catgut ligatures which shall be cut short, and then following the procedure suggested by Reed, of suturing the peritoneum over the upper part of the vagina, shutting it off from the peritoneal cavity.

In those cases in which the peritoneum cannot be entirely brought together, and there has been considerable denudation, the vaginal opening may be closed and drainage accomplished by the glass tube, or the gauze twist brought out at the lower angle of the wound. The advantage of such a procedure, leaving the stump, is that the wound will close in a short time, and we do not have the depressed granulating wound to delay the subsequent convalescence and to leave a weakened ventrum during the after years.

Sacral Resection.—Kraske, in 1885, pointed out the accessibility of the middle part of the rectum by a posterior incision, removing the coccyx, and part of the lower two segments of the sacrum. Hochenegg and Herzfeld have demonstrated the application of this procedure to some of the gynecological operations. When we consider the position of the uterus in the pelvis, we can but recognize that the shortest distance to it is directly through the lower end of the sacrum. The application of this operation to gynecological work is necessarily limited, but it is none the less of interest as a method of procedure in some cases which offer complications by the ordinary plans of operation.

The writer has reported two cases in which this operation has been performed for the removal of the uterus. In one the condition was complicated by cancer of the middle part of the rectum, involving the upper part of the posterior wall of the vagina and the cervix. In the operation about 3 inches of the rectum, the upper part of the posterior wall of the vagina, the uterus and ovaries were removed. The patient recovered from the operation, but succumbed six months later from a return of the disease.

The second case occurred in a nulliparous woman, who had epithelioma of the cervix, complicated by a previous inflammation of the tubes and ovaries which had bound them down posteriorly to the uterus. It is recognized that the ordinary vaginal hysterectomy in an undilated vagina, with the uterus, ovaries and tubes bound down by adhesions, would be an exceedingly difficult procedure.

In considering the case, he concluded to perform the operation by sacral resection in preference to opening the abdomen from above. The result was exceedingly gratifying; the tubes were easily reached, readily ligated, the vessels could be seen, the relation of the ureters to the uterus determined, and the organs accordingly very readily avoided. The method of performing the operation has been so thoroughly described in recent publications, that it does not seem necessary to occupy your time further in its description.

ORIGINAL ARTICLES.

THE RELATION OF THE DURATION OF GESTATION TO LEGITIMATE BIRTH.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-third Annual meeting of the American Medical Association, held at Detroit, June, 1892.

BY T. RIDGWAY BARKER, M. D.,
OF PHILADELPHIA, PENN.

A subject which has for its object the more perfect administration of the law and the strengthening of the sacred bonds of matrimony is one I trust, which may be deemed worthy of presentation on an occasion such as this when Science, Virtue and Justice go hand in hand.

That many social laws, though unwritten, are more rigid and unjust than civil ones cannot be gainsaid, for the prejudiced, self-appointed jury, as is well known, bring in a verdict of guilty or not guilty without listening to the evidence offered by the defence.

This being the case how important is it that the medical profession, and especially the obstetrical department, should be upon its guard lest it thoughtlessly become the "important witness" for the conviction of an innocent person by expressing without qualification, certain facts which while true in the vast majority of instances are subject to wide variations.

Especially is this the case with reference to the duration of gestation, which though indelibly fixed in the mind of every recent graduate as being two hundred and seventy to two hundred and eighty days, will, as his cases of confinement increase in number, be found to be governed by no fixed and absolute law, so far as is known, hence his opinion as to the exact date of the onset of labor is not a whit more accurate than that of the uneducated midwife.

While this ignorance of a common physiological process is to be deeply regretted, yet, when we realize the difficulties surrounding the study of conception we can not but acknowledge that it is a problem which time and painstaking investigation can alone hope to solve. Were fertilization of the ovule coincident with insemination the matter of calculating the date of confinement would be greatly simplified, but no such conclusion is justifiable, for we know that the spermatozoon may live for a week or more in the tubo-uterine canal before meeting and fusing with the female element. Since, therefore, the duration of gestation comprises only the time from conception to the onset of labor and as the first factor is shrouded in mystery the ascertaining of the definite date of confinement must necessarily remain uncertain.

Löwenhardt's observations even go so far as to prove that though conception follow a single coition in two women the same number of days after menstruation, yet there exists no absolute correspondence as to the date of their confinement. The variability as to the length of gestation however, does not depend solely upon this fact for, as we shall see in the cases herein reported, there exists another factor, and that is with reference to the rapidity of embryonic growth and development.

As to the truth of this statement, it cannot be doubted when the obstetrician is continually meeting with women who have been delivered of mature

COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.
—The chair of surgery at the Medical Department of Columbia University has been made vacant by the resignation of Dr. Charles McBurney. He has been appointed a professor of clinical surgery. A statement has been recently made which if correct will give to Dr. McBurney a very remarkable if not unique record in regard to the surgical treatment of appendicitis: his operations for that disease a few days ago numbered a round fifty with only one death.

infants after carrying them for only two hundred and forty-two days, while another's term has consumed some three hundred days. If we accept the views held by Schröder who states: "I do not doubt for one moment that a mature child can be born within two hundred and forty to three hundred and twenty days of the last period," surely no other conclusion can be reached. That unduly advanced intro-uterine fetal development is a necessary proof of prolonged gestation as held by Duncan, one is scarcely prepared to admit, since we have seen that some females require a longer time than others to accomplish the same amount of work, and therefore to declare their offspring illegitimate on this ground would be manifestly unjust. While laws in foreign countries have been passed concerning the legitimacy of infants, as in Prussia, Austria and France, where the maximum limit is fixed at some three hundred days and the minimum two hundred and forty, no such action has been taken in England or America, each case being required to stand or fall upon its own merits.

How important, therefore, is it that the profession in these two countries should arrive at some definite understanding as to what shall constitute a legitimate and what an illegitimate pregnancy.

Should we turn to the laity for an opinion one and all would unhesitatingly declare "nine calendar months", and the unfortunate yet innocent young widow who could not complete her pregnancy in that time would be judged guilty of a lapse of virtue. This is no idle fancy. I doubt not that many of those present have heard the tongue of scandal busily engaged in rending asunder the recent bride's cloak of virtue because, forsooth, she was delivered of a healthy mature infant at the expiration of two hundred and fifty days. The law of the land may declare the child legitimate with all its force but society's verdict is different and mother and offspring must struggle in after life to stem the tide of unjust censure heaped upon them by an ignorant and uninformed public.

Nor is society the only one to take advantage of this distorted fact: husbands from ignorance or otherwise may be lead to challenge the virtue of their wives and so bring ruin upon themselves and their families.

Let the ear of the unfaithful husband but catch a whisper of his wife's supposed infidelity, and one would be lead to presume from his rage, disappointment and mortification, that such a thought as unchastity on his part had never so much as contaminated his breath.

It may be said that these matters have little to do with the subject of my paper, but I refute the charge; they have all to do with it, for they are the roots from which divorce receives its support and nourishment, and upon which the parasite marital distrust sucks from the home all life, love and happiness. That the duty rests upon the obstetrician's shoulders to throw light upon this subject, none, I think, can deny. Let us not give the husband and family to suppose that all women are confined in the nine calendar months from the disappearance of the last menstruation, but inform them that the period of gestation is subject to wide variations, ranging from two hundred and forty to three hundred or more days. When we have done this, if the woman is not confined at the expiration of the usual period no unpleasant possibilities will arise, either in the mind of husband

or friends. Again and again have I been called to see females whose husbands had been absent for several months, six to eight, to explain and account for delay in the onset of labor. "Why is it," I am asked, "that my wife is not confined, her time was up more two weeks ago?"

No less anxious is the wife, who, appreciating the lengthy absence of her husband, fears he may suppose her unfaithful. These are not uncommon cases and only too clearly point to the importance of eradicating the idea that the duration of gestation is limited to the nine historic calendar months. As has already been said, the period of gestation is from conception to labor, whenever that may be. In the following report comprising forty-two cases of gestation marked by great brevity or unusual length, I have endeavored to obtain the most accurate information, appreciating the liability for error to creep in, and therefore have excluded all histories that were based on idle supposition. Where the parturient was embarrassed by ignorance or carelessness her statements were deemed unworthy of credence. Furthermore, as the legitimacy of each and every infant was beyond question, the records stand unchallenged.

The weights varied from a six-pound twin to a ten-pound male.

None of my cases herewith given could be considered instances of premature labor as the term is generally understood.

Some females in my report I confined twice and it will be seen how closely the second gestation in point of duration compares with the first.

With reference to twins, of which there are three sets, nothing characteristic is to be learned, save that one was retained in the utero for the usual period, two hundred and seventy-five days, while in case No. 15, labor occurred on the two hundred and forty-second day. Gender seems to have little, if any influence for case No. 1, two females, duration two hundred and seventy-four days, was followed by case No. 15, two females, period two hundred and forty-two days. In a third instance, male and female, the time was two hundred and sixty-five days. Thinking that perhaps age of the mother might have some determining effect upon gestation I have examined my report and find out of forty-two cases, seventeen are over thirty years of age. Of the total number confined twenty-seven were cases marked by brevity, the gestation varying from two hundred and forty-two to two hundred and seventy-four days, while in the remaining fifteen cases the period ranged from two hundred and eighty-nine days to three hundred and twenty-three days. There were between two hundred and ninety and three hundred and twenty-three days, twelve cases; and over three hundred days, six cases.

The latter group comprised only eight females over thirty years of age. The youngest primipara was fifteen, the oldest, fifty-one.

The table includes a list of fourteen primiparæ, five having a long period of gestation and nine short.

The minimum was two hundred fifty-five days; the maximum three hundred and twenty-three. With reference to the placenta; in twenty-one cases fifteen were normal and six battledore. In the second group of cases no mention is made of this matter by Dr. T. T. Bland, to whom I am indebted for it. In the complete report it will doubtless be noticed that a certain number of days or thereabouts repeat

themselves thus, between two hundred and fifty-four and two hundred and sixty-seven there are nineteen. Furthermore, four of this group were confined on the two hundred and sixty-fifth day and four on the two hundred and sixty-sixth. This only goes to prove that the results herein given are not mere "go as you please" statements, but based as far as possible upon reliable data.

No.	Æt.	Class.	Cessation of Menstruation.	Date of Confinement.	Duration of Gestation.	Sex.	Plural Births.
1	28	M.	Nov. 30 . . .	Aug. 31 . . .	274	F. & F.	Twins.
2	..	"	Aug. 18 . . .	June 3 . . .	289	M.	"
3	41	"	May 10 . . .	March 13 . . .	307	"	"
4	29	"	June 7 . . .	March 30 . . .	296	"	"
5	21	P.	Dec. 24 . . .	Sept. 5 . . .	255	"	"
6	21	M.	Aug. 4 . . .	May 20 . . .	289	"	"
7	24	"	Sept. 13 . . .	July 17 . . .	307	"	"
8	37	"	Dec. 13 . . .	Sept. 4 . . .	265	M. & F.	Twins.
9	27	P.	Jan. 17 . . .	Oct. 10 . . .	266	M.	"
10	31	M.	April 25 . . .	Dec. 29 . . .	248	F.	"
11	23	"	June 15 . . .	April 4 . . .	293	M.	"
12	36	"	Aug. 5 . . .	June 2 . . .	301	"	"
13	30	"	Sept. 16 . . .	May 28 . . .	254	"	"
14	34	"	Sept. 6 . . .	July 1 . . .	298	"	"
15	32	"	Nov. 15 . . .	July 15 . . .	242	F. & F.	Twins.
16	31	"	Oct. 8 . . .	Aug. 10 . . .	306	M.	"
17	21	P.	Feb. 2 . . .	Oct. 18 . . .	258	F.	"
18	22	M.	March 2 . . .	Nov. 9 . . .	252	"	"
19	21	"	March 20 . . .	Jan. 8 . . .	294	"	"
20	18	"	Nov. 2 . . .	July 27 . . .	267	M.	"
21	32	P.	Jan. 12 . . .	Nov. 1 . . .	293	F.	"

GROUP 2.

22	17	P.	July 7 . . .	March 29 . . .	265	..	..
23	51	"	Jan. 5 . . .	Nov. 3 . . .	292	..	..
24	23	"	April 14 . . .	Dec. 31 . . .	261	..	..
25	40	"	July 1 . . .	May 20 . . .	323	..	..
26	18	"	June 11 . . .	March 4 . . .	266	..	..
27	29	"	Nov. 3 . . .	Aug. 1 . . .	271	..	..
28	16	"	Sept. 5 . . .	May 30 . . .	267	..	..
29	28	"	Oct. 12 . . .	July 30 . . .	291	..	..
30	22	"	Aug. 9 . . .	May 2 . . .	266	..	..
31	40	"	Jan. 1 . . .	Oct. 29 . . .	301	..	..
32	39	M.	July 4 . . .	March 21 . . .	260	..	..
33	45	"	Jan. 1 . . .	Sept. 28 . . .	270	..	..
34	30	"	March 3 . . .	Nov. 27 . . .	269	..	..
35	41	"	Jan. 14 . . .	Oct. 4 . . .	263	..	..
36	20	"	Aug. 1 . . .	April 24 . . .	266	..	..
37	38	"	Feb. 21 . . .	Nov. 13 . . .	265	..	..
38	30	"	July 4 . . .	March 28 . . .	267	..	..
39	25	"	Aug. 9 . . .	May 1 . . .	265	..	..
40	29	"	April 20 . . .	Jan. 9 . . .	264	..	..
41	33	"	Oct. 10 . . .	July 4 . . .	267	..	..
42	27	"	May 7 . . .	Feb. 1 . . .	270	..	..

When we study this report in detail, comprising forty-two cases of confinement, selected from less than two hundred cases, and note the pronounced differences in the duration of gestation can we do otherwise than exclaim with Jaggard: "The real duration of pregnancy in the human female is accordingly an unknown quantity."

What then, may be pertinently asked, is to determine the legitimacy of an infant if not its size, degree of development and the duration of gestation? 'Tis true, if we cut away these props we have little to base a diagnosis upon, yet too much reliance can not in justice, be placed upon them, as the evidence I submit will go to prove.

The limit of legitimacy must be extended if we would see justice done to mother and offspring.

Better, far better, that a dozen suspicious cases should be judged legitimate than that one poor little infant should receive the cruel impress of hereditary sin.

Scarcely another word is necessary to show how much this aspect of the subject has been neglected.

False sentiments have been allowed to spring up and develop in the public mind which it becomes the duty of the family physician to tear out by the roots.

Our patients and the public at large should be informed of the great variations in the duration of

gestation, and then and not before, will virtue stand forth in all her purity unassailed.

The relation of the duration of gestation to legitimate birth is so close to the hearth-stone of every physician and patient that no apology is necessary I feel sure, for presenting it for discussion before a society such as this which has for its object the making of the human race better and wiser.

THE ALBUMINURIA OF PREGNANCY TREATED BY THE INTERNAL ADMINISTRATION OF CHLOROFORM.—REPORT OF CASES.

Read in the Section of Obstetrics and Diseases of Women, at the forty-third Annual Meeting of the American Medical Association, held at Detroit, June, 1892.

BY JOHN MILTON DUFF, A.M., M.D., Ph.D.,

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In the *Southern Medical Journal* for August, 1890, an article appeared from the pen of Dr. A. W. Griggs, claiming excellent results in the treatment of the "Albuminuria of Pregnancy" by the internal administration of "chloroform" in from ten to twenty drop doses in water after each meal and at midnight.

Inasmuch as my own treatment of this condition had not been altogether satisfactory, I determined to give chloroform a trial as soon as an opportunity offered.

As a result of my trial of the remedy I append cases representative of different cases coming under my own observation and that of some of my medical friends.

Case 1.—On November 3, 1890, my first opportunity offered in the person of Miss C., unmarried, æt. 22 years; pregnant about 8 months. Two weeks ago her feet and ankles began to swell and the swelling has gradually increased until today she has general anasarca. She is listless and complains of continuous frontal headache and dull heavy pain in the back and lower extremities. Pulse 88, temperature 99, pupils sluggish. Her mother states that during the last 24 hours she had not passed more than a half teacupful of urine (she had been treated for over a week by an irregular). I had her pass her urine and she voided about 3ij. A rough bed side test showed it albuminous (albumen = $\frac{1}{5}$). I ordered her ten drops of chloroform in a tablespoonful of water every 6 hours.

November 4, 2 P.M.—General condition about the same, has passed 16 oz. of urine in 23 hours. Treatment continued.

November 6, 9 A.M.—Pain in head slightly improved, otherwise patient is about the same. Has passed 27 oz. of urine in 42 hours. Dose of chloroform increased to 15 gtts.

November 8, 11 A.M.—Patient much brighter, headache only slight, pain in back and extremities very much improved. Has voided 54 oz. of urine in 50 hours. (Albumen = 1-12.) Treatment continued.

November 10, 2 P.M.—Patient very much improved, swelling diminishing rapidly, has passed 80 oz. of urine in 53 hours. She perspired profusely during last night.

November 12, 10 A.M.—General condition good, swelling of face and upper portion of body has almost entirely disappeared. Has passed 78 oz. of urine since my last visit.

November 14, 3 P.M.—Patient says she feels comparatively well only that nasty medicine is beginning to make her sick at the stomach. Has passed 76 oz. of urine since last visit (albumen = 1-20). Up until my third visit her parents were entirely ignorant of the fact that she was pregnant and before I had an opportunity of seeing her again they thought it prudent to have her (for the benefit of her health?) visit friends in a distant city. I afterwards learned that she was delivered of a feeble female child (which survived only a few days) on the 7th of December and that nothing unnatural occurred during her lying in.

Case 2.—On the night of February 2, 1891, I was called hastily to see Mrs. C., who was pregnant near unto term in her fourth pregnancy. Her husband stated they had not noticed anything unusual about her and that she had gone to bed apparently in good health, at 9 o'clock. At 11 o'clock