A CASE OF NON-SURGICAL PREMATURE MENOPAUSE, WITH REMARKS.[1]

BY

JOSEPHINE WALTER, M.D.,

New York.

THE following case seems worthy of presentation and consideration owing to two of its rare features: *(a)* the unusually early age, and *(b)* the good health of the patient (if the paradox be pardoned) previous to and since the change.

Miss L. was born in 1858 in this city. She is the ninth of fourteen children, nine of whom still live. Her parents are English Jews of good, healthy stock. Her mother died at the age of 51, after a very short illness; her father, aged 78, is still alive. On the father's side there is some gouty and rheumatic taint, otherwise the family history is good, old age being a family trait on both sides.

She claims to have been a healthy child, born at full term, normal delivery. Between the ages of 7 and 12 she had varioloid, measles, scarlet fever, whooping cough, and chicken-pox. Varioloid was followed by a general eruption, probably eczema, which she says she has had all these years, off and on, limited to ears, arms, or legs. At the age of 11 she first menstruated, it being perfectly normal in its advent, not accompanied by any nervous disturbance. It was always of three to four days' duration, moderate flow, and preceded by only very slight pain. It did not appear very much earlier in her than in her sisters, one of whom menstruated at 12 and another at 14, but in none of them is there a history of early menopause. She went to school at the age of 5, and, although an earnest scholar, was never over-

[1] Read before the Woman's Medical Association of New York, April, 1900.

worked. She left school at 16 and entered society, having at this time no special occupation. She recalls very distinctly, as they made quite an impression on her, several frights as a child, once due to a thunderbolt, again to a picture falling from a height in the middle of the night, and a fall from a merry-go-round that left her unconscious for a time with some injury to her nose. It may here be mentioned that this injury caused later in life "hay fever," as proved by its non-appearance after an operation for deflected septum. These frights did not cause any prolonged nervous disturbances. She always enjoyed good health; was of happy, gay disposition till her mother's illness in 1881, which the family had been led to believe was only a slight indisposition—she died suddenly and unexpectedly. Her death was a great shock to Miss L. She became ill almost immediately, suffering from bronchitis and cystitis (?) severe enough to make her an invalid for three months. After this illness menstruation ceased, and, except for a show, rather than a flow, once or twice, she has not menstruated since. From this time she dates the condition for which she consulted me later. To quote her own words in regard to this condition: "My periods did not return; I had severe headaches; I became very nervous; I had peculiar feelings through my whole body—my feet would one moment be cold, and then would tingle all over; my head would get big, teeth would chatter, and severe hysterical attacks would come on. I was afraid to be alone at night, afraid I might do something terrible; I would lock my windows in my room, as something inside of me kept urging me to throw myself out of the window, but I had just sense enough, just sufficient control of myself, to keep back."

It was in this condition that the patient first came under the writer's observation. She had already been treated for over two years by different physicians at different times. They had all tried to re-establish the menses and relieve the general nervous disturbance, but with negative results. While the writer succeeded in the latter, all efforts in regard to the former have been equally futile. In spite of general treatment, given with the idea of toning up the constitutional and thus the local condition; in spite of electricity, galvanic and faradic, local and general, according to the most approved methods, no decided change was effected in the menstrual period. The only result was with local intrauterine negative galvanism, which produced a flow lasting at first two or three days, later a flow lasting a shorter time;

but finding that no flow appeared if the uterine mucous membrane was not stimulated by electricity, it was decided that the flow thus obtained was not a true functional flow, only a mucous-membrane congestion provoked by the electricity, and therefore all local treatment was stopped, with the result as above-mentioned—no further appearance of the flow.

That the general nervous disturbance was controlled is to be attributed largely to the fact that the writer was an old friend of the family. Miss L.'s confidence was readily gained, and she faithfully carried out every instruction given in the way of general hygiene, therapeutics, exercise, and occupation of the mind; taking up the study, and later on the teaching, of kindergarten, thus ceasing to dwell on her own troubles. During all these years since coming under the observation of the writer, up to the present time, about nineteen years, Miss L. has never been ill in bed, save for some very slight illness; but she has presented very interesting symptoms, all of which so often accompany menopause that it is quite justifiable to attribute them to the menopause, although it will be seen, as they are mentioned and commented upon, that some of them could be referred to other causes.

(a) Complete and rather sudden cessation of menses—in her case absolutely no cause for same.

(b) Headaches, coming on irregularly and very often accompanied by severe nausea; but, as she would say herself after recovering from these attacks, "Doctor, it was my own fault; I should have been more careful of my diet"; or again she would say, "If I had not allowed myself to get excited, to overdo myself, I would not have had the attack."

(c) Frequent urination, off and on, in large quantities. The necessity of emptying bladder was most urgent—often at times beyond control. Infrequently the urine contained a small quantity of albumin, at other times a few hyaline casts, rarely the two at the same time. There never was a trace of sugar. The specific gravity was always low and the urine of a pale color.

(d) Diarrhea, or, more properly, sudden peristaltic intestinal action requiring immediate evacuation; this caused her much distress and annoyance. These discharges were often like mucous evacuations of membranous colitis, and had at times so much of a periodicity as to suggest a monthly uterine discharge replacing the menstrual flow; but on examination the discharge was found to be rectal, probably a substitute for the uterine blood

loss of former days, as it ceased after a few years, presumably as Nature adjusted herself to the "change of life."

(e) Backache, associated with prolapse of rectum and eczema of anal-rectal wall, was very much benefited by nitrate of silver and postural treatment. This relaxation of rectal tissue is unusual, as in most of these cases there is rather spasm-contraction of the rectal sphincters.

(f) Eczema she has had, off and on, since a child, often only a few patches, especially in either elbow fold, worse in summer than in winter, owing to heat and increased perspiration. This might be looked upon as an expression of gout, there being history of gout on the father's side. But it is not any worse since menopause is established, which is not in accord with the assertion: "It is at this period of life, the time of the menopause, that the gouty diathesis is liable to become most troublesome" (Mary P. Jacobi[1]). The only other expression of gout, except if increased urination and infrequent appearance of casts and albumin may be looked upon as such, was a pain and swelling in big toe from which she suffered at times, but the writer is inclined to think this was due to pressure of shoe. However, lately some of her teeth have become so loosened her dentist had to extract them, and he claims to have found gouty deposits on them.

(g) Hemorrhagic spots, irregular in size, shape, and number, have, and do still appear on lower extremities, not preceded or followed by any constitutional or local disturbance. She says an old aunt, "full of gout and rheumatism," had the same thing. Pigmentations have often been noted as accompanying the menopause, but such spots seem unusual and to belong rather to rheumatism or gout.

The *general nervous symptoms* have been referred to in her own words, but these were only in the early years, as during the last ten or twelve years, with the exception of some excitability and a tendency to be easily irritated, and an occasional "all-upset of my nerves," as she calls it, she has been well.

On examination of the *generative organs* at time patient first came under observation (about two years after last natural menses), the external genitals presented in every particular the appearance of that of a young girl, the uterus was of average good size, electrode entered readily and indicated normal position. Nothing abnormal was found in tubes or ovaries as far as finger could detect. Several examinations made during the

intervening past years showed a gradual atrophy of uterus, ovaries, and tubes, till at present the uterus is about one inch in length, small, flattened antero-posteriorly; tubes and ovaries are not palpable.

Mammary glands are round and full, but not as large as in former years.

The external genitals are only slightly atrophied, large labia are less cushion-like, hair is soft and not scraggy, and the small labia almost normal.

The general appearance of the patient to-day is that of a woman much younger than she is. She is round and plump, gracefully shaped, *not at all stout.* Her hair is slightly gray; now and then there are dark circles beneath the eyes, most noticeable when she is anxious and worried.

Her general disposition is happy and rather cheerful, so much so she says she is the one to whom all in the family turn when they are depressed and in trouble.

As already mentioned, she has had no serious illness since the menses left her; has lost slightly in weight, weighing only about one hundred and twenty-five pounds; had never had a cough or any symptom pointing to tuberculosis. The acute bronchitis and cystitis, already referred to as making her an invalid for two or three months after the death of her mother and preceding the disappearance of the menses, were presumably not of a tubercular nature, as the condition of lungs and bladder observed during all these years justifies the writer in asserting.

The literature (accessible to the writer) on this subject emphasizes four points of interest in this case:

1. The very early age of the menopause.
2. The sudden advent of the menopause.
3. Absence of any previous local or constitutional disease.
4. Absence of any subsequent local or constitutional disease.

1. As regards age, there are but four cases reported at an earlier age—two by Kisch (see below), aged respectively 17 and 20, but no subsequent history is given; one by Dalton (see below), aged 20, a prostitute who died one year later; one by Mayer, aged 22 (see below), sickly before and after menopause.

2. As regards suddenness, Tilt reports three or four cases occurring suddenly, but he does not state if they were married, and gives very few particulars as to general health (see below).

3, 4. As regards previous and subsequent good health, *at this early age* and unmarried, no case is reported. The majority of

such cases are said to be due to pronounced or incipient disease, and these do not occur so suddenly. "Premature menopause is unusual; therefore it is evidence or result of disease" (Currier[2]). This expresses the consensus of opinion, up to date, in regard to the condition underlying premature menopause. A few authorities do assert (Napier[3]) that a small number of cases of premature menopause presenting no organic change do occur. Some of Tilt's cases herein quoted (see below) and the case here presented corroborate this assertion. However, it is to be said that the not finding of any organic disease could be due to faulty or incomplete examination at the time, or to lack of subsequent later examination, a necessary procedure in order to determine if a non-detectable disease present in the earlier days did not develop later into a pronounced recognizable disease.

The following are all the cases found on consulting the literature on this subject:

Filty[4] reports 2 cases at the age of 30, but no previous or subsequent history is given.

Tilt[5] reports 49 cases of "premature ovarian paralysis," as he calls it, occurring suddenly between the ages of 27 and 39. While he says, "I was unable to detect anything peculiar to their constitution, except in eight whose strength was below the average," he gives the following table of cause in 27 of them, to which the writer has added the age of cessation and the age when patient was last seen, where he mentions either:

Cause.	Age of cessation.	Age reported.	No. of cases.
Parturition and lactation	I. 34 II. 37	50 47	3
Miscarriage	32	53	1
Fall on sacrum during menstruation	33	45	2
Frost, or intense cold, during menstruation	I. 34 II. 39	 48	2
Bleeding from arm during menstruation	39	53	1
Getting wet during menstruation	.....	.....	1
Violent purging, due to medicine	.....	.....	2
Cholera	.....	.....	2
Rheumatic fever	.....	.....	2
Bronchitis with fever	.....	.....	2
Fright	39 34 45 28 30	59 50 ..... 71	9

The very incomplete history of some of these 27 cases is interesting; but while 10 of them were within the ages considered in this paper, namely, 17 to 30, inclusive, he gives a history, and that very scant, of only two of them:

CASE I.—Elizabeth C., dark-eyed, thin, very old woman, seen at the age of 71, had enjoyed excellent health till age of 30, when, while nursing a child 18 months old, her husband dropped dead at her feet. She lost her senses for a few hours and her "milk turned to water." For a time she felt a good deal shaken, but health was soon as strong as usual and continued so, although she never menstruated again.

CASE II., up to age of 30 regular in her menses, threw a dead rat on the fire, thinking it was a coal; she retched for hours. For four years there was no menstruation, but after that she had an irregular show at times.

In Guy's[6] table of 400 cases of premature menopause he reports 3 cases occurring at the ages, respectively, of 27, 28, 30. He says he excluded all cases due to *serious disease, such as pulmonary consumption.*

P. F. Mundé[7] reports a case at the age of 26, due to excessive involution of uterus and ovaries following confinement, but he gives no subsequent history.

Kisch[8] reports 2 cases (see above), one at the age of 17, a Hungarian Jewess, who from an early age had a tendency to abnormal fat development At the age of 9 she menstruated, at 15½ she married; at the age of 17, while she had been growing still stouter and the menses less in quantity, they ceased entirely. Vaginal examination showed "slight anteversion with marked relaxation of the cervical tissue—nothing more."

The second case, a Smyrna woman who menstruated at the age of 13, married at 16, menses ceased at 20. She was sterile. Nothing abnormal was found on vaginal examination. He also gives no subsequent history in either of these cases.

In Bloom's[9] series of 400 cases the youngest was 29, but no history is given.

Atlee reports 4 cases at the age of 30, but these were all complicated with ovarian tumors.

Mayer[10] reports the following cases:

CASE I.—A Berlin woman was seen for the first time at the age of 33. She was a working woman; was robust and well up to date; menstruated regularly from the thirteenth year. From

17 to 28 she had five children, with a miscarriage at the age of 19. Husband died when she was 29 years of age. She was an invalid from that time on. From the age of 22 she had had a profuse and continual leucorrhea, but no menstrual flow. At the age of 33 she was examined; the uterus was found small, vaginal portion only rudimentary, pinhole cavity of the cervix.

CASE II.—Patient was of medium height, constitutionally rather weak and feeble; menstruated at 14, every four weeks, two to three days' flow. She married at the age of 20, bore a child at the age of 21; nursed the child for one year, after which menses ceased. The first years after the disappearance of the menses, every four weeks she had pains in the regions of the kidneys and hips; some malaise, at times headache and lancinating pains in epigastrium. At the age of 34 she had some gastric trouble. Vaginal examination showed the uterus to be small and infantile, cavity two inches. During nine years of menostasia she was never pregnant. Both of these cases were observed for ten years.

CASE III.—A Berliner, first seen at the age of 34; was a brunette, robust, moderate height. First menses at age of 13; flow was regular, of three days' duration, not very profuse. She married at the age of 20; had two children following one another very closely, last one four years after marriage; normal deliveries. After second birth she menstruated but once, a violent fright having caused it to disappear permanently. She was always sickly afterward, became eventually epileptic and idiotic. "Uterus was infantile; some displacement of organ and erosion of os."

CASE IV.—Seen at the age of 25. She was healthy as a child and young girl; menstruated at the age of 14; flow lasted four to five days, not specially painful. Menses ceased without any known cause at the age of 25. Two years later she married, but she had no children. Examined at the age of 39: uterus was found "small, mobile, normal position, with right ovary swollen to size of a fist."

CASE V.—Patient menstruated at the age of 13; Hamburg[12]; she was sickly in her youth, married at the age of 16, had six children and one miscarriage. At the age of 29 she lost her menses without any apparent cause. Became very stout, but declared that she felt better than she had ever felt before. At the age of 56 she was still very robust.

Montgomery[11] mentions one case—menstruated at the age of 14, regular every five weeks, lasted three days and was painful. Ceased at the age of 26, having gradually lessened. Never pregnant; good health. No cause assigned for its disappearance, but no subsequent history is given.

Napier,[12] to quote his own words, says: "My experience only afforded me two clear examples of premature menopause in which there was no discoverable constitutional or local disease. Both patients attended my outdoor department at the hospital. One patient menstruated for the first time at the age of 14, quite regularly, every twenty-seven to twenty-eight days, from the age of 15 to 25. She married at the age of 26 and had a child. She did not nurse the child, and her menstruation returned three months after delivery. During the latter part of the following year it became scanty and ceased definitely at the age of 30 years. She had never suffered any acute pain, had no climacteric inconvenience, and felt well and strong.

"The second one was single and a virgin; she was fairly regular from 15 to 16; from 16 to 28 the flow was poorly, about every five or six weeks; irregular and ceased definitely at 29. Uterus and ovaries were normal; no goitre, but she was subject to palpitation and occasional fainting spells. There was no cardiac murmur, no lung affection, no symptom of chlorosis." First patient had not altered in figure, but the second had become stouter; especially the abdominal wall became obese. He had both patients under observation for two years, and neither had return of the menstrual flow. A very short time to class them as cases of premature menopause.

Arthur Forster[13] reports one case at the age of 28. Took cold, menses ceased and never returned. Ten years later Addison's disease developed. She died suddenly. "Uterus felt atrophied; ovaries could not be palpated."

Dalton[14] (see above) reports one case of a prostitute. Menstruation ceased at the age of 20. She died at the age of 21 of cardiac and pulmonary edema. Ovaries were small.

Currier[15] speaks of the case of a woman who had seven children in rapid succession. Lost menses at the age of 30. He gives superinvolution of the uterus, due to excessive lactation, as the cause. In his "table of 150 cases," taken at random from the gynecological records of the Outdoor Poor Department of Bellevue Hospital, he places his earliest case at the age of 28.

Courty[16] speaks of three cases at the age of 30, due to violent attacks of cholera. After ten years for two and fifteen years for one of them, during which the menses never appeared, they were all perfectly well, one declaring she had never felt so well.

Courty[17] has also collected tables of 572 Frenchwomen. one of whom menopaused between 18 and 20, another between 25 and 30, but there is no previous or subsequent history given. He reports another case that menstruated for the first time at the age of 17; disappeared suddenly at the age of 28, and never returned. In this case the patient was very weak and puny, but he says "there was *probable* atrophy of the uterus and ovaries," but he does not state her occupation, general condition, nor anything in reference to the case.

Brieurre de Boismont[18] reports seven cases at the ages, respectively, of (two cases) 21, 24, 26, 27, 28, 29, with the following history:

CASE I.—Menstruated first time at 10½; quite regular after a few months; much leucorrhea before and after each menses; ceased at 28, no cause given; was well up to 46, when last seen.

CASE II.—Lymphatic temperament, weakly, medium size; menstruated at age of 16, regular, no pain, duration five to eight days. Had two children, normal delivery. At the age of 27 had a profuse hemorrhage, but menses did not again appear; had leucorrhea, and entered hospital at age of 29 with partial paralysis and tuberculosis. Nothing abnormal was found on examination of uterus.

CASE III.—After suffering for two months patient menstruated at age of 16; was regular up to 21, previous to which she had had four children. On the ninth day following last confinement, while still flowing, was told of the death of her husband by drowning. Flow ceased and did not return up to age of 37, when last seen.

CASE IV.—Menstruated at 13; was married soon after, and had four children, last born when she was 21. Following year fright consequent upon fire in her house caused menstrual flow to cease and it did not return, and jaundice followed, lasting three months, and for two years had severe pelvic pains, and later general pains like rheumatism.

This completes the list, obtained by the writer, of reported cases of premature menopause occurring between the ages of 17

and 30, inclusive, including the case presented in this paper and 10 of Tilt's, in all 42.

Indeed, in searching out these cases one is much surprised at the collection of facts bearing on the establishment of the abnormal menopause as compared with the insignificant facts in regard to these premature menopause cases —a lack very much to be deplored, as a complete history of each case, previous and subsequent history, social condition, nationality, inheritance, sexual activity, as regards married or single life, children, lactation, vocation, are all valuable and necessary data for study and treatment of such cases.

In considering the cases quoted above, it is evident that, owing to facts stated and facts not stated, some of them cannot be classed as cases of true menopause, if we are to accept menopause as meaning the period of "cessation of the procreative power in the female"—thus Mayer's case, where three children were born after menopause was supposed to have been established at the age of 22; and Tilt's, where there was an "occasional show" after cessation of flow. And the time of observation in some was not sufficiently long to decide whether they were true cases of menopause, as proved by the following: P. F. Mundé[19] reports a case where, after a nine years' absence of the menses, from 34 to 43, patient became pregnant. She was a diabetic. Davis[20] reports a case where menses were absent for four years, but one month after an operation for removal of a multicystic ovary they returned, and fifteen months later patient became pregnant. Writer had under observation a case where, after birth of second child, normal delivery, menses did not return for nearly three years; then (no treatment) menstruated once and became pregnant. Her health was very good. In these three cases, if patients had not been kept under observation or history carefully inquired into, they might have been classed as cases of true menopause. (The writer consulted some of the most celebrated gynecologists in Europe in regard to this case, and all agreed that menses would never return!)

Of all these cases, but one is most similar to that of Miss L., namely, that one of Tilt's due to sudden shock followed by cessation permanently of menses—no previous senility, no atrophy of organs, no previous or subsequent ill health.

Miss L. is now 43 years of age; twenty years have passed since her last menstrual period, and she is to-day so comparatively

well that it becomes interesting and instructive to inquire into the cause of this sudden, permanent, early cessation of the menses.

Being a virgin, all disturbances due to marriage can be eliminated. She has never had diabetes, Bright's, tuberculosis, malaria, or any other infectious disease since girlhood. There is no history of trauma, neoplasm, obesity, cholera, menorrhagia, or severe diarrhea; no Addison, Basedow, or anemia. She was born in this city; has never made a prolonged stay in any other climate. Has no special family inheritance. Her social condition is such as to exclude malnutrition at any time of life. The acute bronchitis (which might have been a pneumonia) from which she suffered immediately after her mother's death can hardly be looked upon as determining the menopause, although Tilt gives it as the cause in two of his cases (see table).

Eliminating all of the above as possible etiological factors, there remains but one which can be considered as the provocative factor in this case, and that is the sudden shock and prolonged grief consequent upon her mother's unexpected death. Shock, grief, any acute or prolonged mental emotion, are recognized by all authorities as causing temporary or permanent cessation of menses.

Schroeder[21] : "One has often observed after a severe shock, sad news, or any great emotion, a sudden cessation of the menses."

Stephenson[22] : "Shock may interrupt the rhythmic wave of nutrition."

Kisch[23] : "Sudden cessation of the menses is always a *pathological condition,* which is brought about by a psychical moment, such as great excitement of nervous system, fear, shock or worry; or by a mechanical force, as a blow or a fall; or by a great loss of some secretion, as profound hemorrhage, diarrhea, or cholera."

Tilt[24] : "As the menstrual flow is sometimes brought on by emotion, so fright and sudden bad news are the frequent cause of an early cessation; the ovaries and womb are stunned by the serious shock, as are the frog's muscles by electricity."

Napier[25] : "It is a well-established clinical fact that excessive mental emotion will at times bring about 'premature menopause.'"

Courty,[26] while deploring the fact that the causes of "pre-

mature menopause'' have not been sufficiently studied, gives, among other causes, violent moral emotion, and any cause which provokes a violent disturbance of the general innervation.

Parvin[27]: ''Physical causes probably produce amenorrhea oftener than any other menstrual derangements.''

Boismont[28]: ''Any cause, like cold or fright, can hasten the appearance of symptomatic amenorrhea, which would only have shown itself later. Therefore one commits a great error in trying to establish the menstrual flow, as probably no result will be obtained and the patient would only be enfeebled by the treatment. Acute suppression often follows mental shock, especially fear or grief, while prolonged sorrow will lead to gradual diminution, probably complete cessation.''

Tilt,[29] in the above table of 27 cases, as cause gives shock due to fall in 2 cases and fright in 9 cases.

Many more authorities might be added, but these, with the cases quoted and the full history of case presented in this paper, are sufficient to establish the fact that clinically psychical stimulation is a very potent cause of premature and normal (?) menopause. Accepting this as a clinical fact, there seems good reason (*a*) to question if the condition of ''atrophy,'' ''degeneration,'' ''premature senility'' of generative organs *is* a necessary, an actual premenopastic condition; and rather (*b*) to assume that, such changes being found in these organs on the operating or postmortem table in cases of menopause, they are probably postmenopastic and not premenopastic.

It is well known that (*a*) all or any one of these sister organs may be diseased, even some of them absent, and still menstruation continues; while again (*b*) they may all be perfectly healthy and menstruation may cease, as proved by the following:

A. Holst, Borner, Kern, Dalton, Kiwisch, all report cases where menstruation continued with diseased organs.

Tait[30] gives a list of 50 cases where operation showed marked changes in both ovaries, and menstruation had been regular.

Reeves Jackson[31] is very emphatic as regards this, and says: ''There are many cases where both ovaries have been found so thoroughly diseased as to preclude the idea that they could possibly have performed their function of ovulation normally, if at all, and still menstruation continued regularly.'' To this Tait adds: ''In a large proportion of cases, probably 30 per cent, in which both ovaries are thoroughly removed, but the

tubes and uterus are left intact, menstruation goes on undisturbed."

Many cases of double ovariotomy are reported followed not only by menstruation but also pregnancy. Cases reported by Sutton[32] and Gordon are two descriptive of the many. In Gordon's case the patient was relieved of her ovaries and tubes; pregnancy followed fourteen months later. In Sutton's case patient was 25. October, 1892, a right-sided, six-pound multicystic ovary, and another from the left side, were removed; uterus was fixed to abdominal wall. June 10, 1894, after eighteen weeks, patient gave birth to a ten-and-a-half-pound male child, living. About two years later, February 25, 1896, a second male child weighing eight pounds was born. Writer has had under observation several cases where menstruation continued for some months after double ovariotomy. Of course in all these cases some unremoved ovarian tissue, a third ovary with tube opening at tied extremity, or a tube having more than one opening, is to be thought of.

B. As regards all the organs being healthy and menstruation ceasing for a longer or shorter time, with no unusual local or constitutional disturbances, and returning spontaneously, it is authentically reported[33] that the women of Greenland and in the mountains of Isère, and Switzerland, do not menstruate in the winter, but readily conceive during this time; with returning spring and summer menstruation returns. The cases (see above) of Mundé, Mayer, and Walter, where menstruation was absent respectively nine, four, and three and a half years, and either pregnancy occurred or menses returned, certainly negative the assertion that cessation of menses, pregnancy not being present, means atrophy or degeneration of ovaries.

Since menstruation continues with diseased ovaries, even with absent ovaries, with diseased uterus, while, on the other hand, it ceases when, all these organs being apparently perfectly healthy, a nerve or plexus of nerves is injured, directly or indirectly, by mechanical or surgical force, or indirectly by psychical force, it seems justifiable to consider menstruation, directly and indirectly, largely dependent on some special local nerve force[34] intimately connected with the general nervous system. Corroborative of the latter part of this assertion are the nervous phenomena which usher in, often attend, menstruation and the menopause—phenomena which are by no means patho-

logical, as supposed by some,[35] as similar ones appear in the lower animals during rut, a normal process. Then, in the more hardy races, among savages, tillers of the soil, outdoor workers, countrywomen, all whose mode of living tends to strengthen the nervous system, these two epochs of life are passed with little if any nervous disturbance, while the contrary is seen in the city-bred, the luxurious, the more highly civilized, whose mode of living is more enervating, more depressing, often a prolonged nerve strain. Then, again, all students of psychiatry attest to the intimate relation between neurotic diseases and early menopause. "Diabetes causes premature arrest of the menses" (Strojnowski[36]). "Diabetes seems to have a special predilection for the sexual apparatus in females as well as males" (Currier[37]). The writer had under observation a patient of 35 years, a diabetic, who had not menstruated in five years. Examination showed the tubes and ovaries normal, the uterus just large enough to suggest an early pregnancy, which proved later *not* to be present. "Menses often cease with attacks of insanity, and reappear with improvement of patient" (Boismont[38]). "I have seen insanity exist during the whole of the menstrual life and disappear spontaneously with complete cessation of menses" (Esquirol[39]). "In an observation of 100 cases of chronic insanity, menopause occurred earlier than in normal cases" (Naecki[40]). While many alienists (B. Lewis,[41] Merson[42]) dwell on the relation of menopause to insanity, as cause and effect, there are very few facts in regard to the effect of insanity on the menopause. "Basedow's disease and early menopause are very intimate; both diseases have, in some cases, the same cause—fright, intense emotion, prolonged worry" (Touin[43]). In support of the first part of the assertion, "menstruation is due largely to a special local nerve control," is the fact that throughout the human body are plexuses of nerves, ganglia—"little brains"—which control the functions of different organs. So here in the pelvic region it is conceivable, although denied by some, that there are local ganglia—"little brains"—influencing menstruation; and according as these local nerve centres are intact, irritated, inhibited, cut off physiologically, pathologically, or surgically, directly (locally) or indirectly (from a distance, reflexly), so will the function of menstruation be normal, abnormal, or entirely absent. Thus may be explained the assertion of Tait[44] that when, in his operations,

he succeeds in cutting off Johnstone's nerve, menstruation does not reappear. Whether Johnstone's nerve is a special nerve—doubted by some—or part of a nerve plexus, is not of paramount importance; but from the fact that both Johnstone and Tait[45] admit that in order to arrest menstruation this nerve must be cut *close to,* and not *at a distance* from, the uterus, it seems evident that it is a part of a plexus, part of the local menstrual ganglionic centre, and not the special menstrual nerve. Also the fact that periodic flows so often appear after double ovariotomy performed by different operators may be perhaps better explained by this menstrual plexus—menstrual centre—being left partly or wholly intact, than by the "presence of a third ovary" or by "some ovarian tissue unremoved." In the case of Davis,[20] mentioned above, the return of the menstrual flow after removal of an ovarian cystic tumor might fully be explained by pressure on this centre being removed with extirpation of the tumor. These points are mentioned, not as confirmative, but as strongly suggestive, of the assertion made in reference to the nerve centre of menstruation. "It will ever be incomprehensible how so much vital force, for good or for bad, should be centralized in little, irregular knots of nervous matter, bound together by tangled skeins of nerves, as the ganglionic system. But it is no less certain that these knots of nervous matter and these tangled skeins innervate the viscera, control the blood vessels, are the seat of the power which guides the process of nutrition, healthy or diseased" (Tilt[46]).

While advocating the great influence of this local nerve control of menstruation; while believing that on its presence or absence, its healthy or diseased condition, depends normal, abnormal, or absent menstruation, the writer recognizes the fact that in order to explain a case of sudden, permanent cessation of menses, such as is made the subject of this paper, there must be a higher, a more organized nerve centre inhibiting, in such cases, all local nerve control. That the brain, the spinal cord, probably both together, contain these higher centres there is no doubt. The brain, like the central station of a telegraph system, receives the message of shock, takes cognizance of it, and sends out directly, but more probably through an intervening station—the spinal cord—its answering message of inhibition to the local menstrual ganglion through a plexus of mixed cerebro-spinal and sympathetic nerves.

This paper would be incomplete if it did not touch on the

question, "What tissue is the true menstrual tissue?" although it is not the object of it to discuss this question. The theories advanced in reference to it are most ably presented by Napier[47] in his "Menopause and Its Disorders," and the writer allows herself to select from all these theories, as the most reasonable, the most physiological, that of Johnstone, namely, the menstrual flow is the secretion of the adenoid tissue lining the body of the uterus and under control of the menstrual plexus. Johnstone says[34]: "The endometrium above the internal os is not a mucous membrane, but belongs to the so-called adenoid tissues, and menstruation is to it, *for it, of it* [the uterus]" (italics are the writer's) "exactly what the lymph stream is to the lymph glands, the blood current to the spleen." He claims the first mark of menstruation ceasing is the wearing out of the endometrium. He does not speak of the utricular glands playing any rôle, but it is possible that further study will prove that they, like other glands in different parts of the body, have a special share in this secretion.

In presenting this paper the writer's aim has been to point out that:

1. Premature menopause can occur without any previous or subsequent disease.

2. Premature menopause is not necessarily preceded by any change in generative organs.

3. Any changes found in these organs are probably post-menopastic, or due to disease, not all related to the menopause.

4. Premature as well as normal menopause is due chiefly to atrophy, inhibition, or disease of a local menstrual ganglion and nerve plexus, rather than disease or atrophy of generative organs.

61 West Seventy-fourth Street.

BIBLOGRAPHY.

1. Jacobi, M. P.: American Journal of Obstetrics, 1885.
2. Currier: Menopause, p. 231.
3. Napier: Menopause and its Disorders, p. 88.
4. Filty: Kansas Medical Journal, 1891, vol. iii., p. 85.
5. Tilt: Change of Life, 1882.
6. Guy: Medical Times, 1845, vol. xii., p. 363.
7. Mundé, P. F.: International Clinics, 1894.
8. Kisch: See Currier, p. 99.
9. Bloom: University Med. Magazine, vol. iii., February, 1896, p. 346.
10. Mayer: Comptes-rendus, International Med. Congress, Paris, 1867.
11. Montgomery: Phila. Med. News, 1894, vol. lvi., p. 461.
12. Napier: See above, p. 90.

13. FORSTER: Philadelphia Medical Journal, July 1, 1899, p. 22.
14. DALTON: Transactions American Gynecological Society, 1877, vol. ii.
15. CURRIER: See above.
16. COURTY: Maladies de l'utérus, des ovaires et des trompes, 1880, third edition, p. 406.
17. Loc. cit., p. 404.
18. BOISMONT: La menstruation, Paris, p. 209.
19. MUNDÉ, P. F.
20. DAVIS: AMERICAN JOURNAL OF OBSTETRICS, May, 1900.
21. SCHROEDER: Gynäkologie, p. 340.
22. STEPHENSON: Menstrual Wave. AMERICAN JOURNAL OF OBSTETRICS, 1882, vol. xv.
23. KISCH: Klimakterisches Alter der Frauen, 1874, Erlangen.
24. TILT: See above (5).
25. NAPIER: See above (3), p. 108.
26. COURTY: See above (16), p. 406.
27. PARVIN: American Practitioner, Sept. 1872; Boston Gynecological Journal, vol. ii., p. 208.
28. BOISMONT: Menstruation, 1846.
29. TILT: See above (5).
30. TAIT: Diseases of Women and Monkeys. Wood's Surgical and Medical Monographs, vol. iii.
31. NAPIER: Loc. cit., p. 307.
32. SUTTON AND GORDON: American Gynecological Society Report, p. 189.
33. SÉRÉ: Sexual Activity of Women and Monkeys. Wood's Surgical and Medical Monographs, vol. iii.
34. JOHNSTONE: British Gynecological Journal, June, 1886, vol. ii.
35. GALBRAITH: American Gynecological and Obstetrical Journal, October, 1899.
36. STROJNOWSKI: Satellito, Jan., 1892, p. 93.
37. CURRIER: See above.
38. BOISMONT: See above (18).
39. ESQUIROL: Traité des Maladies Mentales, l. i., p. 163, 1838.
40. NAECKI: Meeting of German Alienists, Dresden, 1894.
41. LEWIS: Text Book of Mental Diseases, p. 397, London.
42. MERSON: West Riding Lunatic Asylum Medical Report, vol. vi., p. 85.
43. TOUIN: Annales de Gynécologie, 1895, p. 509.
44. TAIT: See above.
45. TAIT AND JOHNSTONE: See above (30).
46. TILT: See above (5), p. 83.
47. NAPIER: See above.

Note.—Since writing above, through the kindness of Dr. Helen Baldwin, I have seen the following case: Mrs. C., aged 60, came into hospital complaining of gastric troubles of quite severe nature. She menstruated at the age of 15, regular and no pain. She married at the age of 25; had five children. When she was 30 years of age her husband was killed in an accident. Since then she has not menstruated. but has been well up to four weeks ago.