riding and driving, are excellent aids to help the machine run better.

c. *Gynec.*—Make local examinations, and, having found out the difficulty, treat accordingly. In passing, I might say that I have found great advantage in the use of, 1, vaginal gelatine capsules filled with iodoform or iodol, and retained by absorbent cotton; 2, iodoform or iodol in uterine cavity to relieve the hyperæsthesia—the best of anything if used with care; indeed, I would not know how to do without them; so far aristol and other chemicals have not superseded iodoformis sedating powders; 3, platinum-plated uterine sound, also good to relieve lesions of place. My own pessaries, specially the stem.

d. *Motional.*—When going up stairs, the force thrown on to the heart is four to ten times as much as when locomotion on a level at the same rate of speed. Hence patients, in going up stairs, should count four between each step, or even ten; this gives the heart good usage. I asked a mill owner what would be the result if suddenly he turned four times the usual work on to his 250-horse power steam engine. He said it would be broken. And yet this is done to the heart all the while, and worse still, as the rate of speed is usually more in going up stairs than on a level.

e. *The Morale of the Patient Must be Cared for.*—He must understand why he does as he does; that if he transgresses, his sin will find him out in the heightened color of his urine, in the gas in the stomach, the heart symptoms re-appearing, and in a general fretful, fault-finding disposition with everything, which he will manifest. He should be cheerful and hopeful; make up his mind to get well, and then not worry, overwork or excite. Let the sympathetic nerves run unhindered. He should not live in his head. He should be very careful about exercise, remembering that the heart takes strength to get well, and to run the body in health. Tell him that it is work to live when sick, as it is more work to run a machine, a locomotive, pair of scissors, etc., when bearings need oiling, than when lubricated; hence, patients should take time and rest to get well. The physician should be in constant communication with the patient, and should often examine the blood, urine and fæces to know how the system is running, and to correct any mistake as soon as detected. He should inform the patient that he is on plans that must be studied. The physician must believe, and make the patient believe, in the truth of the plans. He should not hunt to find something that is going to kill the patient, but should look for things to cure. Nor should they make up their mind that the patient is going to die.

f. *Postural.*—Place patient on a chair that has the motions of the leg and thigh in vertical planes. The feet can be put higher than the

head, and thus rest the heart. This acts well in practice.

g. *Heredity.*—These are best controlled by food plans for the benefit of posterity.

h. *Inflammatory.*—By posture, diet and depleting remedies, like veratrum.

Finally, the physician directs, the patient obeys, and nature effects the desired end—a healthy heart.

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VOMITING OF PREGNANCY; ITS ETIOLOGY AND TREATMENT.

Read before the Allegheny County Medical Society, June 16, 1891.

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Pregnancy, as a rule, is complicated with a variety of disorders, which, though in many instances causing much discomfort, are termed physiological as long as they are not associated with serious disturbances of the organism. Derangements of the gastro-intestinal canal, nausea and vomiting, to the consideration of which I invite your attention to-night, are such a regular occurrence during the early period of pregnancy that experienced women consider them as positive signs of conception.

The so-called morning sickness—nausea and vomiting early in the morning, or even after meals, during the first few months of gestation—have, in the large majority of cases, no effect either upon the course of pregnancy or upon the health of women. Although the ordinary morning sickness sometimes persists during the whole period of pregnancy, it remains endurable, causing the patient rather annoyance than injury. There are intermissions, either spontaneously or the consequence of some treatment; the digestive functions remain more or less normal, and the vitality of the patient is not essentially impaired. In some, fortunately very rare instances, however, nausea and vomiting become incessant and uncontrollable, the stomach rejects everything, the patient grows weaker till the most extreme degree of exhaustion is reached, and death from starvation threatens.

The onset of this grave form of the affection is gradual, and does not differ in character from the usual morning sickness. But soon the nausea becomes more intense, the vomiting more frequent. The ejected matter consists of food, mucus and bile. The appetite is more or less impaired or perverted; the thirst is excessive; constipation is more frequent than diarrhœa; the urine is scanty, concentrated, and contains albumen and casts. The pulse grows small and rapid, the temperature rises, and continued fever develops.

With the progress of the disease the condition of the patient becomes more and more alarming. The nausea is almost constant, adding greatly to the discomfort of the woman. The efforts at vomiting are accompanied by violent retching and pain; not the smallest amount of food or drink is retained by the rebellious stomach; the smell, even the thought of nourishment, or the slightest movement of the patient, induces an attack. The vomited matter is finally mixed with blood. The thirst is tormenting, the throat and mouth are dry, the tongue brownish, the breath fetid, the abdomen tympanitic. The consequences of this continued suffering soon become very pronounced by the marked alteration of the features, the extreme emaciation and the profound depression of the patient. Shortly before life ends, vomiting ceases and coma supervenes.

Cases of persistent vomiting, which terminate fatally, are certainly very rare. Even after the application of various methods of treatment has failed to influence the course of the disease, and while the induction of abortion was earnestly considered, the patients have recovered spontaneously, and have gone to full term, as I have seen in the only instance of this grave disorder which has come under my observation.

There is considerable diversity of opinion as to the causes which may incite hyperemesis, and, in spite of numerous theories and hypotheses, the etiology of this disorder is by no means clear. It is almost universally accepted to be a reflex neurosis originating in the uterus, and dependent either upon pregnancy alone or upon co-existent pathological conditions.

Pregnancy itself, the growing ovum, which acts as an irritant by the simple mechanical distension of the uterine cavity and its peritoneal covering, is in the first place to be mentioned as the most potent etiological factor.

Cases of multiple pregnancy and hydramnion, which present a disproportion between the passive distension and the active growth of the uterus, and which frequently are complicated with hyperemesis, confirm this view. Moreover, the induction of artificial abortion, our last resource in desperate cases, which almost immediately relieves the patient when done in time, is founded upon this theory of passive uterine distension, and strongly supports it.

Spontaneous death of the foetus, followed by immediate or remote abortion, is another remarkable fact in favor of this view.

A patient of mine, the mother of two children, was suffering from double laceration of the cervix, erosion and endometritis. She refused surgical treatment, and was relieved by repeated irrigations of the uterus with carbolyzed water, and by the application of tincture of iodine. She soon afterward conceived, and her pregnancy was complicated with the ordinary morning-

sickness from the second month to the beginning of the sixth, when the vomiting suddenly ceased. Two weeks thereafter she told me that she did no longer feel the movements of the foetus, that vomiting had ceased, and that she therefore believed the child was dead. Though I could not detect the foetal heart-sounds, I gave my opinion with reserve. Three and a half months later I delivered her of a dead foetus about five months old.

This case affords the most striking evidence of the discontinuance of reflex symptoms after the removal of the inciting cause. We have here pregnancy complicated with pathological conditions of the uterus, as double laceration of the cervix, ectropium, and probably a but partially cured endometritis, conditions which existed prior to conception and continued after the death of the foetus. But in spite of the persistence of these pathological conditions of the uterus, and of the retention of the dead foetus for almost four months, the vomiting disappeared with the death of the foetus, that is, with the cessation of the mechanical distension of the uterine cavity.

The influence of primary gravidity is demonstrated by the fact that hyperemesis in its grave forms is essentially an affection of primiparous women, and it is to be referred to the greater resistance of the virginal uterus.

Numerous other causes are given as etiological factors by different observers, among them: pathological conditions of the cervix, chronic metritis and endometritis, displacements of the uterus, inflammations of the pelvic peritoneum and connective tissue, ovarian neurosis, neurotic predisposition, hysteria, and lastly, diseases of the gastro-intestinal canal, especially gastric ulcer, chronic gastritis and constipation.

Morbid changes of the uterus are frequently the cause of reflex neuroses in non-pregnant women. The dependence of gastric disturbances upon the irritability of the uterine nerve-fibers, due to flexion and version of the uterus, to an eroded and congested cervix, to metritis and endometritis, has, in many instances, evidently been proven. Relief has been obtained by the removal of the exciting cause, by the treatment of the uterine diseases after gastric medication had been tried again and again and had failed entirely.

Bearing in mind the physiological changes of the uterus during the pregnant state, its increased functional activity, the influence exerted by gestation upon the nervous system, and the relation between the neuroses and the disorders of the reproductive organs, so often conclusively proven in non-gravid women, we are compelled to acknowledge the various pathological conditions of the uterus as prominent etiological factors deserving our earnest attention. Cases are on record where the application of caustics to

the eroded cervix, scarification of the congested vaginal portion, dilatation of the cervical canal, correction of a flexion, have proven successful in stopping the vomiting, and thus demonstrated the connection between the uterine lesion and the reflex nerve action. In other instances, however, the result of the gynecological treatment has not been so satisfactory, either transitory or no relief has been obtained, and, as a consequence, the influence of the uterine disorders upon the gastric phenomena, their importance as the causative diseases has been questioned.

Undoubtedly it will be often found difficult to decide whether the symptoms result from physiological or pathological causes; whether they are due to distension of the uterus or to morbid changes in the sexual organs. All methods of treatment, artificial abortion excepted, may fail to relieve the patient, and she finally may get well by absolute rest and complete abstinence, to the surprise of her medical attendant.

Such cases are certainly rare, while, on the other hand, there is abundant clinical evidence of the effect* of local treatment. Numerous women have been benefited by the treatment of the uterine lesion; the reflex symptoms have been mitigated or cured by the improvement of the causative disease, and the connection between both has thereby been confirmed.

Attention has been drawn to the importance of endometritis as an etiological factor by F. Veit,¹ who reported three cases of uncontrollable vomiting, where he was compelled to interrupt pregnancy, and where he found inflammatory processes in the decidua, serotina and vera. Veit believes that by his researches the dependence of hyperemesis upon endometritis is positively proven, as a rule the endometritis exists prior to gestation, the symptoms are but insignificant, become palpable, however, with the beginning of pregnancy, which frequently is interrupted by this complication. In many instances the endometritis decidua will be found to be the cause of the uncontrollable vomiting; the connection through sympathetic paths must be the same as between gastric disorders and endometritis in non-gravid women. The evidence of an anatomical base, he continues, renders a most careful examination of the uterus imperative, and, if the diagnosis of endometritis, which is very difficult before the removal of the ovum, can be made out, it may be of determining influence as regards the advisability of inducing abortion.

Quite recently E. H. Grandin,² discussing this subject in the New York Obstetrical Society, suggested ovarian neurosis, pressure on unusually hyperesthetic ovaries as a cause of hyperemesis. This view, he says, would be suggested by Dr. Coe's case, which showed that the physiolog-

ical vomiting of pregnancy could be palliated by teaching the patient to assume the genu-pectoral position before rising, and as often during the day as necessary. He would explain the vomiting of pregnancy, then, by the fact that during the early months the uterus lay low in the pelvis and pressed on the ovaries; at the third month, when the vomiting usually ceased, the uterus rose above the pelvic brim. In cases of pernicious vomiting it was possible the ovaries were either enlarged through disease or had become impacted between the pelvic brim and the lower uterine segment.

Grandin's theory, though it may be applicable to a given case, will probably not be favorably accepted. To-day the view is predominant that reflex neuroses may originate in the uterus, and not in the ovary. The removal of normal ovaries for the relief of reflex symptoms is at present restricted to exceptional cases, and it is believed that if a satisfactory result is obtained by the operation, this is due to the changes in the condition of the uterus, to the artificial induction of the menopause, resulting from oöphorectomy. Clinical evidence supports this view.

Grandin's explanation, however, may prove valuable in so far as to induce us to carefully examine the ovaries in cases of hyperemesis. Proapsed ovaries are by no means a rare affection, but it remains to be demonstrated whether pressure exerted upon them by the enlarged uterus stands in causal relation to gastric disturbances.

Nervous disposition and hysteria, so frequently met with among women of the better classes, add greatly to the discomfort of pregnancy, and, though there are certainly many exceptions, must be considered as prominent predisposing factors of the graver forms of vomiting.

The importance of diseases of the gastro-intestinal canal, especially of gastric ulcers, is emphasized by various authors. According to Horwitz³ "hyperemesis develops in some cases complicated with more or less pathological changes of the stomach and of the intestines. The greater the disturbance in the alimentary canal the easier the ordinary vomiting takes on the character of the uncontrollable form."

The diagnosis of vomiting of pregnancy is by no means as easy as one might think at first sight. While the dependence of this disorder upon the pregnant state may often be determined without much difficulty, cases—especially of the graver forms—may present themselves where this will be found impossible, and where the diagnosis, therefore, must remain doubtful. Faggard⁴ directs our attention to the fact "that so few cases of pernicious vomiting are recorded in German medical literature that the existence of this affection is even questioned." Carl Braun, in a

* American Journal of Obstetrics, 1890, p. 1382.

¹ Berliner Clinische Wochenschrift, 1887, p. 643.

³ Praktischer Arzt, 1882, p. 261.

⁴ American System of Obstetrics, Vol. I, p. 411, 415.

fabulous experience of over one hundred and fifty thousand obstetrical cases, has never observed a single fatal termination. On the other hand, Robert Barnes has himself seen 9 fatal cases. McClintock collected close on 50 cases, and O. W. Doe 48 cases with 18 deaths occurring within the last fifteen years, and registered in American and English journals. Gueniot records 118 cases with 46 deaths.

It is not at all improbable, Faggard continues, that the difference of opinion as to the frequency of this disorder between the Germans on the one hand, and the American, French and English observers on the other, depends, in a large measure, upon the difference in diagnostic criteria insisted upon by the respective schools. In the majority of the fatal cases of alleged hyperemesis due to pregnancy reported by American, French and English observers, there is a notable absence of reliable records of post-mortem examinations. In the few cases collected by the Germans, on the other hand, the diagnosis during life has almost invariably been confirmed or negated by exact investigation of the dead body. Horocks pertinently remarks: "Where there has been no post-mortem examination in a fatal case of vomiting, I do not think that one is entitled to say that pregnancy caused the fatal vomiting. It may have been the cause, and the only cause, or it may have been an aggravation of some other cause, or it may have had nothing to do with it. Skepticism as to the alleged frequency of this disorder, in the present state of our knowledge, is accordingly eminently in order."

According to Gueniot,⁵ three distinct factors are to be taken into consideration in making the diagnosis of vomiting of pregnancy: 1. The diagnosis of pregnancy; 2. The diagnosis of the adjuvant or determining cause of the vomiting; 3. The differential diagnosis between obstinate vomiting due to pregnancy, and that due to other causes independent of gestation.

It is both interesting and instructive to learn that errors in diagnosis have been made even by eminent clinicians. Thus Faggard⁶ tells us that Trousseau once diagnosed uncontrollable vomiting, and induced abortion, in a case in which the autopsy revealed cancer of the stomach. Beau erred in diagnosis in a case in which the post-mortem examination showed tubercular meningitis as the probable cause of the vomiting, and Cazeaux narrates the history of a fatal case of alleged hyperemesis of pregnancy where the autopsy disclosed tubercular peritonitis and the absence of pregnancy.

But a mistake in diagnosis is possible even in the other direction—that is, pregnancy may be denied by the patient or not be expected by the physician, and thus be overlooked, as shown in

a case recently reported by A. H. Buckmaster.⁷ The patient, a governess in a respectable family, was supposed to be suffering from vomiting due to ulcer of the stomach, and was under treatment two months, when she died. In making the autopsy a five months' foetus was found, but no ulcer whatever, nothing to account for death except the uncontrollable vomiting of pregnancy.

These cases need no comment. I have cited them to demonstrate both the difficulty and the importance of an accurate diagnosis.

It is generally stated that the prognosis of hyperemesis is bad, but this, apparently, is by no means correct. As Faggard justly remarks, "it is doubtful whether an authentic fatal case of this kind is recorded. Such cases have never been seen by observers of the largest experience."

Even the graver forms of this disease yield, as a rule, to rational treatment, unless they are complicated by serious pathological conditions which of themselves render recovery impossible. Pregnancy may aggravate such cases, and perhaps hasten death, but it must be admitted that there exists no causative relation between gestation and the lethal issue.

A great variety of remedies—still increasing in number every year—have been recommended by different writers. These remedies have proven satisfactory in some cases, but failed entirely in others. This uncertainty of the various methods of treatment, the often but little annoyance caused by the milder forms of vomiting, and the experience that in many instances spontaneous cures occur, have led to the view that interference is not required unless the case presents a more serious aspect. Such advice given in text-books is, at first sight, surprising. Even in mild cases of gastric trouble a careful examination is indicated, and should be insisted upon by the medical attendant, to determine the cause of the disorder, its dependence upon physiological or pathological conditions. Are the generative organs found to be normal? Are there no indications of diseases of other vital organs, especially of the stomach? Is the effect of the vomiting upon the general health but insignificant? It may then be decided whether it be a wise plan to irritate the stomach by various drugs, which, as known from experience, are of so limited value in this reflex affection, or to desist from treatment. It is in this sense, I take it, that such advice has been given, and it is under these circumstances that it deserves recommendation. Nevertheless, such statements in text-books are misleading, fortunately, but to the superficial reader.

While mild cases of vomiting do well without treatment, diet and regulation of the bowels are usually sufficient to render the gastric disturbances tolerable, but the persistent vomiting demands our earnest attention.

⁵ Faggard, *American System of Obstetrics*, Vol. i, p. 416.

⁶ *Loc. cit.*

⁷ *American Journal of Obstetrics*, 1890, p. 1381.

Hyperemesis, a reflex neurosis, is either due to physiological changes in the uterus, distension by the growing ovum, or to pathological conditions complicating pregnancy. If we exclude co-existent diseases of the stomach, which will be considered later on, it must seem plausible that the treatment should be directed against the causes and not against the symptoms of the gastric disorder; that is, against the uterus, and not against the stomach. The stomach is not the diseased organ. Nausea and vomiting of pregnancy are only the symptoms of some functional disturbance of the nervous system, originating in the uterus, like the nausea and vomiting of sea-sickness, an analogous disease, dependent upon the motion of the ship. For this reason gastric medication must fail to favorably influence hyperemesis; for this reason none of the innumerable remedies recommended are found to be reliable—some of them are worse than useless.

There are three classes of cases, however, which sometimes may be relieved by the administration of drugs, viz.: 1. Women who, prior to gestation, have been afflicted with diseases of the stomach, as chronic gastritis and gastric ulcer; 2. Women of an unusual nervous irritability; and 3. Hysterical women.

In cases of the first category sub-nitrate of bismuth, bicarbonate of sodium, Carlsbad water, oxalate of cerium, the tincture of nux vomica, etc., may be tried and may sometimes be found of decided value, while the nervines and sedatives may give relief to nervous and hysterical women. Opium and its preparations, the bromides and chloral, either administered by the mouth, by the rectum, or hypodermically, as the circumstances require, are the medicinal agents which have the best reputation, and which, in these cases, sometimes successfully depress the reflex irritability, and thus alleviate the symptoms. Blisters, the application of chloroform, ether, and of the faradic current to the epigastrium, of the ice-bag to the dorso-lumbar region have been tried and have afforded relief in some instances.

The resort to local treatment is indicated in all those cases in which a morbid condition of the uterus has been made out. Retroflexion and retroversion are to be corrected, and, if necessary, the uterus is to be retained in position by a suitable pessary. A congested vaginal portion may be relieved by scarifications, while the application of carbolic acid, or of a 10 per cent. solution of nitrate of silver to the eroded cervix will often prove successful in mitigating the distressing symptoms. Faggard⁸ states that in Vienna a 10 per cent. solution of nitrate of silver is employed in all cases of severe vomiting, irrespective of the condition of the vaginal portion. "The weight of testimony in favor of this simple pro-

cedure, collected from innumerable sources, is so great as to make its employment absolutely obligatory before resorting to more radical methods."

Dilatation of the cervix—Copeman's method—has proven successful according to some writers, while others report negative results. In the only case of severe vomiting which I have observed it had a most remarkable effect. The nausea disappeared instantly, but only for a few hours. The method was again applied, but no result was obtained the second time.

Horwitz⁹ recommends that in the severer cases of vomiting the patient should be placed at rest in bed in the horizontal position, that the room be darkened, and that, if the stomach rejects everything, rectal alimentation should be resorted to. Crushed ice to quench the thirst is allowable. I can fully endorse this plan.

When these various methods have failed, when the vomiting actually is uncontrollable and seriously endangers the patient's life, the induction of abortion or premature labor is indicated, and will, if done in time, to a certainty save the woman.

CONGRESS FOR THE STUDY OF TUBERCULOSIS.—On July 17, this Congress was inaugurated by a visit to Professor Lannelongue's wards at the Hôpital Trousseau, where the cases treated according to the new chloride of zinc method were passed in review. Later, the first meeting was held at the Faculty of Medicine, under the Presidency of the veteran Villemin. About 400 members were present to listen to addresses by Professors Verneuil, Grancher and Arloing. The latter inquirer gave experimental proof of the inefficiency in the laboratory of Koch's tuberculin. Meetings were held on the 28th, 29th, 30th and 31st, and visits were paid to Professor Verneuil's wards at the Hotel Dieu, where patients treated by injections of iodoformed ether were presented; to the Val-de-Grâce Military Hospital, to see the cases treated by creasoted oil; and to the Institut Pasteur. A grand banquet took place on Thursday evening. In connection with this subject, the *Progrès Médical* revives the question of the disinfection of railway carriages employed for the conveyance of phthisical visitors to the southern health resorts. Prausnitz is quoted as having examined the dust of *coupés* on the express train doing the service between Berlin and Meran—a route much frequented by consumptives. He inoculated this dust into guinea pigs according to the serial method of Cornet, and found that two out of five *coupés* contained the tuberculous bacillus. The journal above mentioned urges the Paris-Lyon-Méditerranée Compagnie to provide—at least for the better class of travelers—antiseptic spittoons.—*Boston Med. and Surg. Journal*.

⁹ Loc cit.

⁸ Loc. cit.