in life in connection with uterine disturbances; six of these first observed the gastric suffering upon the reappearance of the menstrual flow after childbed, mostly when this had been aggravated by uterine inflammation. In one instance the swelling appeared at the same time with the development of uterine disease; in another after marriage, by which the congestion of the anteflexed womb and all menstrual suffering was increased. And in only one of these nine cases is no sufficient cause mentioned for the late appearance of the neurosis.

Conditions under which the Neurosis is found.—My statistics are gathered entirely from women in the lower walks of life, as I was dependent for data and comparisons upon the 174 patients of the Female Hospital. These were mostly servants, quite a number were prostitutes, some housewives, seamstresses, and laundresses.

Since writing my first paper I have observed over one thousand cases in private practice, and, while the frequency of this neurosis among those more comfortably situated is about the same, the symptoms, as a rule, appear to be less violent.

The ages of patients examined for the above statistics cover almost the entire range of menstrual life, from the fourteenth to the fifty-first year, and the diseases from which

they were suffering at the time were such as will be found in a general female hospital.

CONNECTION WITH UTERINE DISEASE.

Cases in which the neurosis appeared.....	63
Under treatment for uterine disease.....	16
No uterine disease acknowledged.....	47
Cases in which the neurosis did not exist.....	111
Under treatment for uterine disease.....	15
No uterine disease acknowledged.....	96
Total number of cases examined.....	174

Of the 31 cases in the hospital under treatment for pelvic trouble, 16 suffered from the neurosis; but, as vaginal examination was not made in all cases, it is impossible to say how many of the other patients labored under some slight uterine difficulty unknown to themselves, or not acknowledged to the physician.

Of the seven private cases which I had recorded in my first paper as showing the menstrual hystero-neurosis of the stomach, only one was free from severe uterine disease. Since that time I have had very little opportunity of observing morbid symptoms in patients not suffering from uterine disease, as none but those so afflicted are seen in a practice strictly gynecological.

In many of those cases of neurosis in which the patient did not complain of the symptoms of uterine disease, an irregularity of menstruation was found. Thus, in 27 of 36 patients whose histories were more carefully recorded, menstruation was decidedly abnormal, mostly irregular, or, if regular, profuse and of long duration, or very scanty. In the other nine the flow was perfectly normal; in eight of these nine cases the swelling had been noticed since the first appearance of the courses, and had since then regularly preceded every period.

The cases in which menstruation is regular and normal are mostly the milder types of the neurosis, and in the mildest forms the flow is always regular.

The most severe cases, in which the epigastric swelling is very marked and painful, occur when the menstrual flow has been checked by some pathological influence in patients suffering from the neurosis. Thus, a woman, now thirty-one years old, first menstruated at fourteen, and, affected with the neurosis since that time, did not see a return of the period until her eighteenth year, the flow having been checked by a severe cold. In these four years, during which the menses did not appear, the neurosis returned regularly each month, being more severe and causing her greater suffering than she had experienced while the flow was regular, both before it was checked and since its reappearance. Her case is still one of the most troublesome. I find several other equally marked cases among the number recorded, and I deem them most instructive as showing the dependence of the neurosis upon uterine engorgement.

In those cases in which a physiological cessation of the flow takes place, as in consequence of conception, I could detect no regularity in its effect upon the neurosis. Thus the patient last referred to, whom I saw in childbed, tells me that her stomach was in a very fair condition throughout the entire period of pregnancy, and that she did not suffer from vomiting until the last month; another, who has suffered greatly from the neurosis since puberty, says that she had never felt so well as during the nine months following conception, and that her stomach had never before been in so good a condition; on the other hand, in some patients so affected, swelling and tenderness of the stomach, with vomiting, always appear at the end of the first month of conception and continue throughout pregnancy, which may be brought to a premature termination by the suffering and debility of the patient, if the medical attendant does not himself resort to the only means of relief—an early abortion.

I recall two marked cases of this kind, in both of which I was summoned in consultation on account of the excessive vomiting and gastric suffering.

The history told of menstrual hystero-neurosis; the courses had been missed in one case but once, in the other twice, and the suffering and vomiting dated from the period at which the flow was for the first time vainly expected. This at once led me to infer a conception, and I was enabled to verify the diagnosis; in one case I was obliged to relieve the uterus of its contents, after which the vomiting at once ceased.

Causes of the Neurosis.—I can adduce no better proof of my theory, that this gastric disorder is a reflex neurosis dependent upon a pathological condition of the uterus and a disturbance of its functions, than by citing the following characteristic cases:

CASE XXXIII. *Menstrual Hystero-Neurosis of the Stomach.*—L. S., aged thirty-one, Bohemian; healthy during childhood; first menstruated in her fourteenth year; has been regular, without pain or bloating; married at twenty-three; had five children. Since her last childbed, in 1873, she has been troubled with a swelling of the stomach at the time of her courses; this precedes the flow by one or two days, and ceases with its appearance. As the patient herself expresses it, she feels at that time "just as if she were in the family way"; the stomach is distended and tender; she is nauseated, has no desire for food, but rarely vomits; is greatly debilitated by each attack of this kind, and has been incapacitated for work for several months, being often confined to her bed for days at a time. I saw the patient in May, 1876; the examination showed a prolapse of the uterus with elongation of the cervix; operation was refused; I reduced the prolapse and retained it in place by a Hodge pessary, advising in addition to this the use of astringent cotton tampons. In October, 1876, Mrs. S. returned, now a healthy, strong woman, earning a livelihood for herself and an idle husband by washing; the next flow after the introduction of the pessary passed off without the usual suffering, and *the hystero-neurosis has not returned since the uterus has been in place.* The prolapse, also, is so far improved that she no longer wears a pessary or tampon unless she is looking forward to an unusually severe day's labor.

Other of the genito-reflex gastro-neuroses, which are strictly due to pathological causes and cease with their removal, appear during the physiological congestion of the catamenia, and hence resemble the menstrual reflexes proper. As an example of such neuroses, I may cite some peculiar cases of perverted appetite, a gastro-neurosis which has by no means received the merited attention. The school-girl who refuses her wonted food, and, regardless of admonition and medication, endeavors to subsist on pickles, on bread and sugar, or such other unusual articles as her fancy may crave, is ridiculed, scolded, or punished as a wilful, disobedient child, while she is suffering from the effects of a morbid gastric stimulus, due to puberty, some malposition, or cervical catarrh, and physician and parents merely aggravate her condition by gross mismanagement. Occasionally this peculiar symptom persists as the result of uterine disease, when it is, of course, attacked by gastric medication, but it is most frequent during the physiological periods, during puberty, menstruation, and pregnancy. Known to the ancients, known to the laity, as a resultant of conception, even considered as a certain symptom of pregnancy, the physician still seeks to overcome this reflex by gastric medication, instead of attacking the causative uterine lesion.

It is well known as a symptom of pregnancy, and cited as one of the early signs, and it is unnecessary to substantiate this by the rehearsal of well-known cases. More or less common is the pathological reflex, of which a typical case is appended:

CASE XXXIV. *A Ravenous Appetite accompanying the Menstrual Congestion immediately before and after the Tri-fling Show; Amenorrhœa, Endometritis, Perimetritis; Relief by Local Treatment (Gynecological Department, St. Louis Polyclinic).*—Lizzie —, a colored girl, nineteen years of age, fairly developed, has never been regular, her menses appearing in her fifteenth year, have always caused her great pain, with a slight, scarcely perceptible flow, which has even diminished of late, coming for an hour or two only. The patient complains

of backache, hypogastric pains, distention of the abdomen and general languor ; the uterus is small, retroverted, with an ante-flexion of the fundus, and the still-existing right perimetritis is probably the cause of all her trouble. Two days before the appearance of the flow, with the menstrual congestion, patient develops a ravenous appetite, eats constantly anything and everything within reach ; roams about the house at night to seize upon whatever is available. If the flow continues for any length of time, the symptoms abate, to return a day or two after. The girl has now been under treatment for two months ; the endometritis is greatly bettered ; the menstrual pains have diminished ; the flow is increased in quantity, and this ravenous appetite has yielded to a normal condition.

CASE XXXV. *A Genito-Reflex Intestinal and Gastric Menstrual Neuroses ; Looseness of Bowels and Lack of Appetite during the Menstrual Period.*—The patient, a married lady, twenty-eight years of age, mother of two children, suffering from laceration of the cervix, metritis, endometritis, and chronic perimetritis, complains of looseness of the bowels, with bad taste in the mouth, and lack of appetite during the entire menstrual period, from the second or third day before the appearance of the flow to twenty-four or thirty-six hours after its cessation. In this case also the symptoms yielded to uterine treatment solely, as was clearly demonstrated, since, for experimental purposes, no gastric or constitutional medication was resorted to, and the symptoms disappeared with improvement of the uterine disease upon local treatment alone.

It is only in the menstrual and pathological neuroses that we can so positively prove their reflex nature. The perversion of appetite, and other gastric symptoms accompanying pregnancy, we know only as concomitants of that condition, and not positively as reflexes, since we can not always demonstrate their real nature ; it is by abortion, the inauguration of premature labor only, that this is done, and, when accomplished, it affords indeed a striking proof. With mathematical exactness, the most violent gastric symptoms cease in fifteen minutes, either with the dilatation of the cervical canal and the internal os by the dilator or sponge-tent, or after expul-

sion of the uterine contents. The remedy is too severe to be recommended for general adoption, but, when premature labor was inaugurated for other causes, I have repeatedly observed the sudden cessation of such gastric neuroses.

The most available method of treatment, when the physician has assured himself that the reflex is purely physiological, and not due to a tangible pathological cause—an erosion, a laceration, or similar lesion—is by sedatives administered internally, or by the sedative action of galvanism upon uterine and gastric fibres.

c. Gastric Neurosis of Pregnancy.—Unfortunately the dependence of nausea and vomiting, the morning-sickness of pregnancy, upon pathological or physiological conditions of the uterus, though theoretically acknowledged, is not practically accepted, and, notwithstanding the vast literature of the subject, notwithstanding the clear demonstration of the reflex character of those symptoms, the perverse treatment of earlier days is still persisted in, and the stomach is treated until the emaciated sufferer, after months of agony, is at death's door, when premature labor is inaugurated, often too late, however, to save life. If the determining cause is to be sought in the physiological congestion, it is possible that relief is to be obtained only by evacuation of the uterus; but, if the gastric reflex is in response to a pathological change or its exacerbation by the physiological congestion, relief is readily obtained by local treatment, usually simple in its nature. That the nausea and vomiting of pregnancy is a reflex symptom is too well known to be in need of discussion or proof, and it seems indeed strange that it has as yet been impossible to establish a correct therapy, and to do away with the totally irrational treatment by internal medication—the direct treatment of the gastric symptom—which appears to emanate from an ignorance of the true state of affairs. While there is no objection to the giving of light sedatives, such as bitter-almond water or bromide of potash, from which relief may be experienced, a cure can be expected with certainty only by treatment of the causative uterine condition.

It seems almost a parody upon the advanced state of modern medicine to see eminent authors still advising the let-alone treatment, conscious of the utter inefficiency of medication. They urge an expectant course, unless the symptoms should threaten to become dangerous in their severity. Is this rational? Is it the course to be recommended in other maladies? I would strongly urge that the morning-sickness of pregnancy, however light in its character, should be relieved in its early stages. Mild, sedative, gastric medication may be attempted; but relief—speedy and certain—can be attained only by uterine treatment, which may be aided by gastric sedatives. The existing conditions must be noted, and any morbid deviations at once corrected, as it is impossible to say precisely from which particular condition the morbid stimulus emanates. A congestion of the cervix may be relieved by scarification; an erosion by a sedative or astringent application; an endocervicitis likewise; friction of the congested cervix against the vaginal walls, the floor of the pelvis or the sacrum, by the elastic tampon; an astringent tampon may serve to contract the tissues. The dilatation of the cervical canal, at one time so highly recommended, should be one of the last resorts, but, when all fail, the inauguration of premature labor is indicated, and the physician should never hesitate, as a life is at stake.

A rational course should be pursued, and our treatment should be consistent with our diagnosis, as is so clearly demonstrated by any and every one of the many cases of reflex neuroses here recorded. The morbid symptoms yield only to proper treatment of the causative morbid conditions from which the reflex impulse emanates.

2. *Hystero-Neuroses of the Intestine.*—Flatulence, constipation, and diarrhea may appear in response to uterine changes: on the one hand, the splanchnic nerves, coming from the sympathetic, may check or retard intestinal action, and on the other, an influence more or less active is exerted by the glandular secretions under control of the vaso-motor nerves, which answer so readily to general changes. Whether

diarrhea is due to a hypersecretion of the intestinal glands or to an increased peristaltic action, as constipation is to muscular relaxation, I can not say. Flatulence, and often distressing distention of the bowels, without diarrhea or constipation, which appears in response to uterine lesions, may be likened to the most common of the menstrual neuroses of the stomach, the gastric distention. Flatulence or distention of the bowels may accompany uterine disease, or appear as a physiological neurosis during menstruation, pregnancy, or the menopause. While I have observed violent diarrheas during puberty, the most common intestinal neurosis, next to abdominal distention, is the diarrhea; less frequently, constipation accompanying menstruation.

CASE XXXVI. *Reflex Intestinal Neurosis of Puberty.*—Miss H., aged fifteen, under treatment for vesical weakness, is suffering from nervous prostration, probably due to rapid growth during this time of physiological functional development. The patient had been afflicted with habitual constipation, which yielded but slowly to treatment, for a few days before the appearance of the first flow. I believed that a natural action of the bowels had been accomplished and a healthy tone restored; the constipation seemed overcome. After the cessation of the flow, previously existing conditions were re-established. With the advent of the second menstrual period the patient was seized with a diarrhea, uncontrollable at times, so that I found her in tears from mortification at her distressing state: one passage followed another. This annoying reflex persisted during the two days previous to the flow, yielding to constipation during its continuance, and returning again for thirty-six hours after cessation of the menses. The third period was accompanied by the same symptoms, together with other reflexes, of which we shall speak hereafter.

Precisely the same condition was observed in the case of Miss B. Diarrhea a few days before the catamenia, yielding to the pre-existing constipation during the flow, with a return of the diarrhea for two days after its cessation; costive during the intermenstrual period. This neurosis seemed to

alternate with the pharyngeal neurosis; as the latter improved, the former was intensified, both finally disappearing with treatment. This peculiar alternation of reflex symptoms I have repeatedly observed in patients suffering at the same time from gastric and bronchial neuroses—one growing worse as the other improved, always in inverse ratio. During the complete cessation of one, the other was most intense.

Our lamented friend, fellow, and president, Dr. Albert Smith, of Philadelphia, related to me several cases of diarrhea and profuse mucous discharge from the bowels accompanying menstrual congestion in patients suffering from uterine disease.

Diarrhea is by far more frequent as a reflex symptom than constipation. I have observed a violent diarrhea during labor coming on with dilatation of the os, and ceasing suddenly with delivery. Constipation may occur like diarrhea, as a menstrual neurosis, with the uterine congestion. In all cases but the first mentioned, where the symptoms were not such as to warrant uterine treatment, the intestinal neurosis has responded promptly to uterine treatment, and with an improvement of the local condition, reflex symptoms have ceased. The same is true of flatulence and distention of the bowels when existing as genito-reflex neuroses.

CASE XXXVII. *Hystero-Neurosis of the Intestines (Bronchial Hystero-Neurosis, Case XXVII)*.—Painful menstrual intestinal neurosis; localized flatulence; disappearance upon treatment of the uterine disease.

Perhaps even more distressing than the bronchial neurosis was a localized flatulence which preceded the appearing of the catamenia, passing away like the bronchial neurosis with the improvement of the uterine condition, after treatment. With the appearance of the menstrual congestion came a flatulent distention of the left side, causing great pain, apparently by pressure; to the left of the stomach, the abdomen appeared distended, tympanitic, as if by a collection of gas either in the duodenum or at the juncture of transverse and descending

colon. So painful was this distention, which emitted a crackling sound, that the patient pressed her hand upon the part in agony, endeavoring with pressure and friction "to force the wind out," as she stated, pressing it to the right, and, as it escaped, relief was afforded. Medication had, of course, been repeatedly attempted by others for this agonizing pain, which had returned with each menstrual period for almost a year, but, without success, narcotics only affording temporary relief; but, after the inauguration of proper uterine treatment, it soon ceased like other reflex symptoms.

V. HYSTERO-NEUROSES OF THE EYE.

Notwithstanding the frequency of ophthalmic symptoms in connection with uterine disease, their nature and the character of the existing relation is by no means well established. Though it may appear simple to distinguish between conditions merely reflex and those due to structural changes by means of the ophthalmoscope, and by a tentative treatment if the ophthalmoscope reveals no morbid lesion, we are still greatly in the dark, strange as it may seem, since no organ is so clearly revealed to us as the eye, and in none are minute changes so readily detected.

While we know that patients afflicted with chronic pelvic disease usually complain of weak eyes or impaired vision, the relation of these conditions to each other is by no means well established. Cases of ophthalmic disease are related as dependent upon uterine lesions even by MacKenzie and Mayer, also by Von Graëfe, which show a certain connection between the diseases of the eye and of the womb, but no reflex relationship; they are not neuroses, but cases of actual ambliopia in connection with amenorrhœa and dysmenorrhœa, caused by extravasation of blood into the retina during intense cerebral and pulmonary congestion, and depending upon the retention of the menstrual flow. So also may we exclude those cases of amaurosis during pregnancy and lactation which are indirectly due to changes in the sexual organs, as they are found in connection with albuminuria and accompanied by actual lesions of the optic nerve.

The observing gynecologist will almost expect to hear patients suffering from chronic uterine disease, especially endometritis, metritis, and perimetritis, complain of weakness of the eyes, dimness of vision, or *mouches volantes*; and oculists assure me that the great majority of cases of asthenopia are found in females, many of them suffering from menstrual irregularities: yet, while tonics are given and an effort is made to invigorate the system, the ophthalmic lesions are treated as such without reference to the causative uterine lesions. Occasionally a patient is sent me by an oculist, usually one whom he has treated in vain for a long period of time, and, by reason of the failure of proper treatment in producing the expected result, he supposes the lesion to be reflex in its nature, so indistinct is the relation as yet.

Ophthalmic symptoms, especially ambliopia, may occur in hysterical patients, which need not be referred directly to a uterine condition; but, when transitory amaurosis or ambliopia appears at the menstrual period, the same symptoms recurring each month, we may look upon this as a hystero-neurosis, though the direct dependence can be proved only by the disappearance of the amaurosis upon the treatment of the existing uterine lesion. Decrease in the power of vision, dimness of sight, as if from a cloud flitting before the eye, and *mouches volantes*, occur both as menstrual and pathological neuroses, and are then relieved by treatment of the uterine disease without interference of any kind with the ophthalmic lesion. Clement Meyer relates the case of a maiden lady, aged forty, in whom the menstrual flow is ushered in by an amaurosis of several hours' duration, which disappears as suddenly as it comes, but is never accompanied by any of the symptoms of cerebral congestion, evidently a menstrual reflex, which would have yielded to proper uterine treatment.

In all cases of true reflex neuroses, no structural changes exist, in the early stages at least, and the ophthalmoscope will reveal an absolutely healthy condition of the eye; but after a duration of years the disease, heretofore simulated,

may develop in place of the phantom. In no organ is the persistent continuance of a reflex so liable to result in actual changes as in the eye.

Characteristic cases are those related to me by Dr. Barker, and reported in an earlier paper. Hyperinvolution, after a second confinement, in a lady of thirty years of age, with cessation of menstruation, was accompanied by a severe pain in the eyes and dimness of vision. Careful examination by Drs. Agnew and Noyes failed to discover any pathological changes, and after successful treatment of the hyperinvolution by laminaria and sponge-tents, later by galvanism, the menstrual flow was re-established, the uterus restored to its normal size, and, with the removal of the morbid condition of the uterus, the trouble of the eyes disappeared.

In another case, that of an unmarried lady, thirty-eight years of age, who consulted Dr. Barker on account of the severe headaches which had existed for four years, vision was impaired so that she could neither read nor write, and could distinguish persons but very imperfectly. For a period of a few days in each month the headaches were even more intense, and the patient suffered from diarrhea and nausea—menstrual hystero-neuroses of the intestines and stomach. Examination revealed certain uterine inflammations; hot douches were ordered, sponge-tents inserted, and leeches applied to the cervix at the time of the monthly exacerbation. With the return of the flow the headaches disappeared, sight was entirely restored without resorting to any treatment whatsoever for the eye, and this has remained in a perfectly healthy condition ever since, now nine years, menstruation remaining normal; while in former years treatment of the eye had been vainly tried again and again by the ablest specialists. I have seen dimness of vision, never excessive, but frequently so as to prevent the patients reading, *mouches volantes*, and the appearance of clouds both as pathological and menstrual neuroses, frequently one eye only being affected, always upon the side of the most intense pelvic disease.

The lighter forms of ophthalmic disease which appear in response to uterine lesions yield but slowly with improvement of the causative disease if treatment is not inaugurated until after they have existed for some time, and it is only the more violent and rapidly-developing symptoms which respond as readily to uterine treatment as do the other reflex neuroses. It has appeared to me that the ophthalmic reflexes are much more persistent and yield more slowly than those on the part of any other organ, and, if they have persisted for years, they are very liable to result in structural changes and disease proper of the eye, which is not the case with other reflexes. This view is confirmed by the statement of one of our most able oculists, my esteemed friend Dr. Michel, who informs me that asthenopia though first developed as a reflex symptom in response to uterine disease, was very liable to result in structural changes even though the causative lesion be overcome after short duration. This one reflex yields only to uterine treatment when quite recent in its origin.

I have been unable to refer certain ophthalmic symptoms to individual uterine or ovarian affections, but I will quote the statements of Rampoldi, of Pavia (*Annales Universel les de Médecine*, September, 1881), who groups these various symptoms very positively, and refers each to a distinct pelvic disease, to show what some believe to have found. According to Rampoldi these five groups of sexual diseases which affect the eye are as follows :

1. Hysteria and chronic perimetritis, he states, is causative of asthenopia, retinal hyperesthesia, rarely of ptosis or anesthesia of the retina.

2. Menstrual disorders. Amenorrhea, he believes, is causative of conjunctivitis, keratitis, iritis, and phlyctania. To suppression of the menses he refers disease of the choroid, together with neuritis, retinitis, and says that they can only be improved after reappearance of the menses. The tendency to glaucoma is known to accompany a sudden suppression.

3. Inflammatory diseases result in hyperesthesia and neu-

ralgias of the trigeminus, protracted forms of iritis serosa and sclerosis.

4. Pregnancy causes the difficulties accompanying the albuminuria of pregnancy; amblyopia and amaurosis have been common from three to fourteen days after hemorrhage.

5. Lactation and the puerperium cause panophthalmitis and many diseases resulting from weakness and debility; ulcers of the cornea, retinitis, retinal hyperesthesia, photophobia, and disturbance of accommodation.

I cite these diseases, which are here considered as cause and effect, but, though they may be so, certainly but few are reflex neuroses; and, though Rampoldi has observed in individual cases these ophthalmic lesions in connection with the pelvic affections mentioned, I can positively assert that, as far as reflexes are concerned, that no such positive relationship of individual phases of uterine disease to ophthalmic lesions can ever be established.

CASE XXXVIII. Pathological Genito-Reflex Ophthalmic Neurosis; Glaucoma, apparently resulting from Uterine Disease, appearing with Structural Changes after long duration.

—Mrs. H., forty years of age, has suffered for the last fifteen years from the results of laceration of cervix and perineum, with consequent descensus, subinvolution, metritis, and left perimetritis; had been under treatment, had even been subjected to operation without benefit; after coming under my care, improved slowly under treatment preparatory to operation. While she was hesitating with regard to the time of operation, after the inflammatory symptoms had been reduced, violent exertion caused an exacerbation of the cellulitis in the left side, and household cares have since then, for the past year, prevented persistent treatment. Since that time she began to suffer from pain and weakness in the left eye, which always yielded to improvement in the uterine condition, and though intense was usually relieved by the application of electricity to the uterus; a change, however, moving into a large new house, necessitated physical exertion, and was accompanied by a good deal of excitement, and at that time the ophthalmic pain grew intense, recurring periodically at nine or ten o'clock each

night. I now referred Mrs. H. to my friend Dr. Michel, who was unable to detect all the characteristic marks of glaucoma, and yet took the case to be such, and not a pure reflex, from certain structural changes, though in the first place the symptoms may have been aroused in response to uterine irritation. This case is one of those in which structural changes seem to have followed the simple reflex symptom, the phantom to have yielded to the disease.¹

CASE XXXIX. *Ophthalmic Reflex; Photophobia, alternating with Dimness of Vision, mainly in the Left Eye; Retroversion, Endometritis, and Left Cellulitis.*—Miss B. M., aged twenty-one, subject to neuralgic headaches, was prostrated by undue physical exertion, and afflicted with a displacement of the uterus and periuterine inflammation. Patient improved under treatment, but fright and exertion—running to avoid a herd of cattle dashing through the street—caused an exacerbation of the cellulitis, while under intense mental strain resulting from annoying family trouble. The dimness of vision which had heretofore existed, and had greatly improved with the improvement of the uterine disease by treatment, now returned, and, added to this, was a violent photophobia, at times accompanied by intense pain in the eye. Rest, poultices, and the hot douche brought about an improvement in the uterine condition, and a disappearance of the photophobia. The haziness and dimness of vision will, I trust, again yield as soon as treatment can be resumed.

CASE XL. *Weakness of the Eyes, Dimness of Vision, Laceration of the Cervix, Operation, Cure.*—Patient, Mrs. R., was referred to me by an oculist after an unsuccessful treatment for several months at a time during the past year. The reflex nature of the ophthalmic disease had been suggested to the physician by the complete failure of treatment in the comparatively simple case. The uterus was enlarged, retroverted, the cervix lacerated, the lips everted and eroded. After a brief treatment the operation was performed; during the conva-

¹ I now hear from Dr. Michel (four months after writing the above) that the symptoms are yielding, and that this affliction, so narrowly resembling true glaucoma, is evidently a reflex.

cence reading was prohibited, which was the only precaution taken and the only advice given in regard to the ophthalmic troubles ; her sight at once improved, her eyes gained strength, and progress was such that all symptoms disappeared in a month after operation.

CASE XLI. *Menstrual Weakness of the Eyes*.—Miss H., who had never before suffered from her eyes, complained, upon the appearance of the first menstrual period with the advent of puberty, of a weakness of the eye, and an irritation of the lids in the outer angle, a small crust appearing in the corner which felt sore, so that she could not well open her eyes. This symptom appeared for the first time with the advent of the catamenia, and has returned now for the fourth time with each menstrual period, coming shortly before the flow and disappearing with its cessation. As but little suffering was experienced no examination was made, and I have attempted to approximate a healthy functional activity by the precautionary measures adopted, avoidance of exposure, regulation of diet, warmth and rest in bed during the period.

CASE XLII. *Mouches Volantes, Pain and Weakness of the Eyes, especially the Left, corresponding to the Left Cellulitis*.—Mrs. S., twenty-eight years of age, married three years, sterile ; had been under treatment for a supposed uterine tumor, which proved to be a periuterine deposit. With the aggravation of symptoms by misdirected treatment, her eyes began to fail, until she was no longer able to read on account of the dimness of vision and the intense pain, at times black specks floating in the line of vision. The disease had existed nearly two years when she first came under my care, and an endometritis had developed in the displaced uterus, which was fixed in a position of retroversion with the fundus in the left side. At home she was not under the most favorable circumstances, and improvement was exceedingly slow. Unable to work, unable to read, her condition was a trying one ; but her eyes were not alone weak—they troubled her so that I referred her to an oculist in hopes that something might be done, contrary to my expectations. No structural changes were detected, still an independent treatment was inaugurated. The use of weak glasses for a short time each day, tonics, and local applications

gave no appreciable relief, and improvement did not take place until a decided amelioration of the pelvic trouble had been obtained. Finally, with the improvement in the uterine and circumuterine inflammation, her eyesight improved.

The direct relation of the ophthalmic symptoms to the pelvic disease in this case was marked not only by its coming and going with the development and cure of the uterine inflammation, the negative results of local examination and treatment, but also by the effect of certain pelvic applications upon the eye: an application of iodine to the uterine cavity, or the application of a tampon of iodized cotton to the cervix caused a burning—a reflex neurotic symptom—on the left side of the head and in the back of the eye, with a feeling, as she expressed it, as if the eye was being pushed out. Within fifteen minutes after the application of the iodine to the uterine cavity, this post-ophthalmic pain and this feeling of distention—pushing out of the eye—comes on and continues until the iodine effect passes off. This reflex appeared so strange that I repeatedly made the application to test the correctness of the observation, and often unknown to her; the same symptoms however appeared each time, while no other uterine or intra-uterine application produced any unusual results.

Amblyopia with complete amaurosis may occur in the healthy eye as a well-marked reflex, and these symptoms respond as readily as the less threatening neuroses to every vacillation of the causative uterine ailment; thus I recall the case of a young lady twenty-four years of age, suffering from endometritis, cellulitis, and amenorrhœa, in whom an amblyopia followed by amaurosis appeared with an exacerbation of the uterine disease, which was always improved by uterine treatment. No structural changes having been detected by ophthalmoscopic examination, no local treatment whatsoever was resorted to. As the patient is not a resident of the city I have not been able to treat her continuously, but, whenever it was possible for her to come to the city and place herself under my care for three or four weeks, her eyesight was always improved, as were the direct pelvic symp-

toms, a cure being out of the question on account of existing pulmonary trouble.

The eye is perhaps the most important organ for the study of the reflex neuroses. Since the ophthalmoscope so readily detects even the most delicate structural changes, we can draw the line between structural changes and reflex symptoms, not only by the practical test of treatment applied to the causative disease of the uterus, but also by observation of the condition of the eye itself; by a harmonious co-operation of gynecologist and ophthalmologist the true nature of these puzzling and deceptive symptoms may be determined, and in this transparent organ the disease distinguished from its phantom. It is possible that by the aid of the ophthalmoscope we may learn to trace to their true source those confusing symptoms in which structural changes—disease proper—secondary pathological changes or sympathetic lesions, and purely reflex symptoms converge. Symptoms precisely alike to the superficial observer may exist as disease accompanying uterine changes, and independent of these they may result from the congestion, or the increased quantity of blood, due to the stimulation of the circulatory system by pregnancy, as resultants, we might say, of the uterine congestion; or they may appear as simple reflexes without any structural changes whatsoever. This the ophthalmoscope must determine, and gynecological treatment must prove. The true cause of ophthalmic symptoms once recognized, the study of those emanating from other organs will be, to say the least, greatly facilitated. Barnes, in the paper already referred to (*Transactions American Gynecological Society*, vol. i, p. 150), says:

“Certainly the eye, in pregnancy, supplies many most interesting facts of the utmost value in extending and controlling the conclusions derived from other sources of investigation; for example, amaurosis is generally connected with structural change or degeneration of the retina, but there is a form of amaurosis not seldom associated with albuminuric eclampsia which may end in complete recovery. I have

seen such cases, and one has been recorded in the *Archives de tologie*, 1876. On the other hand, the lesion thus arising is, in some cases, permanent, and in these cases we may see the disease manufactured quickly under conditions more simple, more precisely defined, therefore more instructive than under any other circumstances."

The amaurosis of pregnancy may occur as a simple reflex in response to uterine distention and engorgement, or it may appear as a resultant of renal disease caused by pressure of the enlarged uterus or by renal congestion.

VI. HYSTERO-NEUROSES OF THE JOINTS.

While the hystero-neuroses of the joints are not frequent, they are extremely annoying, and many most puzzling reflex symptoms, due to uterine disease, some of the so-called hysterical joints, are undoubtedly true hystero-neuroses. While all possible treatment is vainly tried, a careful examination of the reproductive organs would undoubtedly reveal morbid changes of some kind, and their proper treatment would readily relieve the heretofore unmanageable symptoms. Prof. Erb, in his twelfth volume of *Ziemssen*, has an excellent article on neuroses of the joints, but he barely refers to those which are distinctly reflexes due to uterine disease, and does not seem to recognize their importance. Unfortunately these reflex symptoms are still classed with those due to so-called hysteria. The articular reflexes which may be confounded with disease proper, I have seen mainly in the hip and knee, less frequent in ankles and wrists. So deceptive is this neurosis that I recollect one case of a young girl at puberty who was brought to my father for examination in the early years of my practice. She had been seen by our prominent physicians and surgeons, had been under the trying treatment for disease of the hip, but no improvement had taken place. The most careful examination, at which I assisted, failed to reveal disease, and yet the symptoms were all present. It was long before my attention had been called to these reflexes, and the later history of the case is unknown to me.

Undoubtedly it was an hystero-neurosis of puberty, as I have since observed it, yet never again so deceptive, simulating disease so perfectly, without any indication of existing pelvic trouble, as the reproductive organs were not considered in this case, since the menstrual function had not yet made its appearance, but this retarded development was a most serious source of neurotic phenomena of various kinds.

Examination under chloroform will, of course, at once solve the mystery, and in a young girl this is the course indicated, examination of uterus and ovaries being admissible only after the reflex nature of the symptoms has been assured, and constitutional treatment has proved ineffectual.

CASE XLIII. *Genito-Reflex Neurosis of the Knee, Laceration of the Cervix and Perineum, Endometritis; Relief after the Second Application.*—Mrs. T., aged forty-one, came to me in June, 1887, on account of annoying uterine symptoms. She had been in good health and free from pelvic symptoms until after the birth of her third child, eight years ago, when she was confined for months by a severe attack of puerperal fever which terminated in a pelvic abscess. The symptoms of uterine disease began to develop; these were increased by the next labor one year later. Her condition grew worse, and three years ago an operation was performed upon cervix and perineum, after which her general health improved; the local symptoms were very much lessened; but it appears that, as the patient felt well, she neglected all precautionary measures and continued in her usual course of life. Not alone did the uterine inflammation return with increased severity, but, in addition to the other previously existing symptoms, backache, hypogastric pains, and pain in the top of the head, came an annoying nausea and flow of saliva from the mouth. She again sought medical advice, and an endometritis fungosa was discovered complicating the relapse, and to this the recently developed reflexes, nausea, and salivation must be referred, and this supposition proved to be correct. A great amount of hypertrophied mucous membrane was removed with the curette, and immediately thereafter the nausea, vomiting, and salivary flow ceased. No after-treatment followed, and ere

long a lameness of the left knee became apparent. The patient walked like one suffering from an ankylosis of the knee-joint, the pain she described as being in the joint itself, and her walk was characteristic of an articular lesion. This last operation was performed in January, 1887. The gastric reflex ceased at once, but the neurosis of the knee appeared soon after, and has been growing gradually worse ever since, in proportion as the uterine symptoms increased. The curetting was well timed, and by it the cause of the one reflex was removed. Had a proper treatment of the uterine and periuterine inflammation followed at this opportune time, a perfect result might have been achieved, but, as no further assistance was offered, only one of the various morbid conditions was removed.

The patient came to me May 31, 1887. I found a deep laceration of cervix and perineum, the uterus very low, enlarged, the cavity wide, an active endometritis, a deep cervical laceration, mainly to the left, with a left, chronic periuterine inflammation, and an induration of the tissues, probably referable to the cellulitis in the puerperium eight years ago. I resorted to negative electro-cauterization of the uterus for relief of the endometritis, 40 milliampères four minutes, platinum sound in uterus, medium plate with positive pole on the abdomen; this was followed by an application of 25 per cent. carbolic acid to the endometrium, iodoform and iodine tampons to the cervix, the uterus being supported by elastic astringent tampons. The pain in the knee thereupon diminished and her walk improved. The treatment was repeated June 2d, and again June 4th. The menstrual period came on with less pain, and, upon return for treatment, June 15th, the pain in the knee had ceased, and her walk was but little impaired.

The case is instructive, as it shows well-marked reflexes of different organs, each dependent upon one distinct uterine lesion, and the correct instinct of the patient is revealed. Medical advice had never been sought, as the patient had correctly diagnosed her own condition, having suffered from a gastric neurosis, and, observing the direct dependence of this symptom upon the uterine condition, she supposed the stiffness and pain in the knee-joint to originate in the same way, especially as it was worse when the pelvic pains increased. To ob-

tain some relief, at least, she had tried all possible inunctions and liniments, applications which had been recommended, but without any benefit; even blisters were used. I was surprised to see the ready yielding of the neurosis with the slight improvement in the extensive and severe pelvic condition, and hence attribute the change rather to the direct influence of galvanism upon the uterine nerves from which the reflex emanates.

CASE XLIV. *Genito-Reflex Neurosis of the Hip*.—Miss S., a young lady of twenty, has the appearance of great suffering. She complains of leucorrhœa, backache, headache, and weakness of the eyes, of great tenderness and pain in the hip, and the feeling that one leg is shorter than the other, "as if all the tendons were stretched." The pelvis is inclined to one side, she favors the afflicted limb, and her position whether erect or reclining is that of a sufferer from hip-disease. None of the characteristic symptoms of this disease are wanting, with the exception that there is little or no pain upon direct pressure on the joint, and that the sensitive spot is above the joint, on and below the crista ilei, behind the anterior spine. Pain in the knee, rotation and position of the foot, etc., are all well marked.

I was somewhat astonished to find that Miss S. was fond of walking, and, although fatigued, would not complain of increased pain in the hip after exercise.

Dr. Sims kindly consented to see the patient with me. Permission was granted, and a careful examination of the pelvic organs was made; the uterus was found normal in size and position, somewhat congested, showing erosions and marked endocervicitis. The uterine symptoms, and, as we thought, all others, were now explained; local treatment was not allowed, but, by the use of tonics, astringent injections, etc., the uterine symptoms have improved, and at the same time the hip-trouble has become less annoying, and I expect to overcome it entirely as soon as I shall be enabled to resort to uterine applications. Of late the reflex nature of the disease has become more apparent by exacerbation at the time of the menstrual period.

CASE XLV. *Pathological Reflex with Menstrual Exacerbation, Violent Contraction of the Joints, Laceration of the*

Cervix ; Operation ; Cure.—Mrs. P., aged twenty-nine, multipara. Though annoyed for years before her marriage by a persistent leucorrhœa and dysmenorrhœal pains, had never complained of pelvic weakness. In her first confinement, cervix and perineum were lacerated, and the cervical tear aggravated in the second. Of nervous temperament, she became the victim of distressing reflex symptoms, suffering almost continuously from a headache, which finally culminated and centred in intense pain in the left temple. In place of the usual symptoms in the back of neck and head, pain and pressure, she had a feeling of drawing up, which caused such suffering that she was obliged to let down her hair and seek every possible means of relief. Her memory was impaired ; gastric neurosis was marked ; distention of the abdomen, with belching of wind and vomiting. These symptoms were greatly intensified during the menstrual period, so also was the pain in the side and across the small of the back, which became excessive at this time. With the menstrual congestion came a blinding headache and attacks, during which she lost consciousness, marked by violent motion in all joints, a jerking of arms, kicking, so that constant watchfulness on the part of her friends was necessary to prevent injury to herself. The attacks were so severe that hypodermics of morphine were tried after milder sedatives and nervines had failed, but this morbid reflex did not abate until the giving of morphine was supplemented by chloroform, and the patient had been kept under its influence for an hour or more. Local treatment, followed by improvement in the uterine condition, lessening of the discharge and of the menorrhagia, did not affect the reflex symptoms, which in no way abated.

I saw Mrs. C. in consultation with my clinical assistant Dr. F. C. Ameiss, the attending physician, who had repeatedly urged operation. Treatment proving unavailing, the patient finally consented, as her suffering grew unbearable, the headaches more intense and almost permanent, the menstrual exacerbations more severe. The operation was performed March 20th, and upon recovery from the anesthetic a remarkable change was noticeable ; the patient was quiet, free from pain, her headache gone, no more nausea, not even from the chloro-

form, and during the night natural sleep in place of the trying insomnia, from which she had heretofore suffered.

The reflex nature of the symptoms in this case and their dependence upon the laceration was most strikingly demonstrated. In no way affected by the successful treatment of the inflammatory condition, cerebral, neurotic, gastric, and joint symptoms all disappeared with the closing of the cervical tear. Two months after the operation a family birthday gave rise to unnecessary excitement and exertion, and in consequence a slight return of some of the previous symptoms—belching, with a slight nausea, and some pain in the head. These disappeared after a day's rest, and the patient is now in full enjoyment of health. Her memory is as good as ever, she sleeps well, and is free from pain; a cheerful disposition has taken the place of the irritable temper which had before rendered home-life unbearable. Whether the violent motions are properly referable to the joints or to the spinal nerves I will not decide.

CASE XLVI. *Pain in the Ankles from Persistent Irritation of the Uterine Fibrils after Removal of Uterus and Ovaries.*—Case XVII, referred to as an example of nerve-pains in ankles and soles of the feet, incapacitated at times from walking, partially by the pain in the soles of the feet, partially by the pain in the ankle-joint, relieved by the sedative action of electricity upon the pelvic nerves.

A most peculiar neurosis, which I have only twice observed, is a cracking of the joints, which has appeared as a well-marked reflex in one instance only, in a patient suffering from retroversion with metritis and endometritis, laceration of cervix and perineum, who noticed a peculiar cracking in elbow- and knee-joints on the right side, upon which the most severe pelvic symptoms existed. These symptoms yielded to improvement in the uterine condition upon local treatment, after having continued for a twelvemonth.

In the following case I was not able to positively demonstrate the reflex nature, but relate the history as one of the most striking on record.

CASE XLVII. *Cracking of the Joints, with Hystero-Neurosis of Stomach, Heart, Eyes, and Breasts; Metritis, Endo-*

metritis, and Perimetritis. With some Improvement in the Pelvic Disease after Energetic Treatment, the Symptoms diminished in Intensity.—Mrs. Dr. L. is afflicted with severe pelvic disease, brought about by exposure to cold, by being driven from her home by fire on a winter's night while the ground was covered with snow. All the pelvic viscera are affected; the uterine canal is tortuous, adhesions forcing the organ to right and left; anteflexion, with lateral flexion; metritis, endometritis, chronic cellulitis; moreover, her condition is complicated by the existence of a floating kidney on the right side. Nausea and vomiting are constant, mainly at night, but most distressing during the menstrual congestion, which is relieved by only a very slight show. The neurosis of the eyes is marked; the pain in the breasts intense during the catamenia. While the gastric neurosis is intense even during the flow, certain of the symptoms, like the painful drawing in the back of the neck, almost resembling opisthotonus, or the pain of cerebro-spinal meningitis, cease with the appearance of the bloody discharge.

Since the intensification of the pelvic disease, the patient has observed a cracking of the joints, so marked that in walking up-stairs the cracking of the knee-joint is audible some yards, and the same sound can be heard in elbows and wrists; even motion of the eyelids during exacerbation of the symptoms produces a crackling sound. The uterine and ovarian disease being so intense and of so long standing, I was unable to attain much improvement, and suggested oöphrectomy as the only possible means of relief. This was not acceded to, and, as the improvement was but slight, I can not positively refer the cracking of the joints to the pelvic disease, but believe it to be a reflex symptom, as it was proved to be in the case before mentioned, in which it existed, however, in a very slight degree.

The stiffness of the leg, which occasionally appears as a concomitant of cellulitis or ovarian inflammation, and which may present the characteristics of a reflex hystero-neurosis, must not be mistaken for the same, as it is usually directly due to pressure upon the main tract of nerve or vessel, by

the displaced or engorged viscera, and often by a pathological mass in the side of the pelvis; hence, we find this stiffness always upon the same side with an existing cellulitis, ovaritis, or neoplasm. A case in point is that of a lady now under treatment, suffering from trying cerebral reflexes, but at present very much weakened by a cellulitis brought about by misdirected treatment at her home. The uterus is enlarged, inflamed, slightly drawn to the left side, which is the seat of a cellulitic effusion. The menstrual period is one of great suffering, and the flow is always predicted by the beginning stiffness of the left leg, which precedes its appearance by two days. The stiffness begins forty-eight hours before the catamenia, increases until it reaches its height shortly before the appearance of the flow, to pass off slowly with its cessation. The leg is constantly weak, but this weakness is greatly increased with the stiffness during the period.

VII. DERMATOSES. REFLEX DERMATIC NEUROSES.

The pigmentation of the skin during pregnancy has been one of the few symptoms generally noted which link the diseases of this large surface to the reproductive organs. So little has the direct causative relation between the morbid conditions of the skin and uterus and ovaries been suspected, so little plausible did it seem, that the remarkable and noteworthy investigations which have lately been published have received but little attention. Unquestionably the persistency of many dermatological conditions is referable to their nature, but in some cases it is due to the fact of their being genito-reflex neuroses, and, like other reflex conditions, these are intractable, yielding only to a removal of the cause. It is perhaps more difficult to arrive at the true nature of reflex dermatoses, as they receive but passing attention from the gynecologist, being noted only as accidental accompaniments of uterine disease, and the dermatologist, though he may suspect this dependence, is not in a condition to demonstrate this, and suspects it only from the fact of the failure of his

treatment. Ten years ago I received but an unsatisfactory response to my inquiry among dermatologists. Dermatoses had indeed been observed with exacerbation during the menstrual period, occasionally appearing only during the catamenia, but their direct dependence upon uterine disease was questioned. While the pigmentation of the linea alba and of the areola was recognized as an evidence of pregnancy, the sallow complexion of uterine disease and the peculiar facies of cystic degeneration of the ovary were referred to degenerated nerve-action, to imperfect circulation, to inability of the morbidly influenced centres to promote the healthy performance of nutrition, or to a reduction in the number of red blood corpuscles. The folly of such a theory is readily recognized by the close observer, who has seen the sudden change of complexion after an operation upon the cervix or after the removal of a diseased ovary. Even while the patient is still in bed, before recovery has taken place, the sallow complexion of disease has yielded to a fresh, healthy appearance. It is a true neurosis.

The genito-reflex neuroses of the skin differ from all others in the fact that they represent actual change—the disease and not the phantom; thus we have pigmentation, pustules, acne, erythema, in no way differing from the disease proper, which yield to treatment of a causative uterine disease, or appear only with its exacerbation during the menstrual period, but prove intractable to local medication. I speak of them as dermatoses—as neuroses of the skin—because we may so most readily classify them. They are equally referable to the circulatory and glandular systems, as they are in fact the result of vascular changes, and must be traced to the vaso-motor nerves; hence they resemble the symptoms which I have considered as vascular, the flushes, sweats, etc. The vaso-motor nerves, by their direct connection with the uterine fibres and ganglia, must serve to explain these peculiar symptoms, which are in fact dermatoses dependent upon pathological and physiological changes in the reproductive organs rather than simply reflex nerve-symp-

toms simulating disease without the structural changes of disease proper.

Tilt finds prurigo and eczema in intractable and recurrent forms during the menopause. Others have observed the frequency of erysipelas at this period recurring often during two years until perfect cessation, even after long intervals, to cease entirely with an attack five years later. Erasmus Wilson does not consider women very liable to cutaneous disease at the menopause, though he believes these obstinate if they do occur. Unquestionably we have equal if not more reason for these reflex symptoms during the entire menstrual life of woman than at this particular period. Acne rosacea, lichen, pruritus pudendi, nettle-rash, have been observed during the menopause in patients never before afflicted with cutaneous disease. How little the true nature of the reflex neuroses has been appreciated is evident from the constant placing side by side of coexisting or resulting diseases with the reflexes. Alibert has observed a cutaneous eruption in a patient during the menopause, who had been afflicted with the same eruption during puberty, and who had been free from any similar affection during the entire period of her life—a recurring reflex precisely as I have described it in other organs. Behrend, in his work on diseases of the skin, has more fully recognized the reflex nature of certain dermatoses than any other author hitherto, and yet he appears to regard them, as he distinctly states, rather as symptoms of the same morbid condition, and is extremely incredulous as regards their true reflex nature, looking upon them in part as a vicarious menstruation; but he honestly states that he has not as yet been able to determine the precise relationship between the cutaneous and uterine conditions. He has most correctly observed the frequency of eruptions during periods of pathological change in the uterus, and says that it is a well-known fact that many of the sexual changes in woman are accompanied by morbid conditions of the skin—that they appear together with disease of the uterus and its annexa, or with physiological changes.

It is not uncommon to see women afflicted with metritis, oöphoritis, and uterine displacement, suffering from persistent eczemata or urticaria, which do not disappear until the uterine disease subsides or the displacement of the organ is relieved; so, also, irritation of the uterus by pessaries or applications causes such eruptions.

Most common, however, is the pigmentation, especially in the face, as a concomitant of chronic uterine disease or neoplasm. The same dermatoses are also observed, together with physiological changes in the reproductive organs, but, as he truly says, gynecologists have not yet paid sufficient attention to these cases, and he himself is not in a position to give a plausible explanation of the relationship between diseases of the skin and genitalia; hence he has confined himself to a description of those diseases of the skin which accompany menstruation, and he has classed them with the eruptions resulting from medication and vaccination, though he concedes that there is no kinship. According to his statement, puberty and the advent of menstruation are marked by seborrhea, the appearance of acne and comedones in the face. This is so common that the inauguration of sexual life is predicated from the appearance of these symptoms, yet he is in doubt as to a direct relationship on account of the appearance of similar diseases in men, and the fact that an acne appearing in a girl at this period may continue unchanged for years. The causal relation is better marked, Behrend continues, in eruptions which appear a few days before the menstrual period, disappearing spontaneously with its cessation. This is more especially the case during the first menstrual periods; at times they return later in life with the catamenia. That the dermatoses which he has observed and believes to be dependent upon uterine changes are strictly reflex symptoms is proved by the following typical description: "They begin several days before the appearance of the flow and vanish spontaneously as it ceases, or a few days thereafter, but return regularly with each period; so that the coming of the flow can always be predicted by the appearance of the erup-

tion." This is the best evidence of a reflex neurosis, and characteristic of a causal relation, as the menstrual neurosis almost invariably bears this same temporal relation to the hemorrhagic flow.

Behrend has well described another peculiarity of these menstrual dermatoses: their localized or isolated appearance. A single pustule suddenly develops with the coming of the menstrual congestion; a single red spot upon chin or cheek, upon the thigh, or any part of the body; thus, in one patient a single acne pustule was observed, which appeared at different times in different places, sometimes upon the knees, sometimes upon the elbow or chin; not the slightest evidence of a second pustule being anywhere observable. Erythema he has observed in the same way, and cites an erythema multiforma and a herpes iris continuing for a period of eight or ten days during the catamenia. Lailler, Steller, and Schramm describe such cases. Herpes and ecchymoses are related by Bartholemius and Steller; hemorrhagic nodules by Wilhelm; diffuse inflammatory dermatoses of an erysipelatos character by Behier, Greletti, Wagner, and Pauli.

These inflammations are occasionally accompanied by edema, and followed by desquamation. In France this is known as the *erysipel catamenal*, and was formerly confounded with true erysipelas. Behrend tells us that these dermatoses are occasionally concomitants of menstrual disorders, displacements, or catarrhal conditions, but frequently without marked disease (undoubtedly an erroneous statement, the result of imperfect examination). At times the causative connection is distinguished, as in the case cited by Schramm: A lady thirty-six years of age, formerly regular, became the subject of a uterine catarrh in consequence of a cold; this was followed by a cutaneous eruption, which, notwithstanding its repeated recurrence, steadily diminished with the improvement of the uterine disease in consequence of local treatment. In all cases observed by Behrend, the recurrence of the menstrual dermatoses was temporarily checked during pregnancy. Collard relates the case of a young Norwegian in whom the

first appearance of menstruation was accompanied by red spots, probably petechia, over the entire body; the administration of sudorifics was followed by hemorrhagic perspiration; and these symptoms recurred regularly for several months with each period. Conception taking place immediately after marriage, menstruation ceased, and with it the cutaneous symptoms, which never returned. In other cases which have been observed, the eruption returned after confinement. He seeks the cause in certain unknown constitutional changes, which take place in the system during the menstrual period or during pregnancy. While this may be true of the dermatoses of pregnancy, even of menstruation, of puberty, and the menopause, it is certainly not true of those accompanying a slight uterine or ovarian disease, and I must consider them as true reflex nervous symptoms, directly dependent upon the morbid or physiological changes in the reproductive organs, but determined by nerve-influence and not by constitutional changes.

Striking cases have of late been recorded in medical literature, among them the erythema uterinum cited by Kidd (*Proceedings Dublin Obstetrical Society*, April, 1880); menstrual erythema (Pauley, *Berliner klin. Wochenschrift*, 1880, No. 45); Joseph Beziehung, "Der Dermatosen zu den Genital-Erkrankungen des Weibes" (*Berliner klin. Wochenschrift*, 1881, No. 37).

Among the most common of the dermatoses, I may cite the acne of puberty, flushes, sweats, and seborrhea, which give truth to the statement of Tilt that the skin is the safety-valve of the system. The eczematous eruption of the auricle and directly behind the ear I have observed twice at this period as menstrual neuroses. I have repeatedly seen the appearance of a single red spot or a single pustule (a herpes), the latter especially on the lip and on the vulva, coming like all menstrual neuroses two or three days before the appearance of the flow, to pass away with its cessation. The more common pathological neuroses are the erysipelatous inflammation of the face, petechiæ, pigmentation, and nod-

ules over the skin, discolorations, and a sallow complexion. The pigmentation of pregnancy is so common, and so thoroughly accepted as dependent upon this state, that it need hardly be mentioned. Generally known and recognized as dependent in some way upon genital changes in women are the acne of puberty, the pigmentation of pregnancy and disease, the sallow complexion of uterine and ovarian disease; less generally known is the herpes upon lip or vulva, which is a marked indication of genital disorders. Pigmentation, so uniformly looked for in pregnancy that it is one of the most certain signs, is likewise a frequent accompaniment of uterine and ovarian disease; and yet I will by no means insist that it is always a direct reflex neurosis, as no one symptom is more liable to appear in response to the changed condition of the nervous and circulatory systems, and pigmentation is dependent upon both, and may result as well directly from morbid states of these important systems; but dominating all blood distribution and all secretions is nerve-power (Barnes), and the irritation of the important nerve-centres arising from morbid stimulus of uterine fibres may determine such results as well. As authorities have been rather inclined to associate secondary conditions with the more directly related and easily explained causative states, so pigmentation, which is so readily determined by conditions of the blood, is referred by most investigators to this cause.

That the pigmentation which accompanies physiological and pathological changes in the uterus is caused by perverted nerve-action is evident by the peculiarity of this pigmentation, almost invariably symmetrical, as it is so well characterized by the butterfly of pregnancy or disease. So it is argued by Barnes, who cites the case, related by Dr. Godson in the *London Obstetrical Transactions*, of a girl eighteen years of age sent to St. Bartholomew's Hospital for chorea in the seventh month of pregnancy. The girl exhibited a characteristic dark pigmentation of the areolæ of both breasts, leaving about one third perfectly free from discoloration. This area was almost exactly symmetrical on the two sides; it was sharply

limited, and, as Barnes justly says, it is inconceivable that any difference in the quality of the blood going to the part could exist. Such cases are not uncommon, but they have escaped observation, as parts of the body are often concerned which are concealed by the clothing or bedding, and, as neither pain nor pruritus is caused, the patient herself does not call the attention of the physician to her condition. The pigmentation of the face is better known, as this must be noticed by the most superficial observer, and vanity forces the patient to seek relief.

It is upon the large surfaces of the body that the striking characteristics of this genito-reflex neurosis are most fully developed; the most peculiar configurations are traced with perfect symmetry, precisely alike on both sides. It is needless to describe cases, as no two are alike, yet all coincide in their origin and symmetrical appearance, as a rule. Thus, the case of a lady recently seen, in whom pigmentation of the forearm began during pregnancy, and was developed and intensified by a cellulitis during the puerperium. When I saw the patient during convalescence, the discoloration had already greatly diminished, but the peculiar configuration was still perfect, alike in every detail, every dot, and every ramification on both sides. In this case the course of the ulnar nerve and its radiations had evidently been followed; darkest toward the elbow, the density diminished and terminated in numerous branches upon the ulnar side of the back of the hand, extending around toward the palm, and the flexor front of the arm near the wrist, here and there a perfectly white spot in the darker mass, on one side precisely as it was on the other, then toward the border isolated blotches of pigment.

The only possible conclusion is that this partial pigmentation and peculiar distribution were determined by nerve-influence; hence the determining cause of pigmentary deposits must, in some cases at least, be a peculiar condition of the nerves at their ultimate peripheral distribution. Morbid nerve-impulse from uterine terminals may determine such

pigmentation. It is unnecessary and far-fetched to refer this phenomenon to changes in the suprarenal capsules produced by the changes of pregnancy.

Blepharal melasma is seen in women with chlorosis or melancholia, but the pigmentation of the eyelids must be distinguished from the simple venous lividity so marked during menstruation. Among the peculiar cases cited by Barnes is one of blue discoloration in a pregnant woman, and, in evidence of the striking nerve-influence, the complete blackening of the skin of a woman condemned to death by a Parisian mob, and threatened with execution during menstruation. Fright caused a sudden cessation of the menstrual flow. Her execution being deferred for a few days, her skin became as black as that of a moderately dark negro, the joints of the fingers blacker than other parts. She became anemic, and died at the age of seventy-five, more than thirty-five years after the shock, the skin remaining dark until death.

This was an unusually potent mental reflex, but no less intense may be the pigmentation which appears as a genital reflex. As a rule, the neurosis, like the cause, is insidious in its development, and not so violent in character. I shall cite only such cases as have occurred in my practice, and which have been proved to be neuroses by their direct dependence upon uterine and ovarian conditions.

CASE XLVIII. *Sallow, Livid Complexion; Endometritis Fungosa; Profuse Menorrhagia; Operation; Cure.*—Mrs. H., forty years of age, suffered from profuse menstruation, menorrhagia almost to exsanguination, the result of a small submucous fibroid and an hypertrophy of the endometrium, laceration of the cervix, enlargement and descensus of the uterus. Her complexion was so striking—leather-like, sallow—that I had often observed her on the street when passing in her carriage before she came under my care. Energetic treatment with local applications of perchloride of iron bettered the condition, but failed to check the profuse flow, merely lessening it; though she lost much less blood, her complexion remained the same. Operation was then determined upon; the uterus cu-

retted, the laceration repaired. Within two days after the operation her complexion began to clear, and before she left her bed, less than ten days later, before she had gained strength, still weakened by the operation, Mrs. H. presented a completely changed appearance, a youthful, healthy complexion, as I said to her at the time, of "milk and roses"; a complexion to be envied by a young girl in the best of health.

The above case is a striking evidence of the dependence of this livid complexion upon nerve-influence and not upon nutrition or the blood state, and in fact I have now so often observed this that I assure a patient, afflicted with such uterine disease as is susceptible of decided improvement, of a youthful appearance. Especially after operation for laceration of the cervix have I seen this change, rarely as sudden as in the case above described, but always sufficiently rapid to determine the question of its origin, a healthy complexion appearing long before an improvement in nutrition and a gain in weight.

CASE XLIX. *Genito-Reflex Abdominal Melasma; Retroversion, Metritis, Endometritis with Erosion; Local Treatment; Cure.*—Mrs. X., from the interior of Missouri, had been under treatment for the uterine disease which had impaired her general health, but, no improvement being visible, and the attending physician having placed a Hodge pessary which had cut into the cervical tissue and caused additional pain, confining patient completely to her bed, she was referred to me. When this lady came under my care she was in a wretched condition, emaciated, debilitated, with beginning bed-sores; and I found, in addition to the ugly cervical erosion, a deep semi-lunar cut, which marked the position of the pessary; this, like the granulating cervical erosion, suppurated freely. The abdomen was absolutely black, a lighter ring about the navel, with a fading margin toward the spine of the ilium. I was told that this condition—which had frightened them very much, as they supposed the patient was mortifying—had appeared since the aggravation of her condition by the placing of the pessary. The local condition yielded rapidly to antiseptic washes, iodoform, and carbolated tampons, together with mild applications to the endometrium, and after the third or fourth application the abdomen began to pale; and, when the patient

returned to her home after the second week of treatment, the surface was mottled, quite pale in places, with darker grayish, brown spots. Although her general condition had improved very much during her short stay, this perfectly black pigmentation could never have disappeared with the comparatively slight constitutional change had it not been under direct nerve-control, dependent upon the post-cervical ulceration, with which it made its appearance, and with the cure of which it vanished before any very decided constitutional change had taken place. This is one of the most striking cases of pigmentation which I have seen ; the milder forms are common.

CASE L. *Genito - Reflex Facial Dermatitis ; Acne Rosacea ; Laceration of the Cervix ; Metritis, Perimetritis, Anteversion, and Descensus Uteri.*—Mrs. E., aged thirty-six years, mother of five children, whom I attended in her sixth confinement, had suffered from this annoying eruption of the face, which covered the nose, and, in part, the cheeks, in butterfly form. She had not been benefited by treatment either by dermatologists or general practitioners. Gynecological applications were made, I am told, but most probably in a very superficial manner, as no local or general improvement followed the uterine treatment. The slight treatment which was permitted after the confinement, while I attended the patient, was followed by a very marked improvement in the cutaneous disease, but, her general condition being fair, she ceased treatment as soon as she was free from suffering, before the long-existing chronic uterine disease had been relieved—hence the dermatosis was only relieved, not cured.

CASE LI. *Erythematous Eruption of the Face with Menstrual Exacerbation ; Retroversion with Metritis and Endometritis.*—This long-existing and annoying dermatosis disappeared almost completely without direct interference of any kind, upon treatment directed solely toward the uterine disease ; a relapse following injudicious exertion during my absence in the summer, the erythema partially returned, but yielded again so as to be scarcely noticeable upon the placing of a proper pessary.

CASE LII. *Reflex Erysipelatous Inflammation of the Face ; improved by Gynecological Treatment ; finally cured by Re-*

position of the Uterus.—Mrs. X., suffering from pelvic pain, nervous and physical prostration due to hyperplasia, endometritis, and anteflexion of the enlarged uterus, was afflicted with an erysipelatous inflammation of the face, which had persisted during the past two and a half years, the cutis being always in an irritated condition, showing a decidedly erysipelatous condition during the menstrual congestion. A specialist had never been consulted, no well-defined treatment had been attempted, but various popular remedies and mild applications, occasionally recommended by the family attendant, had been tried, always in vain. With improvement in the uterine state, by treatment of the endometritis, the severity of the menstrual attacks diminished, and by continuous treatment with tonic medication, but without any cutaneous applications, the dermatosis gradually faded, but a trifling evidence of the previous state appearing with the coming of the menstrual congestion. With the placing of a pessary, by which the uterine displacement was overcome, after cure of the inflammation, all traces of the reflex at once disappeared, and during the last five or six years, though the patient has not consulted me, I have heard of no return, and have seen no evidence of the trouble in occasionally passing her on the street.

Bleeding from navel, from eyelids, nose, and ears, at the menstrual period, I have recorded among the neuroses of the circulatory system.

CASE LIII. *Acne Pustule on the Side of the Nose recurring with each Menstrual Period; Anteflexion, Endometritis, and Perimetritis.*—Miss C., from Texas, twenty-six years of age, long afflicted with vesical pains, the result of pressure of the anteflexed uterus, menstrual suffering, and great nervous depression, was much annoyed by an acne pustule, which appeared for three successive menstrual periods upon one and the same place, on the right side of the nose, but ceased to come with decided improvement in both the position of the organ and the catarrhal inflammation.

CASE LIV. *Vesicular (Herpetic?) Eruption on the Labia; Retroversion, Descensus Uteri, Endometritis, Metritis; Cure, with Reposition of the Uterus and Relief of the Inflammatory*

Symptoms.—Mrs. E., mother of several children, suffered from a number of reflex nervous symptoms : loss of vision, amblyopia, cloud before the eyes, abdominal distention, and the appearance of several herpetic vesicles upon the labia during the menstrual period. This eruption had accompanied the catamenia since the exacerbation of her symptoms, but ceased to make its appearance after two months of successful treatment.

It is hardly necessary to enter into the details of these cases, as it is impossible to rehearse all the numerous forms of dermatoses, as every one of them may, I believe, appear as a genito-reflex neurosis, and not in response to any one definite uterine lesion, attacking such part as is predisposed and determined in character by the condition of the system or of the tissues at the time. The red spot which has always appeared on the chin, the vesicle which has appeared upon the lip during the menstrual period, I have observed, but not for a sufficient length of time, to determine the effect of uterine treatment upon the cutaneous affection. The pruritus, which I have observed in two cases coming shortly after the menopause, and most inaccessible to treatment, I believe to have been a neurosis, on account of its extremely persistent character. Having resisted dermatological treatment for many years, it was mitigated and greatly improved by local applications combined with careful treatment of the uterine disease, which existed in both cases. A complete cure was finally effected in the one case only by galvanism, and the neurotic character of the disease was well marked by the success of the single application by which the disease which had so long resisted treatment was suddenly cured ; though it again returned some weeks later in a mild form, its violence was broken. In the male, the preputial herpes has been observed in distinct dependence upon ulceration of the penis.

Among the hysterical cases is that of Le Cat (Barnes), who observed a patient whose left leg became black during each pregnancy. The menstrual erythema of the thighs, around the vulva, I have seen as a concomitant of uterine disease, but can not positively assert its direct reflex relation.

The formation of small tumefactions I have observed but twice: In one instance, as an occasional occurrence in an extremely neurotic patient, a great sufferer from dysmenorrhœal pains; but, as uterine treatment was out of the question, I was obliged to resort to the bromides, without effect, but found the action of a mild faradic current most successful in relieving the blinding headaches and overcoming the intense pains which followed the course of certain nerves. When the suffering occurred in the arm the appearance of the nerve in this extremely emaciated patient, in whom every fibre could be observed, was that of a whip-cord stretched from the lower portion of the humerus to the upper portion of the forearm, over which the skin hung, the arm being slightly bent: upon various parts of the body small tumefactions, of the size of half a walnut, appeared, to pass away with the cessation of the menstrual flow as rapidly as they had come. I can only regard their appearance with the coincidences of menstruation and exacerbation of the uterine disease, at times of great bodily suffering and nervous excitement, as indicative of their reflex nature. In the other case, which I would cite more fully, the reflex nature of the phenomena is clearly depicted.

The influence of morbid nerve-impulse upon the development of cutaneous eruptions is apparent in some of the most common of these diseases, as the herpes zoster, which is confined to the area of a certain intercostal nerve, and the pruritus vulvæ, which has been known to return and persist even after the affected part of the skin had been completely excised (Schroeder); and, on the other hand, I have seen a most unyielding case subside upon a single application of galvanism. Herpes preputialis in the male may appear as a reflex in response to urethral irritation, as in the case of emotional icterus, cited under the hepatic reflexes, in which the lichen, like the jaundice, appeared either as a cerebral reflex, in response to a sudden moral emotion—great fear—or to the balanoposthitis, and ulceration of the penis, with the cure of which it disappeared.

CASE LV.—*Genito-Reflex Tumefactions of the Cutis and Subcutaneous Tissue; Menstrual Hystero-Neurosis of Various Organs.*—Miss E. H., under treatment for chronic uterine and ovarian inflammation, metritis, endometritis, anteflexion, complained less of direct pains than of the numerous reflex symptoms depending upon the pelvic disease. When the patient first came under treatment, the most striking of the reflexes appeared at the time of the menstrual congestion. Pain in the top of the head, in the back of the neck, with distention of the stomach were constant; the menstrual neuroses were intense in character; the breasts became tense and painful; small tumors appeared, especially upon forehead, breast, and back; the pain in the top of the head was intense. Invariably with the nausea comes a tingling in the fingers, but she can never vomit. Nausea and tingling in the fingers always coexist. All these symptoms now appear simultaneously with the coming of the menstrual congestion; the majority have existed since the development of a catarrhal condition in the utero-vaginal tract, the result of a severe cold, taken in a winter's frolic some five years ago. Both local pains and reflex phenomena were mild in character, but with the aggravation of the uterine disease, brought about two years ago by the patient's slipping and falling heavily upon the ground, evidently determining or aggravating the anteflexion, the tingling in the fingers and body grew worse, and the pain in the head, which did not exist before, came on.

The case is a typical one. We see a group of symptoms, mild in character, appearing as functional reflexes in response to uterine and ovarian irritation, suddenly very much aggravated by the development of a new uterine status, an increase and exacerbation of the old condition. The gastric neurosis, which before this accident existed as a mere gaseous distention, developed into intense nausea, the tingling in the fingers and other parts of the body grew worse, and the pain in the head came on as an entirely new feature in the case. All yielded to uterine treatment.

Not in certain of these dermatoses only, but in almost all, is it difficult to determine their proper status, unless by its

vacillation with the improvements and exacerbation of uterine disease, independent of the condition of the system, and by the effect of gynecic therapy; even menstrual exacerbation may take place in a dermatosis not reflex in character, but secondary to, or a mere concomitant of, the uterine disease. The failure of proper dermatological treatment may lead us to suspect a reflex, and this will be proved by the disappearance of the eruption upon gynecological treatment alone.

Like other genito-reflex neuroses, the dermatoses are improved by, and may yield temporarily to, the sedative action of galvanism.

It is difficult to differentiate as to the correct causative dependence of these phenomena. Whether reflex or symptomatic, whether secondary or vicarious, whether incidental coincidences or resultants of the same condition to which must be ascribed the pelvic symptoms, we are not yet in a position to determine without the aid of the unailing test-treatment.

VIII. MAMMARY HYSTERO-NEUROSES. REFLEX SYMPTOMS ON THE PART OF THE BREAST.

The precise position which mammary changes assume in relation to the reproductive organs is difficult to determine, on account of the close connection existing between these parts, which we might term internal and external sexual organs; and it is for this reason only that I here treat of the mammary hystero-neurosis in a separate chapter, distinct from the glandular reflexes, the breast being a gland so different from all others by reason of its intimate connection with the sexual organs—in fact, it is usually considered as a member of that group, and must justly be classed so, as we see all physiological phases of sexual life represented in the mammary glands precisely as they are in uterus and ovaries—the development at the time of puberty, even the menstrual congestion, and, the period of sexual life being closed, the shriveling of the breasts. A separate functional activity, however, is established during the puerperium, while the development of the mammary gland accompanies that of the

uterus—its highest functional activity is in process when involution takes place in the pelvic viscera. Hence we see a distinct purpose served, and the functions of the mammary gland independent in time and purpose of those in the pelvic viscera. All physiological changes in the pelvic organs have an exponent in well-characterized changes in the mamæ, and even physiological changes are there depicted. The enlargement of the breast which accompanies puberty and pregnancy, the retrograde metamorphosis during the menopause, is not a resultant of uterine and ovarian changes, but a concomitant dependent upon the same general fluctuation of sexual life. The same mammary symptoms may appear in very different relation to the pelvic status, as a resultant of the same cause, as a concomitant or an indirect response. The congestion of the gland which accompanies conception or menstruation is by no means an evidence of dependence upon the uterine condition—a reflex response to pelvic stimulus; and yet such swelling occurs frequently as a reflex. Pathological changes in the pelvic organs are more likely to determine reflex symptoms in the mammary gland, the concomitant changes more commonly accompanying physiological conditions. The most frequent of the mammary reflexes are a swelling of breast, or nipple, or both, and a pain, more or less deep seated—a mastodynia. These may appear as constant or pathological neuroses, with menstrual exacerbation, or merely in response to the monthly intensification of uterine disease.

CASE LVI. *Menstrual Hystero-Neurosis of the Breast; Peripheral Cardiac Neurosis; Laceration of the Cervix, Endometritis, Retroversion, Descensus Uteri; Operation; Cure.*—Mrs. McC., thirty-two years of age, of good constitution, had been in excellent health before her marriage, but began to fail slowly after the birth of her first and only child. Nervous symptoms slowly developed; great prostration, nervous and physical, resulted from the profuse menorrhagia and the painful central symptoms. Hemorrhage was checked by curetting of the uterus, and the patient appeared to gain strength, but the re-

flex symptoms in no wise abated. Great nervous prostration existed, and she suffered intensely from mental anxiety, a sudden feeling of something terrible about to happen ; she could not lie still in one room, jumping up to seek a safe place in another ; her fears drove her from place to place. At times she had spells, as she called them, as if she must die ; insomnia, palpitations of the heart, with a thumping that appeared audible, caused great anxiety ; she had a feeling as if her breath was being drawn from out of her ; all symptoms being aggravated with the coming of the menstrual congestion, and with this exacerbation came a swelling, with pain, in the left breast, the left side of the pelvis being the most affected ; left laceration with slight perimetritis.

April 26th, treatment was inaugurated, local application of mild astringents to the cavity ; galvanism, reposition, and support of the uterus with elastic tampons, repeated on alternate days. After the third treatment the severity of the symptoms abated. The menstrual period, coming on after the fourth or fifth treatment, was accompanied by much less suffering. She was enabled to rest with comfort at night and to lie quietly in the day-time, her fears no longer haunting her ; the mastodynia was slightly diminished. The patient improved in appearance, in spirits, and her complexion cleared, and, after nine more treatments in the next intermenstrual period, the flow came on without that swelling and pain in the breast which for the past year had invariably preceded it, and which had come with such regularity and severity that the patient looked upon it as an indication that the period was at hand.

In this case the reflex nature of the symptom was clearly proved ; its appearance with anteflexion, and development with uterine symptoms, and its cessation with improvement in the pelvic condition even before a cure was effected, characterized it as a genito-reflex neurosis.

CASE LVII. (*Case XV.*) *Constant Hystero-Neurosis of the Breast.*—Mrs. S., aged thirty, hysterical, nervous, married nine years ; sterile ; has acute anteflexion, endocervicitis, oöphoritis, and hydro-salpinx. While the fluid in the cyst is accumulating, the patient is confined to her bed with neuralgic

headaches and intense hypogastric pains ; at such times the breasts become tense and exceedingly sensitive, with a dull, heavy, rarely a lancinating pain, which penetrates to the shoulder-blade. This period of accumulation and suffering, direct and reflex, is followed by a copious watery discharge *per vaginam*, and relief from the pain. The breasts then become less tense and painful ; the menses are comparatively regular, and have no causal connection with the mammary enlargement and suffering, which, in this case, is dependent upon and indicative of the intensity of the pelvic suffering.

CASE LVIII. (*Case XVI.*) *Menstrual Hystero-Neurosis of the Breast.*—Mrs. M., aged thirty-three, married at nineteen, sterile ; anteflexion, painful dysmenorrhea. The appearance of the menses is preceded by shooting-pains in the breast, most severe when the general suffering is increased, always easier when the flow comes, and ceasing altogether with the disappearance of the discharge.

After operation for the flexion, these severe premenstrual mammary pains disappeared, but, instead, a soreness of the nipple and swelling of the breasts showed itself in the week preceding the flow, which passed away completely with relief of the hyperplasia by treatment after cure of the stenosis.

CASE LIX. (*Case XVII.*) Mrs. S., aged twenty-two, married at nineteen ; sterile ; lateroflexion with slight anteflexion ; dysmenorrhea. Two or three days before the time of the monthly change, lancinating pains begin to appear in the breasts, which become tender to the touch, but do not increase in size. This condition continues throughout the period, and disappears with the cessation of the flow.

The development of the mammary gland accompanying that of the pelvic organs at puberty is often associated with an unnecessary turgescence and pain, which is most probably a reflex neurosis, and not a necessary concomitant of the physiological condition. The gland may be the seat of intense pain without swelling, the nipple alone may be swollen and sensitive, or the entire gland tense and painful to the touch. The latter is the more frequent of the mammary hystero-neuroses, usually appearing two or three days

before the flow, and passing away with its cessation, rarely a few days later—sometimes with the coming of the free discharge, when the catamenia are well established.

IX. THE GLANDULAR NEUROSES.

The dependence of glandular changes upon the varying conditions of the female sexual organs has never been brought to the attention of the profession in its full extent, notwithstanding the close relationship which is known to exist between certain glands and the reproductive organs. Popular belief in olden times pointed to the thickened neck as an evidence of consummated marriage, or of pregnancy. This was the reflex congestion of the thyroid. Ovariologists know that inflammation of the parotid is liable to accompany ovarian sepsis, or inflammation of the pelvic peritoneum; and in the male the response of parotid disease to affections of the testicle is known to every practitioner, as well as a relation of somewhat different character—the metastasis, as it is called, of the mumps to the testicle.

Perspiration, hypersecretion of the sudoriparous glands, and increased salivation, which I believe to be glandular reflexes, were looked upon as signs of pregnancy by the fathers of medicine.

The glandular changes which accompany physiological and pathological fluctuations in the reproductive organs are by far more numerous than is generally supposed. I have enumerated above the best known of these peculiar phenomena, but even the important glandular organs seem to respond occasionally to a perverted or morbid impulse from the genital fibres. The liver especially seems at times to answer the ganglionic impulse, as do these less important cutaneous and subcutaneous glands, and the small glands of the stomach and intestines. I do not wish to be misunderstood, and to appear as saying that the glandular changes which accompany the development of menstruation or pregnancy are of necessity reflex neuroses. Changes in the entire system which are the natural resultants of the potent

stimulus which accompanies the physiological changes in the reproductive organs, hypertrophy of the heart, increase in the quantity and quality of the blood, increased pressure to force the nutrient fluid through the developing tissue and the new-formed channels, must naturally determine a hyperactivity in the parts, and thus bring about changes of various kinds; and between the precise nature of these, whether resultant, concomitant, or reflex, we are not yet in a position to differentiate thoroughly. The functions of the cutaneous glands are supplementary to those of lungs and kidneys; in fact, not only is increased labor demanded from all, but in individual cases, under peculiar circumstances, infirmity of one may necessitate increased action in another—the refuse material must be cast off whatever the path may be. Thus even the kidneys are influenced, and, on the other hand, we well know the peculiar dependence of renal action upon the emotions, and that the anastomosing ganglionic fibres connect with the uterus as well as with the brain and spinal cord, so that they may be influenced by uterine irritation as well. While the profuse, pale urine indicates a hypersecretion in response to cerebral stimulus, the frequent and painful micturition may be the result of morbid molecular action imparted from the uterine centre. Painful or frequent micturition, which accompanies the menstrual period or uterine disease, is not of necessity caused by pressure of the temporarily enlarged uterus, but may be an evidence of nerve-irritation—a reflex symptom.

Thyroid Enlargement.—This symptom, taken as an evidence of physiological activity of the reproductive organs by the poets and physicians, as well as the common people of Rome, was even regarded by so acute an observer as Meckel (Barnes) as a repetition of the uterus in the neck. This I have repeatedly observed as an accompaniment, I can not say positively a reflex, of uterine disease. Thus, this enlargement existed, together with a pharyngeal neurosis, in a young girl suffering from painful menstruation; and, after resisting local treatment, yielded slowly, long after the disappearance of the

accompanying reflex, with general improvement and a cessation of the menstrual pain.

As a proof of the peculiar influence of the nervous system upon this gland, I may cite the coexistence of goitre, idiocy, and deformity in the cretins of the Alpine valley.

CASE LX. *Genito-Reflex Thyroid Enlargement.*—Mrs. H. was annoyed by this very observable thickening of the neck, which appeared to decrease a little upon the application of galvanism, after having resisted the iodine treatment, and lessened decidedly with improvement of the uterine disease. Whether it first appeared in response to this or as an accompaniment of pregnancy I can not say, as its development was coincident with both; it yielded to uterine and not to local treatment.

Salivary Glands, Salivation, Induration, and Impeded Activity.—A hypersecretion in both glands may accompany menstruation or pregnancy, and when it occurs is frequently one of the first evidences of conception, so that its appearance in the second pregnancy is recognized at once by the patient as a mark of her condition, of which she has no other proof at the early day at which this reflex appears. It is the fact of this rapid development so soon after conception has taken place, long before secondary circulatory changes occur, that leads me to look upon this as a physiological reflex.

A highly educated lady, the wife of a physician, was afflicted in her first pregnancy with this same symptom, which again appeared soon after the second conception, and in less than twenty-four hours. The salivation had been so annoying that she well remembered it, and at once looked upon its return as an evidence of pregnancy. In time this supposition was verified, the reflex persisting throughout the entire period; severe in the earlier months, it became less annoying in time, to pass away entirely with delivery.

The hardening of the salivary gland upon one side I have observed as an accompaniment of excessive hypertrophy of the uterus, with celluitic effusion; and in a young girl at

puberty it existed as an accompaniment of a painful menstruation, and so certain an indication was this that a hardening, more or less intense, invariably served to indicate the character of the coming period.

Goodell, in his paper on "Inflammation of the Parotid Glands following Operations on the Female Genital Organs,"¹ mentions two patients: one with excessive salivation during menstruation, the other suffering from a congested and diseased left ovary, with a left parotid gland which did not secrete during menstruation, causing the mouth and fauces on that side to be dry and painful, as in my own cases mentioned above. Barnes looks upon salivation as simply an evidence of the general glandular activity induced by pregnancy, which, it may be conjectured, is a provision for the elimination of excess of circulating fluid and products of nutrition which are to be cast off. This physiological provision will at times easily pass into morbid excess, as in the patient who comes into his consulting-room holding a pint mug, which is a constant companion, being filled several times a day. I can hardly agree with this statement of the able author, because we may see likewise a diminution of the secretion, as in my own cases, and the one mentioned by Goodell, which serves to strengthen my belief in the reflex nature of these symptoms.

The hystero-neuroses of the salivary glands, precisely like the reflex symptoms on the part of the nerves, the skin, and other organs, may exist either as a paralysis or a hyperactivity, so well observed in the circulatory system, which gives evidence of the reflex either by the flushes, the paralysis of the vaso-motor system, or by the cold skin, the chill, the hyperactivity. The sudoriferous glands respond in the same way, either by perspiration or by a dry skin.

The metastasis of mumps to the sexual organs in both sexes is a remarkable evidence of the existing nerve-connection. In the female, the breasts, the ovary, the womb, and the labia are the organs in which the sympathetic transfer-

¹ *Transactions of the American Gynecological Society*, vol. x, p. 211.

ence takes place ; in the male, it is the testes. During the later stages of acute specific fever, it is not uncommon to meet with parotid bubo, a septic inflammation of the parotid glands, ending very generally in suppuration. This form of parotitis, Goodell tells us—from whom I have quoted the preceding—is not deemed sympathetic, but symptomatic of a poison in the blood, which is exploded in the parotid glands ; yet, he continues : I am not sure that an element of sympathy does not exist even in this form of suppurative parotitis, and that the parotid glands are not perverted, because we have septic fever which starts from lesions of the sexual organs.

Parotid bubo seems liable to follow ovariectomy whenever sepsis takes place. In two hundred cases of ovariectomy performed by Schroeder, and reported by Morike (*Zeitschrift für Geburtshülfe und Gynaekologie*, vol. viii, 1880), five cases of parotid bubo took place, with two deaths.

Goodell reports a swelling of a parotid gland on the third day after an ovariectomy with barely a rise in the temperature, which passed off without any untoward symptoms, notwithstanding the alarm caused by the belief that the swelling was mumps, and that it might do mischief by metastasis.

This inflammation of the parotid glands after ovariectomy is confirmed by observations of Dr. Matweff, of St. Petersburg. Dr. Emmet, Dr. Mann, Dr. Baker, and Dr. Reamy, all record similar cases.

Goodell also relates a case of puffing of first one and then the other parotid gland, the second week after an operation for laceration of the cervix, which persisted for ninety-two weeks, so that the patient was unable to masticate solid food, and had to be fed on fluids. I heartily endorse his belief that these are more than mere coincidences, but I would even go further than the statement made by this able teacher, that “a kinship of sympathy exists between the parotid glands and the adult sexual apparatus,” and would say that a direct nerve connection is established through the ganglionic fibres by which reflex activity is excited.

The Liver.—The direct control of hepatic changes by

morbid uterine stimulus I cannot positively assert, and yet hepatic pains undoubtedly occur as neurotic responses to morbid conditions of the uterus, and hepatic congestion I have repeatedly observed in patients suffering from uterine disease, the circumstances being such that we might eliminate external influences, and I have been sorely tempted to refer the condition directly to the genitalia. We can not assume a dependence upon similar causes, as we may in the systemic congestion of pregnancy; certain it is, whatever the cause, that in this Mississippi Valley, abounding in malarial influences, hepatic conditions will readily occur in the weakened systems of patients suffering from uterine disease.

The first case of the kind which attracted my attention was that of a patient afflicted with other neuroses (Case XV), who suffered from a pain in the region of the liver, and was imbued with the idea that she had hepatic trouble. Never satisfied with the explanation given, she was perfectly content after the statement of a physician, who examined her but superficially, that she had an enlargement of the liver, which was not the case, however, when examined by myself and others soon after—it may possibly have been a menstrual congestion. The occurrence of hepatic symptoms in patients suffering from uterine and ovarian disease is surprisingly frequent, even though we consider the influence under which we live, and that a certain percentage of febrile hypertrophies must be expected in this malarial region. Certainly, at such periods, when fevers are common, patients under treatment for uterine disease are the most ready victims, and at such times I invariably see many cases, as a large percentage of my patients show more or less marked symptoms of malaria, usually with hepatic complications.

Barnes, in the article so frequently referred to, believes that the glycosuria of pregnant women illustrates the potency of nerve-influence upon hepatic functions, and may one day be the means of solving the mystery of diabetes, and, I would add, of reflex hepatic symptoms.

Claud Bernard's experiments—the production of sugar in

the liver by pricking the floor of the fourth ventricle—furnished a striking proof of the influence of nerve-force over the action of the secreting organs. Possibly (?), as Barnes states, the “altered quality of the blood passing through the liver is an essential condition.” Whether the action is in response to uterine stimulation through direct ganglionic connection, or by means of the medulla oblongata, is a question; certainly, organic lesion of the nerve-structure, as Barnes correctly observes, is not necessary as a factor, as is proved by the complete disappearance of sugar after glucorrhœa during pregnancy, and by the integrity of the nerves after its termination.

Every observation in regard to the hepatic reflexes is of value at this period; hence, I will add a case of emotional icterus, recently reported by Dr. McGrew (*The American Lancet*, 1886, p. 364), to substantiate the occurrence of hepatic neuroses, be they direct nerve-reflexes or brought about through the vaso-motor system, though proved, I believe, by physiological experiment and by the genito-reflex symptoms in women. A patient, who had for two years suffered from a slight urethral discharge, was attacked by a severe balanoposthitis in consequence of a powerful cauterization. He became greatly alarmed, fearing the sloughing off of the penis, and the emotion was followed by an intense jaundice and an eruption of lichen upon the dorsal and lateral portions of the thorax, part of the abdomen, face, and scrotum; little or no itching. Notwithstanding treatment, the jaundice and lichen at first grew worse, but began to subside in ten days, with great improvement in the ulceration. At the end of three weeks, the balanoposthitis and preputial ulceration became entirely well, jaundice hardly distinguishable on the sclerotics, urine normal; lichen on face disappeared, but remained on the body for a week longer. The icterus and lichen can only be attributed, as the author states, to sudden moral emotions caused by fear, since the liver and other organs were normal; no excess had been committed, and no chill had occurred.

Among the glands affected by pregnancy, Barnes mentions enlargement of the spleen.

Peculiar are the cases observed by me of women who for several years had been wholly cured of ague, and who suffered a relapse when pregnancy overtook them, and that not once only, but in successive pregnancies; when they were not pregnant, not a single attack occurred. Barnes records similar cases, and he asks: Is this recurrence due to a suddenly induced enlargement of the spleen, by the blood degradation attending pregnancy, to the exaltation of neurotic irritability, or to a combination of all three conditions, or to some other cause which has escaped attention? An exalted centric nerve-irritability certainly exists, but the blood degradation I should hardly consider as the concomitant of healthy pregnancy; heightened activity, of course, determines a greater amount of refuse to be carried away.

The Kidneys.—Unfortunately I have not observed with sufficient care those cases of renal and cystic irritability, of frequent and painful micturition, or variations in the secretion of urine, to determine their true nature, whether secondary, sympathetic, symptomatic, or reflex. I have been satisfied to see such cases improve and disappear with improvement in the uterine disease. But, as to the true causative relation, I can make no assertion. I had not ventured to suspect their reflex nature, and, occupied of late with questions of greater interest to me, I have allowed such cases, as might perhaps have led to a solution, to pass from observation, satisfied with the result without sufficiently careful inquiry into the possible cause.

Hypersecretion, hyperactivity of bowel and kindey are known to result from increased nerve-stimulations. Even in animals these functions respond to the emotions. Diarrhea I have repeatedly seen as an unquestioned reflex symptom, a menstrual hystero-neurosis yielding to treatment of the uterine disease, even when violent in character, and unaffected by local medication. For instance, as in the case of a patient who was obliged to get up six or eight times during

the night for some days previous to each period; a menstrual diarrhœa which had continued for several years unabated, unaffected by remedies which had been tried, yielded to an improvement in the uterine condition after six weeks' treatment.

Frequent micturition, as the result of mental excitement, especially if emotional in character, is a most common occurrence; the copious, clear urine is an almost invariable response to nervous excitement occurring so frequently that it may be taken as an evidence of such state; the same conditions may appear as a response to uterine irritation. More doubtful is the albuminuria of pregnancy without structural changes, which I believe at times to be the result of nerve-stimulus arising in the uterine terminals, a reflex neurosis. This is one of the various forms of albuminuria gravidarum, and I believe equally dangerous to the patient as a cause of puerperal convulsions, and I doubt that albuminuria determined by any other cause could result in symptoms so violent; the loading of the urine with albumen, and dangerous convulsions, all of which suddenly cease with removal of the cause, with the expulsion of the fetus, the emptying of the uterus. Unfortunately I cannot adduce evidence as satisfactory as I should like to bring forward, as proof of the reflex nature of cystic and renal phenomena. The theory has been sufficiently discussed, and upon this I will not enter, and facts sufficiently positive I cannot add.

The hysterical bladder by which vesical catarrh and even stone is simulated is one of the symptoms of hysteria, a response to spinal irritation; but, as we know that the innumerable fibrils, which carry the uterine stimulus not only to all the great centres but to the venous terminals, extend to the bladder as well, as they do to more distant organs, we may expect to find these neuroses in response to irritation from uterine gangliæ as readily as from the spinal centres.

RÉSUMÉ.

I trust that I may have succeeded in directing attention to the frequency and importance of the hystero-neuroses,

those reflex symptoms on the part of the different organs which so closely resemble disease, in the cutis and in the glands even approximating it in all particulars, with accompanying structural changes. The reflex nature of these phantoms of disease has been appreciated by the popular mind in olden times, as it is at the present day. Certain of these phenomena are so common that they have been popularly accepted as signs of pregnancy, and, notwithstanding the apparent intuitive understanding of their nature by the masses, the medical profession apparently persists in ignoring their true nature. There is no more striking evidence of this unfortunate fact than the unswerving course of the practitioner in the treatment of the nausea and vomiting of pregnancy. This well-known reflex symptom, which yields promptly in most instances to uterine treatment, like other reflexes is indifferent to direct medication. Of late years these most interesting, most peculiar, and by their frequency and violence important, symptoms have been studied by various specialists, and yet the intricate coil has not been fully unravelled, because the study at all times has been from one side only. The gynecologist alone cannot solve the secret of the reflex dermatoses; while, by his treatment of the uterine disease he cures the cutaneous eruption, his ignorance of all special study of dermatology does not enable him to fully utilize the advantages offered him for observation. The dermatologist, on the other hand, recognizing a kinship between certain eruptions and the functional changes and diseases of the reproductive organs of women, is not able to assure himself positively of its nature; he recognizes only a cutaneous disease which is peculiarly unyielding to treatment. While the existence of reflex symptoms on the part of various organs and the known dependence especially of mental and nervous phenomena upon uterine changes, so evident more particularly during puberty, menstruation, and the menopause, has excited the interest of individual observers, the reflex has rarely been clearly distinguished from the secondary or concomitant phenomenon, and the practical bearing of

the question has not been revealed, hence, it has been avoided by teacher and text-book, and this eminently practical and important field is hardly beginning to receive the merited attention. The specialist alone seems to have observed these phenomena, and has looked upon them more as oddities, and not sufficiently as subjects for scientific investigation and medical teaching. Text-books and medical teachers tell the student practically nothing of this grand group of symptoms, and yet it is an element in his education as important almost as auscultation and percussion. To demonstrate the necessity of such knowledge, and the injury caused by this omission, let me recall a few of the cases I have mentioned in this paper. A gastero-neurosis, treated for years as a disease of the stomach, irritated by constant medication, the system deprived of proper nutrition, and the unrecognized uterine disease insidiously progressing until it has become unmanageable when finally discovered—the health of this lady has been destroyed, after years of most unnecessary suffering, because the reflex nature of the gastric symptoms was unknown to any of the physicians who had been in attendance; a bronchial reflex, culminating in the most violent asthmatic symptoms, so that the patient spent night after night in the greatest agony, never able to lie down, was treated as a true bronchial affection for years until the constitution had been broken, and the pelvic disease had progressed so that treatment alone was no longer sufficient; although the reflex even then, after persisting for years, yielded to the reposition of the retroflexed uterus within a few minutes, all her organs, above all, her nervous system, had suffered, so that she did not survive the necessary operation; if taken in time, proper uterine applications, mild in character, would have stayed at once the development of all the morbid processes, but this patient likewise fell a victim to the treatment of the most apparent symptom, the reflex, instead of the causative uterine disease, which was completely ignored; I may also instance the case of the lady treated for her gastric and muscular rheumatism, which, of course, did not

yield, who was then sent abroad, and there directed to mineral springs for what was termed a nervous debility, and urged to exercise, sent upon long walks, which, of course, aggravated the uterine disease, which has so far been completely ignored; as a consequence, all efforts have been in vain, and how easily would a proper local treatment have restored her to health!

Such of these reflex phenomena as are dependent upon disease and changes in the female reproductive organs I have endeavored to picture in my study of the hystero-neuroses ten years ago. Since then the subject has been elaborated, and especially the reflex phenomena which appear with the semblance of disease in the lungs, bronchii, and eye, and the reflex dermatoses have been developed by observers in this country and abroad, and all who have studied the reflexes in whatever organ they may occur, coincide fully with me in the stress laid upon treatment of the causative disease, and the utter inefficiency of all attempts to allay the symptoms by direct medication, by such treatment as is indicated by the disease proper, of which the phantom only is before us. I have here sought to describe the hystero-neuroses, the reflex symptoms depending upon changes in the sexual organs of women, and I have accepted as such none of the various symptoms of hysteria, but only such as have been proved to be directly dependent upon the genital lesion.

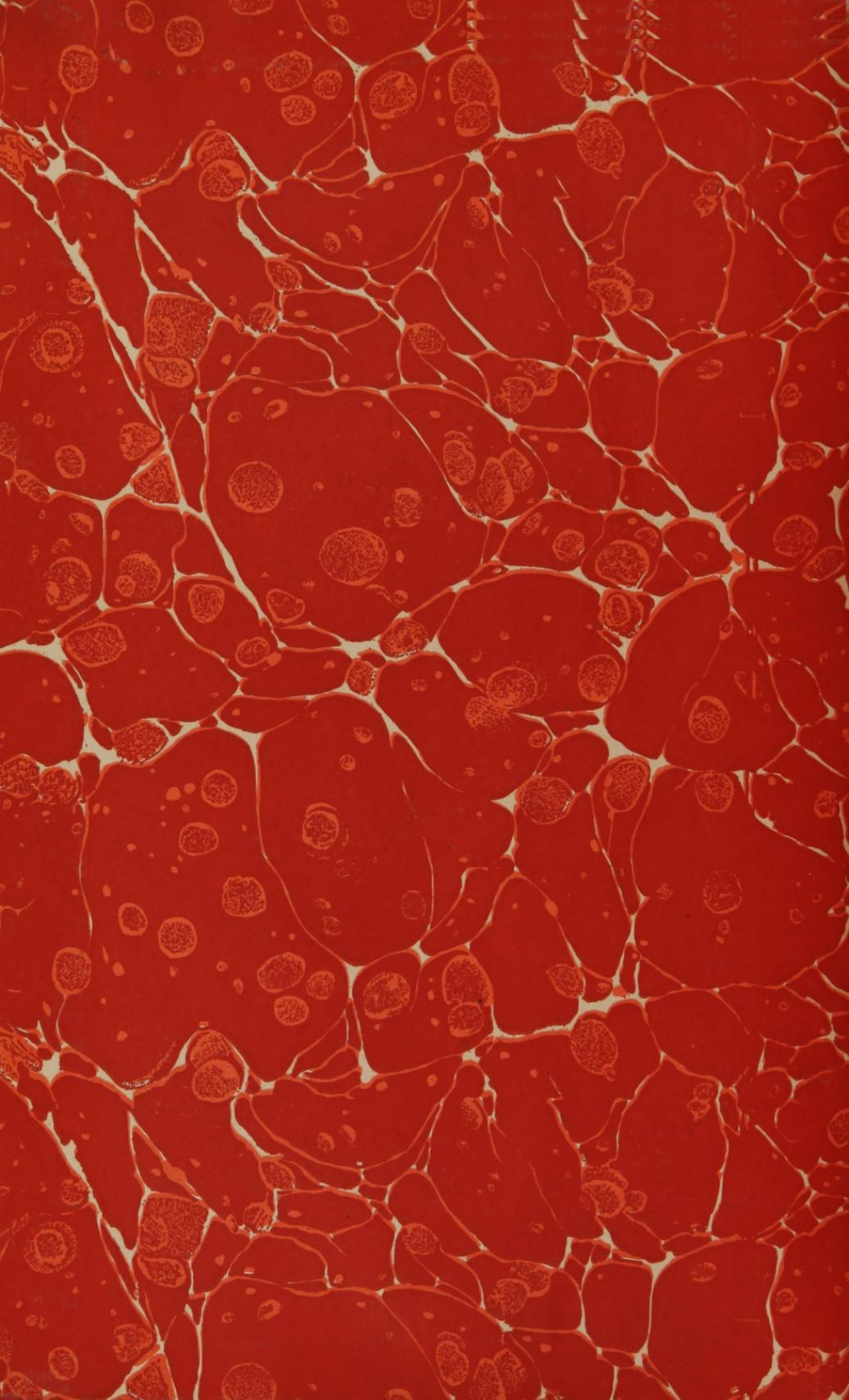
An examination of the cases cited will prove the fact, which may appear somewhat strange, that the great mass of these symptoms seem dependent upon uterine changes, and not upon those of the ovary. While in the cases I have cited the treatment has always been directed toward relief of all existing pelvic disease, the uterus has been in the main the part affected, and in the majority of cases it was an improvement in the condition of this organ which was followed by a disappearance of the reflex symptoms. In many cases, and in the most violent, such as the terrible asthma or the tetanic convulsions, uterine treatment was followed by a prompt re-

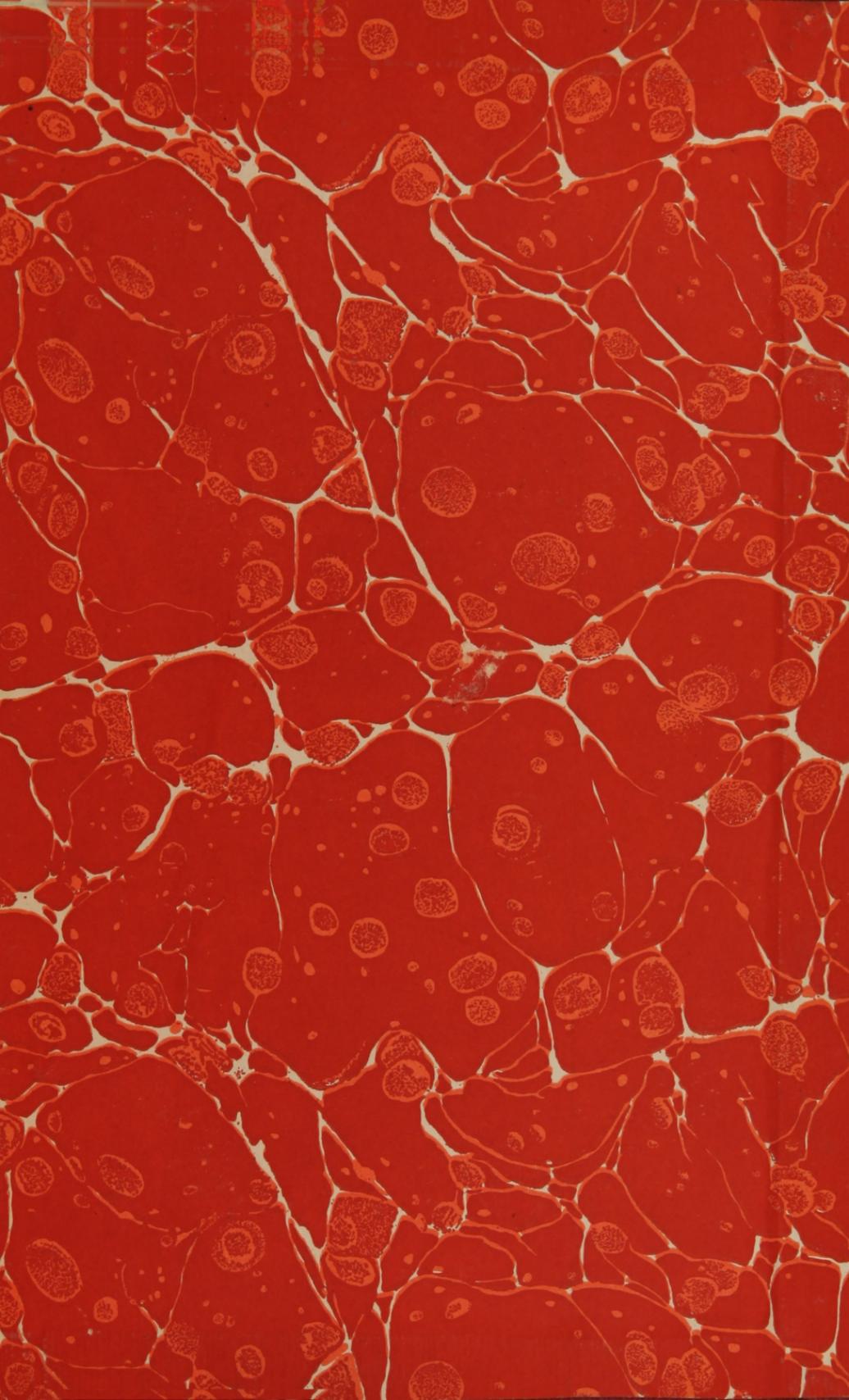
sponse—the insertion of a stem pessary, by correcting the retroflexion, suddenly checking the terrible asthma which had persisted for years: upon the cauterization of an eroded cervix the most violent epileptiform attacks vanished as if by magic. Treatment of the ovary alone has never been attempted, and a direct reference of the reflex symptom to ovarian lesions I have not been able to detect. A careful examination of the numerous cases here recorded leads me to believe that the cure of violent neurotic symptoms by oöphorectomy—by Battey's operation—is obtained indirectly by the uterine involution following, and not directly by the removal of the ovary as the offending organ. This will be readily accepted, if we recall how suddenly a reflex symptom vanishes if the causative condition be reached, the displaced uterus supported, a narrowed canal dilated. After operation for laceration of the cervix, the most painful neuroses, even the discoloration of the skin, frequently pass off, if not at once with the placing of the suture when union has taken place, long before constitutional improvement can be expected. Such striking relief has rarely been afforded by the removal of the ovaries by oöphorectomy, though undertaken for the relief of supposedly incurable nervous diseases. This fact, together with the known dependence of these reflexes upon uterine changes, leads unquestionably to the belief that a cure of nervous symptoms by this operation is impossible unless it is attained by uterine involution following the operation, and not by the operation itself.

The reflex neuroses, we have observed, may persist after the molecular nerve-changes have continued for an undue length of time, and it is especially the eye, that most delicate organ, which is liable to a persistency of the reflex after the cure of the causative disease, and to the development of the disease proper from the phantom. Likewise we have seen that the reflexes may be relieved by the sedative action of galvanism upon the irritated uterine terminals. The action of this agent upon the affected nerve in the organ in which the symptom appears leads only to temporary improvement;

while this is permanent when directed to the uterine fibres or ganglia, from which the morbid impulse emanates.

The variety and the importance of these reflex neuroses, whether dependent upon lesions in the sexual organs of women, upon changes in the mucous membrane of the nose, of the throat, or other parts, should secure for them a permanent chapter in the theory and practice of medicine, and the student should be taught the diagnosis and treatment of phantom disease as he is of the disease itself.





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