this operation as promising infallibly the birth of a living child, making allowance for an occasional case in which resuscitation fails, and this is certainly true in the primary and secondary sections. In the late section, however, where the fetus as well as the mother has borne the strain of a long and difficult labor, and especially where unsuccessful attempts at delivery have been made, often by practitioners little skilled in obstetric operating, there is a distinct percentage of stillbirths, 5.48 % in the series which I have collected. Adding to these deaths occurring during the first five days of life, the infantile mortality of the late operation rises to 13.28 %, making it a procedure not only dangerous to the mother, but often futile in saving the life of the child. The fetal mortality is shown in the following table.

Author.	PRIMARY.			SECONDARY.			LATE.		
	Cases.	Stillbirths.	Deaths.	Cases.	Stillbirths.	Deaths.	Cases.	Stillbirths.	Deaths.
Reynolds, ²	82	1	2	158	1	2	49	1	3
B. L. H.,	75	1	2	37	0	2	32	1	2
McPherson, ⁴	2	0	1	40	0	2	107	13	5
Polak, ⁵	4	0	0	4	0	0	6	0	0
Spalding, ⁶	2	0	0	2	0	0	3	0	1
Frederick, ⁷	2	0	0	1	0	0	1	0	0
Kynoch, ⁸	5	0	0	0	0	0	0	0	0
Reddy, ⁹	0	0	0	2	0	0	3	0	1
Canton, ¹⁰	0	0	0	2	0	0	6	1	0
Wallace, ¹¹	9	0	1	4	0	0	3	0	0
Reid, ¹²	1	0	1	2	0	0	1	0	0
Mouchotte, ¹³	0	0	0	8	0	0	6	0	0
Boyd, ¹⁴	3	0	0	1	0	0	2	0	0
	185	2	7	261	1	6	219	16	12

The causes of fetal death in the above series were as follows:

	Primary.	Secondary.	Late.
Atelectasis,	2	0	0
Prematurity,	0	5	0
Long labor,	0	0	8
Attempts at operative delivery,	0	0	4
Congenital heart disease,	1	0	0
Spina bifida, meningitis,	1	0	0
Unknown,	3	1	0
	7	6	12

Next in importance to prolonged labor and unsuccessful attempts at delivery as a cause of fetal mortality is prematurity. Whenever a Cæsarean baby does not appear especially vigorous, it should be treated as a premature child for the first few weeks. Aside from these conditions, the mortality of children delivered by Cæsarean section is entirely an accidental one.

CONCLUSIONS.

1. Primary Cæsarean section is a simple and safe operation with a low maternal mortality.
2. The mortality from Cæsarean section increases in direct proportion to the duration of labor, being only 2.7 % in the primary, 5.7 % in the secondary, and 13.7 % in the late operation.
3. Maternal morbidity as well as mortality is increased in the secondary and late Cæsarean sections.

4. While there is no fetal mortality as a result of the operation where the fetus has been previously subjected to the strain of a long and difficult labor, the operation is frequently unsuccessful in saving the life of the child.
5. The maternal mortality of 13.7%, and the percentage of 13.28 of unsuccessful results for the child make the late Cæsarean section an unjustifiable operation.

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THE END RESULTS OF CÆSAREAN SECTION.*

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WE may divide the end results of Cæsarean section into two classes.

First, those conditions which may occur as a result of the operation.

Second, those complications incident to other methods of delivery which are avoided by it.

Of the latter class we will mention first the absence of perineal and vaginal tears, prolapse and procidentia which frequently follow deliveries per vaginam, especially by means of those operative procedures between which and Cæsarean section the obstetrician is repeatedly called upon to choose. This advantage of Cæsarean section is too obvious to demand further explanation.

Less well recognized but of even greater importance is the absence of nervous collapse, which is far from uncommon as a sequel to labor in the over-civilized woman of to-day. Constitutional ill-equipment for labor was first recognized as an indication for Cæsarean section by Reynolds.¹ His views have been supported by Davis,² Newell³ and others. Reynolds says that when a poorly equipped woman has lost in strength and health during pregnancy, the pains are nearly always poor and irregular, and the uterus acts poorly. Labor is not likely to be spontaneous, and is often followed by a neurasthenic state lasting for a long period.

Those patients of this class upon whom he has performed Cæsarean section have made perfectly satisfactory convalescences and have enjoyed good health during the subsequent year, in marked contrast to the much greater number of those whose labors have been treated by other measures.

The original indication for the performance of Cæsarean section was to secure a living child. To secure a child not only living, but free from

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injury, should be the object of every obstetrical procedure. The avoidance of fetal morbidity is a greater triumph for Cæsarean section than the saving of fetal life. The cases of hemiplegia idiocy, epilepsy and even of brachial paralysis following difficult intrapelvic operations are the worst results in obstetrics.

A history of difficult or operative delivery was obtained in 29 % of his cases of idiocy by Shuttleworth⁴; 8.9% by Küntzel⁵ and 11.6% by Mouser.⁶

Frazier⁷ believes that 30 % of all children who recover from cerebral hemorrhage at birth develop epilepsy later in life. Mouser found that 17.64 % of his cases of epilepsy had a history of difficult birth.

It must be remembered, however, that Cæsarean section does not guarantee a child free from injury when the operation has been performed only after a prolonged labor or ineffectual attempts at delivery.

The possible evil results of Cæsarean section may be enumerated as follows: Hernia, uterine fistula, adhesions, rupture of the uterus.

Hernia. — It used to be stated that the abdominal wound after Cæsarean section might be closed with through-and-through sutures without danger of hernia, because the relaxed condition of the abdominal wall removed all possibility of strain upon the wound. This statement has proved fallacious. Hernia, although rare, does occur. In 39 repeated Cæsarean sections performed at the Boston Lying-In Hospital, a hernia was found in the former scar of two. In neither of these was the previous operation done at the hospital, so the method of suture is unknown.

	—to uterus,	16	1	17
Omentum adherent	—to abdominal scar,	15	12	27
	—to bowel,	0	1	1
Intestine adherent	—to uterus,	4	3	7
	—to abdominal scar,	3	2	5
Uterus adherent to anterior abdominal wall,		36	30	66
No adhesions found,		3	2	5

Uterine fistula. — A fistulous opening into the uterine cavity may develop as the result of infection of the uterine sutures. Haven and Young⁸ found 3 such instances among 167 Cæsarean sections collected from the literature. In another such case, reported by Schütte,⁹ rupture of the uterus took place in a subsequent pregnancy.

Adhesions. — Adhesions are frequent after Cæsarean section, especially between the uterine and abdominal scars, but seldom give rise to trouble. v. Leuwen¹⁰ found adhesions reported in 76 out of 117 repeated Cæsarean sections. They were present in all but 2 of the 39 repeated Cæsareans at the Lying-In Hospital, but not one had any symptoms whatever referable to their presence. In one patient the adhesion between the uterus and abdominal wall was so dense that four Cæsareans were done extraperitoneally, and in one other the fourth operation was performed without opening the peritoneum.

The location of the adhesions found at repeated Cæsarean sections in the cases collected by Haven and Young⁸ as well as of those at the Boston Lying-In Hospital is shown in the following table: Gellhorn¹¹ has reported a case of dystocia following Cæsarean section where the adhesion of the uterus to the abdominal wall caused a depression in the center of the uterus. The fetus was in a transverse position, which could not be corrected by external version, but the patient was successfully delivered of a living child by internal podalic version.

Adhesions following Cæsarean section do not appear to predispose to miscarriage in subsequent pregnancies. v. Leuwen,¹⁰ in 194 pregnancies following Cæsarean section, found 8 miscarriages, 4.1%; as against 7.5% among 7,718 pregnancies in the clinic of Utrecht during the year 1904.

Rupture of the uterus. — The danger of rupture of the uterus in the scar of a former Cæsarean section has been urged as an indication for the routine performance of elective Cæsarean section in subsequent pregnancies. Twenty-one cases of rupture of the uterus during pregnancy or labor in patients upon whom the classical Cæsarean operation had previously been performed are to be found in the literature.¹² In addition to these are twenty instances of thinning of the scar in all or part of its length, which have been collected by v. Leuwen.

Early in the present year, the reader,¹² in conjunction with Dr. Williams, published the report of some experimental work upon the strength of the uterine scar in animals. Our experiments were conducted on cats and guinea-

pigs. They consisted of performing Cæsarean section upon these animals as nearly as possible after the methods used in human beings, later removing the uterus and suspending weights to that portion of the uterine muscle containing the scar. It was found in each experiment that the muscle gave way first, and that the scar witheld any strain which could be borne by the uterine wall.

In addition to this experimental evidence of the strength of the uterine scar, we found at the Boston Lying-In Hospital two patients having had previously Cæsarean section who underwent safely normal deliveries,¹³ and one other, with a scar due to rupture of the uterus,¹⁴ who passed through the extraction of a breech without untoward results.

In the literature we found 32 cases collected by v. Leuwen¹⁰ of delivery at term through the natural passages after a previous Cæsarean sec-

tion without apparent injury to the uterine scar, and 117 others collected by the same writer who went safely through pregnancy and were again delivered by Cæsarean section.

A careful study of the reported cases of uterine rupture was then made, as a result of which we formulated the following conclusions:

Rupture of a Cæsarean scar is always secondary to unusual weakness of the scar, dependent upon imperfect consolidation.

The most frequent cause of imperfect consolidation is placing the deep stitches too far apart, or not including the entire thickness of the uterine muscle.

Location of the incision and suture of the placental site probably do not affect the strength of the scar.

Infection in certain instances plays a very important part in causing weakness of the cicatrix.

Catgut as a suture material is open to the objection that there is at least a possibility of the stitches becoming untied, and that certainly more cases of rupture have occurred after its use than after the use of silk.

Finally, it seemed to us then and still seems that, given a uterus which has been sutured with care to include the entire thickness of the muscular portion of the wall in each stitch, and to place the deep stitches close together throughout the entire length of the incision, using silk or linen, and where there has been no evidence of sepsis during the convalescence, such a uterus may be subjected with safety to distention by a full-term pregnancy, or even to the strain of labor itself.

Repeated Cæsarean sections.—At the Boston Lying-In Hospital there have been performed 39 repeated sections on 26 patients, 2 having had five; 1, four; 5, three; and 18, two. There have been three deaths each after a second section. v. Leuwen¹⁰ gives the mortality in 104 repeated Cæsareans as 3 %. In other words, the mortality is no greater in the repeated operation than in the first, and does not increase with the number of the Cæsarean.

The question has been raised of how frequently a patient may be delivered with safety by Cæsarean section. Of the two patients who had five operations each, in one eleven years, and in the other twelve years and six months elapsed between the first and fifth. Two patients each had two Cæsarean sections within thirteen months. In the entire series the average elapsed time between operations was three years and eight months. It may be safely stated that pregnancies may be permitted as frequently when Cæsarean section is necessary as though the patient were expected to be delivered by the natural passages.

The justifiability of sterilization after Cæsarean section.—With the mortality of the repeated operation no greater than of the first, and with the constantly decreasing mortality of elective Cæsarean section, there seems to be little justification for the performance of sterilization. It must always be remembered that the child or children of the patient may die, or she may

make a second marriage, under either of which circumstances another pregnancy may be most earnestly desired. The words of Dr. Green¹⁶ on this subject have been widely quoted throughout the civilized world. "If a woman comes to Cæsarean section and recovers, she and her husband, if she has one, should be informed of her condition and of the prognosis and treatment in the event of future pregnancy; if subsequent pregnancy ensues, the responsibility of treatment rests with the obstetric surgeon, but the responsibility for the condition rests elsewhere."

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Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

TWENTY-SIXTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 9-10, 1911.

THE President, DR. F. FORCHEIMER, Cincinnati, in the chair.

PRESIDENT'S ADDRESS: THE GENERAL PRACTITIONER.

THE general practitioner is still the backbone of the medical profession. His development implies so much attrition, so much knowledge, so much resourcefulness so much character and so much humanity that when the general practitioner has attained his full growth he is easily among the first citizens of his community. Nowhere does weeding out go on more rapidly than in the medical profession. Those who are eliminated first are the ones who have failed on account of adverse external conditions such as poverty and professional competition. Hartman accepts three kinds of nobility, namely, of birth, of mind and of finance, and places physicians in the second class. Premedical education is in a chaotic condition. According to the higher demands of certain states and certain schools so much time is required for premedical education that the student gets through his medical course at too advanced an age. The remedy for this lies in making a change in the curriculum of the primary and the secondary school.

A CLINICAL STUDY OF ASCITES.

DR. R. C. CABOT, Boston: Owing to a series of errors which I have made in the diagnosis of ascites, and to minimize the number of mistakes in the future, I have tabulated the autopsy and operation records of the Massachusetts General Hospital for the past forty years. The bulk of the cases are found to be due to one of five causes: Cardiac weakness, nephritis, abdominal neoplasms, cirrhotic liver or tuberculous peritonitis. Among the possible causes of extensive ascites we must not lose sight of the small solid tumors of the ovary. Pleural effusion may be produced by an