the date of the first day of the last period and add seven days. Every visiting list generally contains a table which enables the physician to make his prediction in a given case. If the date of the last menstrual period is not available other data are the time of quickening and mensuration of the uterus. The period of quickening is not at all a fixed one but an approximate estimate of the day of confinement can be made by adding twenty-two weeks to the date of quickening. Mensuration of the uterus is very uncertain, as the size and number of the fœtuses vary and the amount of liquor amnii is not always the same. The position of the fundus at the different months has been stated.

Hygiene and Management.—Gestation being a physiologic condition a pregnant woman needs to do little more than observe the rules for normal living, but as derangements readily occur she should be under the supervision of her physician from the beginning to the end of gestation.

Diet.—No rules can be given for diet during pregnancy as, in normal cases, the patient may be allowed to follow her inclinations, provided she takes a sufficient quantity of nutritious food and avoids what is indigestible. During the early months when nausea and vomiting are present the diet should be simpler than usual. Breakfasting in bed and the use of some alkaline gastric sedative are sufficient for the ordinary case of stomach disturbance.

Clothing.—In order to avoid all pressure upon the growing uterus the clothing should be quite loose and the corset omitted; garters constricting the veins of the legs are objectionable. If the abdominal walls are relaxed so that the uterus drops too far forward a light well-fitting supporter should be worn.

Exercise.—Walking in the fresh air is the best form of exercise; horseback riding or any form of activity which entails straining or jolting should be forbidden. Long journeys in the cars are liable to induce abortion, especially if taken at the menstrual epochs. Those women who are accustomed to work hard for a living seem less easily disturbed and pass through the period of gestation without making any change in their daily life until the abdominal tumor acts as a mechanical hindrance. The pregnant woman requires a large supply of oxygen, so she should remain in the open air as much as possible and avoid all crowded or ill-ventilated rooms.

Rest.—An abundance of sleep is essential for the welfare of the gravid woman, and during the last part of gestation she should take a large amount of rest. Pinard's observations show that those patients who work close up to the time of their confinement bring forth children of less weight and vigor than do those woman who enter the hospital a month or six weeks previous to labor.

Bathing.—The gravid state does not prevent the woman from taking her daily bath, but on the contrary is an additional reason why she should keep the function of the skin as active as possible. Care, however, must be taken not to have the water at so low a temperature as to produce shock.

Hygiene of the Pelvic Organs.—On account of the increased secretion frequent bathing of the external genitals is required. If there be any affection of the vagina or cervix, so that leucorrhœa is troublesome, warm vaginal irrigations are indicated, care being taken not to inject the water with too much force. Gonorrhœal inflammation calls for active treatment on account of the danger to the child's eyes during delivery and the risk to the mother should the infection ascend. Sexual intercourse during pregnancy is an abnormality and by producing congestion may lead to an abortion.

Care of the Breast and Nipples.—During the last three months of gestation the nipples should be gently scrubbed daily with a soft nail-brush, water, and castile soap, after which a little albolene or cocoa butter should be applied. This course of treatment will toughen the nipples and at the same time keep them pliable. Exposure to the air, as by leaving the nightdress open, also is supposed to render the nipples less sensitive. If they are flattened or retracted they should be drawn out daily by means of the thumb and finger or by applying a breast-pump. Careful preparations for the function of lactation do much to add to the comfort of the woman after confinement.

Attention has been called to the fact that the nervous system of the pregnant woman is in a most susceptible state. Without entering into the much debated subject of the influence of maternal emotions upon the fœtus, it is quite certain that some nervous impressions of the mother have an unfavorable effect upon the child as well as upon her own well-being. Therefore it is wise to make every effort to surround the patient with a pleasing environment and to remove, as far as possible, all sources of irritation.

Urinary Examinations.—From the beginning of pregnancy it is the duty of the physician to keep himself informed as to the state of the woman's urine. At first the examination should be made every fortnight, but during the last two months of pregnancy every week; any abnormality will call for more frequent attention. The examination should be based on the twenty-four-hour sample, and the estimation of the urea and total solids is of the utmost importance. A great many pregnant women are troubled with leucorrhœa sufficient to contaminate the urine and give the test for albumin; therefore it is well to direct the patient to take a vaginal douche and introduce a tampon of absorbent cotton just before urinating; a string tied to the tampon makes removal easy.

Obstetric Examination.—As soon as the fœtus is viable, the physician should make an examination of the uterus and pelvis; the diameters of the superior and inferior straits should be measured; the size of the fœtus estimated and note taken whether the uterine enlargement corresponds to the supposed period of gestation. Some time during the last month of gestation a second examination should be carried out in order that the physician may be thoroughly informed as to the presentation and condition of the birth canal at the time of labor.

Pathology of Gestation.—Under this head will be considered the important pathologic conditions brought about by the gravid state itself and not the effect of gestation upon disease already existing.

Toxæmia of Pregnancy.—Gestation is a time of increased metabolism, for the woman must build up the uterine structures as well as nourish the fœtus, hence the greater the amount of waste-products to be eliminated. During pregnancy the excretory organs of the patient, particularly the bowels, liver, and kidney, undergo a physiologic hypertrophy and the poisonous substances of retrograde metamorphosis are removed before a dangerous degree of accumulation takes place. What is known as the toxæmia of pregnancy is an auto-intoxication due to deficient elimination and may arise in several ways.

The pressure of the enlarging uterus may hinder the proper performance of the functions of the eliminating organs, the waste-products being prepared for excretion and yet remaining locked up within the body. In other cases the intoxication occurs through the fault of the transforming organs, particularly the liver, which fail to reduce the waste matter to a chemical structure appropriate to the cellular activities of the eliminating tissues. Pinard looks upon the auto-intoxication of pregnancy as hepato-toxæmia, and Bouffe de Sainte Blaise (*Med. Rev. of Rev.*, June, 1899) mentions the following as diagnostic features of deficient hepatic action: progressive decrease in the quantity of urea with increase in the proportion of uric acid and such intermediate substances as leucin and tyrosin; alimentary glycosuria, *i.e.*, if the woman ingests a fixed amount of glucose a portion will appear in the urine owing to the impairment of the glycogenic function; there is urobilinuria and the toxicity of the blood serum is increased. The chemistry of auto-intoxication is not yet elucidated, but it is apparent that, whatever the source of the toxins, their presence irritates the tissues and establishes a circulus vitiosus.

Predisposing Causes.—Women who suffer from insufficiency of elimination while in the non-pregnant state may not be able to meet the added demands of gestation.

Such conditions as hydramnion, multiple pregnancy, and primiparity are attended with the greatest amount of intra-abdominal pressure and thus interfere to the greatest degree with the action of the liver, intestines, or kidneys; multiple pregnancy at the same time adds a large amount of waste material. It is during the latter months of gestation that the intra-abdominal pressure is most marked and the amount of waste matter coming from the fœtus at its maximum.

Symptoms and Diagnosis.—The circulation of an increased amount of toxins affects particularly the nerve centres and gives rise to such symptoms as headache, dizziness, irritability, and disturbances of vision; vomiting and diarrhœa are not uncommon and represent efforts at elimination. Auto-intoxication constitutes the prodromal state of eclampsia and the majority of the so-called disorders of pregnancy belong to its symptomatology.

The modifications of the urine in toxæmia are extremely important. The total amount passed in the twenty-four hours usually is much diminished and the elimination of urea lessened. Although urea probably is not the most important poison concerned in the production of the toxic condition, the amount present in the urine affords us a valuable index of elimination. In a normal quantity of urine the urea, according to Davis, should be from 1.4 to 2 per cent.; below one per cent. lies the danger ~~zone~~. Jewett has pointed out the fact that eclampsia very rarely develops when the daily amount of urine is over three pints and that a large amount of urine, say seventy ounces in the twenty-four hours, will eliminate the poisons even when the tests show a diminished quantity of urea. These facts confirm the importance of making quantitative estimations of the urine in all cases of gestation. In normal pregnancy the toxicity of the urine in relation to that of the blood serum is much increased, but when symptoms of toxæmia appear the toxicity of the blood serum is heightened while that of the urine is diminished.

Albuminuria.—This is a common symptom of toxæmia, but it must also be remembered that albumin is present in five per cent. of all cases of pregnancy, as a rule not appearing until the latter months of gestation. Allbutt does not believe that pressure is an important cause of albuminuria, as the renal veins are not easily pressed upon and albumin often is absent when the pressure is greatest; he thinks that the poisons absorbed from the intestinal canal are responsible for the kidney disturbance. Under all circumstances albuminuria calls for treatment, as there has been established a definite relation between this condition and a lessened development of the fœtus; albuminuria frequently has been found associated with hemorrhages into the placenta. Vallois (*L'Obstétrique*, No. 6, November 15th, 1899) reports two cases of albuminuria during pregnancy which were not severe nor permanent and were treated by a milk diet, yet were followed by fœtal death and expulsion. In both these cases the placentæ were found to be the seats of numerous hemorrhages. According to Jewett albuminuria is present in from eighty to ninety per cent. of eclamptic patients previous to the first convulsion.

Treatment of Toxæmia.—The plain indications are to diminish the amount of waste and stimulate elimination. The diet should be simplified: in mild cases it is sufficient to cut off all meat and heavy articles of food. In the severe cases and whenever there is marked albuminuria, the patient must confine herself to an exclusive milk diet. It is very uncommon for women to become eclamptic who have been upon a milk diet for two or three weeks. The milk may be taken hot or cold, and the addition of a little salt, a few drops of coffee, or some effervescing mineral water will suit some tastes.

All the emunctories should be called into play to increase elimination, and one of the advantages of the milk diet is its diuretic action. Water should be given freely either by mouth or per rectum; irrigations of the bowel with saline solution have a valuable effect upon the kidney and at the same time cleanse the intestinal canal. The use of salines each morning, with occasional doses of calomel at night, will stimulate the action of the bowels, and the skin should be made active by the use of hot-air baths, massage, and the adoption of flannel underclothes. The energy of the treatment must be proportionate to the severity of the symptoms. Abundance of fresh air is a necessary part of the treatment and the inhalations of oxygen seem to do good in many cases.

If, in spite of the preventive treatment, the symptoms continue and the condition of the urine does not improve the artificial induction of abortion or premature labor is indicated.

Vomiting.—A certain amount of gastric disturbance during the first months of pregnancy is so common that "morning sickness" has become one of the presumptive signs of the gravid state. What is designated as *simple vomiting* appears very early in gestation, perhaps during the first week or two, and ceases about the end of the third month. The patient may become nauseated and vomit on first arising in the morning or the stomach may remain quiescent until food is taken; in a few cases the vomiting takes place only at night; in others the attacks of emesis are scattered irregularly throughout the day, the vomited matter consisting of mucus, bile, and ingested food. The distinctive feature of simple vomiting is that the patient's general nutrition suffers little or not at all and the affection ceases spontaneously, having had no influence upon the course of the pregnancy.

Pernicious or Uncontrollable Vomiting—Hyperemesis.—Whenever the gastric disturbance becomes so severe that the health of mother and child is threatened it may be classed as *pernicious*. Simple vomiting may merge into the uncontrollable form by the symptoms becoming more and more intense. The patient rejects the simplest form of food or drink and in consequence makes fewer and fewer attempts at ingesting food. In the classic description of the disease by Dubois three stages are described, but it is very rare that the divisions are as distinct as he would make us suppose.

First Stage: The vomiting immediately follows the swallowing of food and there are attacks even when the stomach is empty, the ejected mucus and bile often being streaked with blood. There are epigastric pain and tenderness on pressure over the region of the stomach. Emaciation soon becomes evident, associated with increasing weakness; ptyalism and diarrhœa may appear as complications.

Second Stage: In this stage there may be an elevation of temperature caused by auto-intoxication, but more serious is the rapid and weak pulse ranging from 120 to 140. The general condition of the patient is very bad: the skin is dry, the face is emaciated, and the eyes are sunken; sordes appear on the teeth and the breath has an offensive odor; the mouth and throat are dry. The urine is scanty in amount and of high specific gravity and fœtid odor; it may contain albumin and casts. The increasing weakness of the patient is apparent in the attacks of syncope, so that she is obliged to remain in bed.

Third Stage: In this stage the vomiting ceases and there is the advent of nervous symptoms such as disturbances of vision, delirium, and hallucination; coma usually precedes death.

Pinard has pointed out that in cases of pernicious vomiting the nervous symptoms may be detected in the early stage, and that Dubois drew his conclusions regarding the febrile stage from the pulse and not from the thermometer, as that instrument was not used in medicine at the time he wrote. All of the cases do not end fatally, but the physician must not be deceived by the sudden remissions which occur even in the most serious cases and which do not indicate any permanent improvement.

The pathologic lesions are variable and more often indicate that pregnancy has supervened upon some diseased condition than that gestation is a direct cause; frequently there is no demonstrable lesion at all. Such conditions as disease of the decidua and cervix, tumors of the uterus and ovaries are looked upon by Pinard as accidental

accompaniments in those cases in which such lesions are present.

Causation.—The two important elements in the vomiting of pregnancy are the condition of the nervous system and reflex stimulation. The impressionable state of the nerve centres which is a feature of beginning gestation, may permit the growing uterus to have a more profound effect during early pregnancy than later when nervous equilibrium is attained; or, the reflex from the pelvis may be heightened by the existence of some abnormality, such as a displacement, laceration, inflammation of the cervix, or new growth. Such conditions as these may account for the *simple vomiting* of pregnancy, but for the explanation of hyperemesis they are not fully satisfactory. Pinard considers that hyperemesis is a part of the symptomatology of auto-intoxication and it seems reasonable to suppose that toxins circulating in the blood may be the sole causes except in such cases in which their action is reinforced by some abnormal stimulus coming from the pelvis. It is a striking fact that even the simple form of vomiting is absent or slightly marked in those women whose excretions are naturally sufficient, or have been made so by appropriate treatment.

Prognosis.—The disease is serious in the first stage, more so in the second, and almost always fatal in the third. Death of the fœtus, or abortion improves the outlook for the patient. Gueniot found that in 118 patients recovery took place in 72 and 46 died; of the 72 who recovered, 42 either spontaneously aborted or else abortion or premature labor was induced. Of the 46 who died, 28 did not abort, and 18 had abortion or premature labor induced, or miscarriage was spontaneous.

Diagnosis.—In a case of severe vomiting the question of pregnancy must first be established and then it must be decided whether or not the gastric disturbance is due to some intercurrent or pre-existing affection. If the case undoubtedly is hyperemesis of gestation the stage of the disease must be determined.

Treatment.—Every case of simple vomiting calls for investigation, as the physician cannot know whether or not it is the beginning of serious disturbance. The adoption of Pinard's theory of hepato-toxæmia entails the examination of the urinary excretion and those medicinal, dietetic, and hygienic measures described under the heading of toxæmia. Large doses of chloral and sodium bromide per rectum may diminish the reflex action of the centres after the toxæmia has been overcome; in this same connection may be mentioned such measures as spinal douches and blisters or stimulating liniments applied over the region of the fourth and fifth dorsal vertebræ.

The local treatment consists in the correction of any abnormality discovered in the pelvis. Dilatation of the cervical canal, by means of the steel branching dilators, has been performed with the idea that some cicatricial contraction of the cervix might originate the reflex irritation. Moreau and Grailly Hewitt consider uterine displacements to be the most frequent causes of irritation; of course if any malposition of the uterus be discovered it should be corrected. Inflammation of the vagina or cervix should receive appropriate local treatment, but no local applications nor manipulation must pass the internal os and strict asepsis must be observed.

In those cases in which vomiting has continued for some time the stomach becomes so irritable that complete rest must be given it, therefore rectal feeding may be employed to advantage. The long list of drugs which are advised as gastric sedatives is an evidence of the unsatisfactory results obtained before the mechanism of the disorder was understood; the list comprises all those drugs mentioned in the text-books on general medicine for treatment of stomach diseases.

If, in spite of treatment addressed to local and general conditions, the hyperemesis continues, artificial abortion is the last resort and it is wise to adopt this measure before the patient has advanced so far in the second stage of the disease that the shock of the operation uses up her remaining strength.

Ptyalism.—When this affection develops it usually begins early in gestation and lasts until the fourth or fifth month. The discharge of saliva may be so profuse that the patient is obliged to wear a napkin or use a cup for the reception of the secretion which may amount to as much as three quarts in the twenty-four hours.

The cause of the disease is not clear; in some cases it seems to be merely sympathetic; in others there is auto-intoxication, the poison acting upon and being eliminated through the salivary glands.

The treatment of ptyalism is unsatisfactory, except when it is relieved by overcoming the toxæmia. Benefit is sometimes derived from the use of astringent mouth-washes, by the administration of tincture of belladonna or pilocarpine, and by the application of a weak galvanic current to the glands.

Dental Caries.—There is a popular saying that each pregnancy costs the woman a tooth, and it certainly is a fact that gravid women are apt to suffer from dental caries, due either to alteration in the buccal secretions or to the demand on the part of the fœtus for lime salts. At the beginning of gestation the woman should have her teeth put in order, but all extensive or painful operating should be postponed until after delivery on account of the nervous irritation. Temporary fillings, the use of dental floss and antiseptic mouth washes after meals, and the administration of syrup of lactophosphate of lime will do much to preserve the teeth during the term of gestation.

Gingivitis.—During gestation the gums may become red, swollen, and bleed easily. The disturbance comes on about the fourth month and may not disappear for one or two months after confinement. The treatment consists in keeping the mouth clean and disinfected by the use of a solution of chlorate of potassium and applying tincture of iodine to the gums.

Constipation and Diarrhœa.—On account of the pressure of the growing uterus the majority of pregnant women suffer from constipation which is a potent element in the production of toxæmia. Furthermore the loaded rectum tends to promote pelvic congestion and develop hemorrhoids. There is nothing peculiar about the treatment of constipation during pregnancy, except to utter a warning against the use of irritant cathartics which sometimes will produce uterine contractions. In a limited number of cases the patient suffers from diarrhœa instead of from constipation and under such circumstances the physician should investigate the case with the view of discovering a possible toxæmia of which the diarrhœa is but a symptom.

Disorders of the Circulatory System.—Attacks of palpitation and syncope are not uncommon during gestation and are apt to occur in nervous, anæmic women from a number of reflex causes. In the last few months of pregnancy, especially when there is overdistention of the uterus, the pressure of the fundus against the diaphragm may be the cause of the disturbance. The treatment is the same as in the non-pregnant.

Hemorrhoids and Varices.—Hemorrhoids may become very troublesome during the latter half of pregnancy, and varices of the legs or vulva, accompanied by more or less œdema, may be present. As the cause is the pressure of the gravid uterus interfering with the return flow through the veins, treatment should be palliative. Constipation should be prevented, elastic bandages applied to the lower extremities, and the patient kept in the recumbent position as much as is feasible. There is some danger of rupture of enlarged veins in the leg or vulva, so the patient should be taught how to apply a pad in order to control the hemorrhage pending the arrival of the physician.

Anæmia.—Unless the blood hypertrophies to meet the demands of the pregnant state the woman will suffer from anæmia. Many women are temporarily anæmic during the early months until the richness of the blood is established. If the blood remains impoverished, or becomes so, the usual symptoms of anæmia appear and there are a few cases on record in which the disease took

the pernicious form. The routine treatment by diet, oxygen, iron, and arsenic is indicated, and in grave cases it may be necessary to bring the pregnancy to an end.

Disorders of Respiration.—Cough and dyspnœa sometimes are troublesome to the pregnant woman and the cause may be reflex or mechanical. For those cases of sympathetic origin valerian and bromides are useful, but the mechanical element cannot be removed until the end of pregnancy, although the patient may get some relief by avoiding exertion and wearing extremely loose clothing.

Disorders of the Nervous System.—Neuralgia.—The pregnant woman often suffers from attacks of neuralgia in various parts of the body. The growing uterus may press upon the pelvic nerves, especially if there be inflamatory deposits around the uterus. In other cases the pain is due to constipation which permits hardened fæces to act as irritants or produces toxæmia. In primiparæ, during the latter months, the distention of the abdominal tissues may cause suffering. The face and breasts are regions often affected.

The treatment consists in removal of the cause whenever possible: irrigations of the bowels will remove the hardened fæces and elevation of the fundus will relieve the pressure upon the pelvic nerves. In facial neuralgia the teeth should be examined for caries. The general treatment lies in overcoming toxæmia, in administering iron and arsenic as well as employing the usual hygienic means for the cure of anæmia. For the relief of pain the coal-tar products should be preferred to opium or morphine.

Herpes.—This is one of the most unpleasant nervous disorders to which the pregnant woman is liable, but fortunately it is not very common. The disease usually has appeared between the third and fifth months and in certain patients has recurred in successive pregnancies. The disorder presents no peculiarities during gestation nor does it seem to affect its course. Herpes is included among the various manifestations of toxæmia.

The treatment consists in attention to general hygienic conditions together with the administration of hypophosphates, arsenic, and iron. As local applications carbolized vaseline, dusting powders, and soothing lotions are recommended.

The Mental Disturbances of Gestation.—It is stated that eight per cent. of the cases of insanity among women originate during pregnancy, labor, or the lying-in-period, and we can understand how such may be the case when we recall the frequent alterations in the mental characteristics of gravid patients. Mental disorder is less apt to develop during pregnancy than during or subsequent to labor, but the peculiar irritability or depression present during gestation may be but the prodromal symptoms of marked melancholia with suicidal tendencies. In some cases there is merely mental confusion or stupor, and mania is much less common than melancholia. Occasionally, instead of depression, there is mental exaltation and the patient becomes very talkative, showing great activity both of body and mind.

Heredity is an important predisposing factor in the insanity of pregnancy and renders the patient extremely susceptible to such influences as toxæmia, fear of the approaching confinement, or remorse for an illegitimate conception.

The prognosis is not so bad as among the non-pregnant. In 19 cases collected by Marcé the results were as follows:

Cured after delivery	7
Worse after delivery	1
Cured during pregnancy	2
Became chronic	9

The insanity is said to have no effect upon the course of the pregnancy, although in five cases out of eleven Marcé reports the children as born dead or dying shortly after delivery.

The prophylactic treatment is very important; the physician should recognize the signs of irritability and depression and see that, as far as possible, all disturbing influences are eliminated. At the same time he should impress upon the family the necessity for constant watchfulness and anticipate any attempt at suicide. The insanity itself is managed by maintaining the patient in peaceful surroundings, by attention to the nourishment and excretions, by the use of sedatives and those drugs employed for the relief of anæmic conditions.

Œdema during Gestation.—In the last two or three months it is not uncommon for the pregnant woman to suffer from œdema of the lower extremities and vulva, associated with albuminuria, increased intra-abdominal pressure, and varicosities. Pinard has called attention to a more or less generalized form of œdema which he considers to be due to toxæmia and in which such causes as pressure, varices, and renal disturbance are absent. Stolz designated this œdema as *serous cachexia;* the infiltration of the tissues may be quite as well marked in the abdominal wall above the symphysis as in the lower extremities; in rare instances there is effusion into the serous cavities of the body.

The treatment consists in regulating the elimination, rest in bed, and a milk diet, together with the administration of iron and arsenic. In severe rebellious cases puncture of the labia may be necessary, but it is to be remembered that there is some danger of stimulating uterine contractions and that the low vitality of the tissues predisposes to gangrene and infection. The use of the trocar may be required to evacuate fluid from the chest or abdomen.

Disorders of the Genital Apparatus.—Pruritus Vulvæ.—Some gravid women suffer from an intolerable itching of the vulva and the constant scratching soon produces local lesions which intensify the irritation. The causes of the pruritus are either the local action of vaginal discharges or an irritable condition of the nerves or both combined. In bad cases the woman is prevented from sleeping and the constant torture brings about deterioration of the general health. Treatment lies in the use of warm vaginal irrigations, together with hot sitz-baths and the application of soothing lotions. A tampon of absorbent cotton introduced within the vagina and frequently changed will prevent the discharge from reaching the external parts. When the nervous element is prominent, tonic and general hygienic measures are indicated in combination with the local applications.

Vegetations upon the Vulva.—The increased vascularity of pregnancy stimulates the growth of warty masses upon and around the vulva. These growths may become as large as the fœtal head; they are of a rosy or livid color and, except upon the surface, are moist and exude a foul discharge. These so-called *venereal warts* or *condylomata acuminata* are often associated with a gonorrhœal inflammation, but there are cases in which no venereal element seems to be present, the cause being dependent upon pregnancy alone. Sometimes the tumors are sources of obstruction to the delivery of the fœtal head.

Treatment.—The extreme vascularity of the parts makes the removal of the masses during pregnancy rather a dangerous operation and also exposes the patient to the risks of abortion. When possible the treatment during gestation should be palliative by the application of antiseptic washes or astringent dusting powders. Successive portions of the growths may be touched with a glass rod dipped in nitric or pure carbolic acid. After the confinement the warts may spontaneously disappear or their vascularity be so lessened that surgical treatment is a simple matter.

Displacements of the Pregnant Uterus.—The gravid uterus may be found displaced forward, backward, sideways, or downward. The most frequent uterine displacement complicating pregnancy is retroversion.

Retroversion.—In 24,000 cases of pregnancy Martin found retroversion or retroflexion 121 times. The cause of the displacement usually antedates the pregnancy, except in those cases of acute dislocation of the organ from a fall or blow, and from the muscular exertions of lifting, vomiting, or defecating. When pregnancy develops in a retroverted uterus the organ usually becomes elevated as

the increase in size takes place and, by the fifth month, is too large to occupy a posterior position. Certain conditions, however, may hinder the elevation of the fundus: the uterus may be adherent and unable to break away; an over-prominent sacral promontory may not give sufficient space for the fundus to swing upward; a tumor in the posterior uterine wall, or one superimposed, may imprison the organ. No doubt retention of urine, with the consequent distention of the bladder, is a mechanical hindrance at times. If the uterus is unable to rise above the pelvic brim either abortion takes place or the symptoms of *incarceration* show themselves. There are two varieties of incarceration, *complete* and *partial:* in the complete form the entire organ is held beneath the pelvic brim; in the partial the uterus becomes sacculated, a portion, made up of the posterior wall, remains in the pelvis, while the fœtus develops in the anterior free portion.

Symptoms.—Symptoms rarely appear before the third nor after the fifth month; after the latter date the uterus is too large to become retroverted and before the third it is too small to give rise to signs of compression. At first, owing to the increased weight of the gravid womb, the symptoms are merely an intensification of the common signs of backward displacement. There are backache, dragging sensations, feeling of weight in the pelvis, irritation of the bladder and rectum, and, at the same time, there may be considerable difficulty in emptying those reservoirs. When the displacement occurs suddenly there are no prodromal symptoms; the patient experiences a sudden pain in the lower abdomen followed by signs of pressure. After the incarceration has developed the prominent symptoms come from the urinary organs. The cervix presses upon the urethra and a cystitis results which may pass into a gangrenous form, the urine becoming foul and containing pus, blood, and broken-down tissue. The patient may have chills and fever, and the infection ascend to the kidney, causing death by uræmia. In some cases the bladder cannot empty itself and rupture occurs. If the incarceration continues the pelvic pain becomes very intense and the uterine wall may become gangrenous, leading to a termination of the case through septic peritonitis. In rare cases the fundus has been expelled through a ruptured vaginal wall and perineum.

Prognosis.—In retroversion of the pregnant uterus the prognosis is very serious unless the condition relieves itself or is promptly treated. Unless abortion occurs incarceration is always fatal if left to itself. Gottschalk's statistics, based upon 67 fatal cases of backward displacement, give the causes of death as follows: uræmia and collapse, 16; septicæmia from the bladder, 4; gangrene of the bladder, 3; rupture of the bladder, 11; peritonitis from injury of the bladder, 17. The other causes of death were peritonitis, pyæmia, and gangrene of the intestine. These figures illustrate the frequency with which the urinary organs are involved.

Diagnosis.—In addition to the presence of pressure symptoms there are certain important physical signs. On digital examination the finger detects an elastic rounded body lying in Douglas' pouch and filling more or less of the pelvic cavity; the cervix may be hard to reach or found directly behind the symphysis, the external os looking upward in cases of retroversion or more or less downward in flexion. On feeling above the pubes the fundus of the uterus is missing from its normal position and its place may be occupied by a cystic tumor formed by the distended bladder unless catheterization has been performed in advance. Per rectum more of the tumor is accessible to the finger. A retroversion must be differentiated from all those tumors which may lie in Douglas' pouch, such as an ovarian cyst, ectopic gestation, or a fibroid; a combination of tumor and normal pregnancy is particularly difficult to diagnosticate unless an anæsthetic be administered.

Treatment.—As soon as retroversion of the gravid uterus is discovered efforts at reposition must be made. The woman should be placed in the knee-chest position, a Sims speculum introduced, and the fundus pushed upward while the cervix is drawn down by means of a tenaculum; sometimes the upward pressure can be made to better advantage through the rectum. In difficult cases an anæsthetic should be administered, the patient put in the lithotomy position, and, by means of bimanual manipulation, the fundus swung *around* the promontory to the front. As soon as the uterus is in proper position tampons or a pessary must be employed until its growth has rendered it too large to enter the pelvis again. When adhesions exist three courses of treatment are at the disposal of the physician: 1. Repeated tamponade of the vagina with cotton or wool soaked in boroglyceride and ichthyol with the hope of causing gradual absorption of the restraining bands and elevation of the fundus. This method of treatment can be carried out only in those cases in which there are as yet no urgent symptoms. 2. Posterior vaginal section followed by manual separation of the adhesions and replacement of the uterus. 3. Abdominal section and manual replacement.

The choice of methods will depend upon the urgency of the case. When incarceration has developed attention must first be paid to the bladder, and if careful attempts at catheterization fail the urine must be evacuated through a suprapubic puncture. If manipulations through the vagina fail the abdomen should be opened and the fundus lifted into position. Abdominal section for the relief of incarceration has been performed twice by M. D. Mann, twice by Mouchet, and eleven times by Jacops; all the cases were successful except one of Jacops' which aborted. Artificial abortion needs to be performed but very seldom and the difficulties and dangers of emptying and draining the incarcerated uterus are much greater than those connected with the intra-abdominal method of treatment if the case is in skilled hands. Vaginal hysterectomy would be proper for those cases in which the uterine walls have become inflamed and damaged by the compression.

Anterior Displacements of the Pregnant Uterus.—These may occur in the first or last part of pregnancy. When the ovum develops in an anteflexed uterus usually the fundus elevates itself without trouble unless the uterus is bound down by inflammatory deposits, pressure from above, or the operation of ventral fixation has been performed. If the organ does not right itself there are more or less pain and disturbance of the bladder followed by abortion.

The diagnosis is made by bimanual examination, and treatment consists in elevating the fundus by the use of tampons and massage. If the uterus is fixed on account of adhesions or previous operation abdominal section would be justifiable. In the latter months of gestation an anteversion may take place from weakness of the abdominal muscles and especially from a separation of the recti. Multiparity, contracted pelvis, lumbar lordosis, and excessive distention of the uterus are all predisposing causes.

The symptoms are marked when the patient is upon her feet; she experiences discomfort and difficulty in locomotion. When the patient is standing or sitting the uterine tumor is very prominent, the fundus may incline directly forward and the external os look backward; in exaggerated cases the uterus is inverted so that its anterior surface rests against the thighs. On external palpation the fœtal parts may be easily felt, as the uterus is covered only by a layer of skin and peritoneum. The cervix may be inaccessible unless the entire hand be introduced within the vagina. In the dorsal position both the signs and symptoms disappear.

The treatment is to keep the patient upon her back as much as possible and order her to wear a well-fitting abdominal supporter. During the last weeks of gestation it is important to keep the uterus in the correct axis of the superior strait so as to insure proper engagement of the presenting part.

Prolapse of the Pregnant Uterus.—This displacement is an uncommon complication of pregnancy. The increase in weight is likely to produce a recurrence in those patients who already have suffered from this form of uterine

dislocation; in rare instances blows, falls, or strains have produced a sudden descent of a uterus which heretofore occupied its normal position. As pregnancy advances usually the prolapsed organ becomes spontaneously replaced, but if such be not the case either abortion takes place or the symptoms of incarceration appear. A few authors claim that it is possible for gestation to go to term in a uterus prolapsed between the thighs of the patient.

The treatment consists in replacing and retaining the organ until danger of repetition of the displacement is prevented by the size of the uterus. If replacement is impossible and there are signs of incarceration abortion should be induced; removal of the uterus is justifiable in septic cases.

Lateral Displacement of the Pregnant Uterus.—Pathologic lateral deviations of the uterus are rare during gestation, the inclination of the fundus to the right being regarded as physiologic. Excessive lateral flexion will produce symptoms of pressure, such as œdema and pain in the leg corresponding to the side toward which the axis inclines. The chief importance of lateral deviations is their influence in producing faulty presentations or positions at the time of labor.

Relaxation of the Pelvic Joints.—In certain cases the physiologic softening of the interarticular cartilages is carried to excess and an abnormal amount of movement in the joints is permitted. The symptoms come on during the last two months of gestation and consist of pain in the region of the symphysis, groin, and lumbar region; walking becomes difficult or impossible both on account of the pain and from the effort required to maintain the proper balance of the body. Pressure over the symphysis is painful. The patient should be examined in the standing posture by introducing a finger into the vagina and pressing against the inner surface of the symphysis while the patient supports her weight first upon one leg and then upon the other; in this way the movement in the joint will be appreciable to the examining finger. The same result will be attained when the woman is lying down, by directing her to flex the thighs alternately.

Treatment.—During pregnancy a snug bandage about the pelvis will give some relief, except in bad cases when the patient must remain in bed. General tonics are sometimes beneficial. The condition usually cures itself in a month or two after labor, and during the interval a harness to immobilize the pelvis should be worn.

Traumatism and Surgical Operations during Gestation.—There are instances in which a gravid woman has suffered from severe injuries without interruption of the pregnancy and yet sometimes trifling accidents will cause abortion. The irritability of the uterus, the seat of the injury, and the amount of blood lost are important factors in affecting the result. According to Cohnstein penetrating wounds of the abdomen, without injury to the uterus, are apt to arrest gestation; but Harris has reported a case in which the abdomen of the woman, six months pregnant, was lacerated by the horn of a bull so that the omentum and intestines protruded, yet the pregnancy went to term. The existence of pregnancy seems to have no influence upon the healing of wounds, although there is evidence that the gravid state may cause retardation in the union of fractures.

Major surgical operations, such as amputation at the hip-joint, the removal of ovarian tumors and even fibroids from the uterus, do not necessarily interrupt the pregnancy. Sir James Paget summed the matter up by saying that it would be mere recklessness to operate upon a pregnant woman without good cause; yet, if good cause exists, she may be treated very successfully. Operations upon the rectum seem to be particularly dangerous as regards the risk of inducing abortion and, to a less extent, do those upon the vulva. Pregnancy is not a contra-indication to removal of the breast for cancer. When fixing the date of an operation upon a gravid woman the time of the menstrual epoch should be avoided, and in all cases particular care should be taken to diminish shock and hemorrhage.

Hernia of the Pregnant Uterus.—The gravid uterus is very rarely found occupying the inguinal canal, and when such is the case the ovum usually is in one horn of a uterus bicornis. In the *Arch. f. klin. Chir.*, xlix., 4, W. Rosanoff has reported a case of inguinal hernia of the gravid uterus in which the tumor reached almost to the knee; its largest circumference measured 80 cm. After delivery he reduced the uterus into the abdominal cavity, the left ovary and a part of the left tube remaining in the canal until an operation for radical cure was performed. Rosanoff considered that in the beginning the canal was occupied by the ovary, left tube, and coils of intestine, the uterus gradually following.

Montgomery A. Crockett.

GETTYSBURG SPRINGS.—Adams County, Pennsylvania.

POST-OFFICE.—Gettysburg. Hotels. Gettysburg is reached by the Philadelphia and Reading and by the Western Maryland Railroads (separate depots). The springs are easily accessible by street car or omnibus. Two prominent springs, known as the Gettysburg "Katalysine" and the Gettysburg "Lithia" Springs, are reported by the Government Geological Survey. The following remarks refer to the former, as we have not been able to gain any recent information concerning the Lithia springs. The Katalysine Springs are located in a picturesque valley a short distance west of the town. It is said that the great battle of Gettysburg began in the immediate vicinity (Walton). The following analysis of the Katalysine water was made by Professor Genth, of Philadelphia:

ONE UNITED STATES GALLON CONTAINS:

Solids.	Grains.
Sodium carbonate	0.22
Magnesium carbonate	.33
Iron carbonate	.02
Manganese carbonate	Trace.
Calcium carbonate	5.02
Sodium chloride	.66
Lithium chloride	Trace.
Potassium sulphate	.21
Sodium sulphate	.25
Magnesium sulphate	6.78
Calcium sulphate	.83
Calcium phosphate	Trace.
Calcium fluoride	Trace.
Magnesium borate	.05
Silicic acid	.20
Organic matter, with trace of nitric acid, etc.	.70
Impurities suspended in water, like clay, etc.	1.10
Total	16.35

In addition, traces of carbonate of copper, sulphate of strontium, alumina, carbonate of nickel, carbonate of cobalt, and sulphate of baryta have been found. This water is said to be efficient in gout and rheumatism, and has proved of value in gravel, catarrh of the stomach, and dyspepsia. The combination of an alkali with the salts of lime, as observed in this spring, is a very valuable one. The water is used commercially.

James K. Crook.

GEUDA SPRINGS.—Cowley County, Kansas.

POST-OFFICE.—Geuda Springs. Hotel and boarding-houses.

The Geuda Mineral Springs are located on the St. Louis and San Francisco Railroad, one mile distant from the Arkansas River and eight miles north of Indian Territory. The town of Geuda Springs, which has about 800 inhabitants and is rapidly growing, is pleasantly situated at the edge of a beautiful and undulating plateau, which is everywhere dotted with fine farms and neat farm-houses. The elevation above the sea is about 1,400 feet, and the atmosphere is pure and wholesome. The winters are short and open, making constant outdoor exercise possible. There are very few hot days in the summer, the thermometer rarely extending above 100° F., but, as a rule, the days are balmy and the nights cool and refreshing. The springs are seven in number, and bubble