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A STATISTICAL STUDY OF THE INCIDENCE AND TREATMENT OF LABOR COMPLICATED BY CONTRACTED PELVIS IN THE OBSTETRIC SERVICE OF THE JOHNS HOPKINS HOSPITAL FROM 1896 TO 1924*

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EARLY in his career the senior author became interested in the study of contracted pelvis, as shown by the fact that one of his earliest publications was entitled "Pelvimetry for the General Practitioner."

When the obstetric department of Johns Hopkins was organized in October, 1896, opportunity was afforded for developing that interest, with the result that the pelvis of every patient has been carefully and accurately measured, and the rule was laid down that the final measurements recorded in the histories must be made either by the chief or his substitute, or by the resident obstetrician (who has had three years of practical training before assuming the post). Consequently, the pelvic diagnoses are reasonably accurate.

It was soon found that our material was especially suitable for the study of the question on account of the large negro population of Baltimore, with its unusual incidence of abnormal pelvis; and as the service continued to increase in size the number of negro patients became disproportionate to their share of the population, and latterly we have deliberately allowed it to exceed that of the white patients. For this reason, we have been able to study the conditions in the two races concurrently and to establish certain important and fundamental differ-

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TABLE I

SHOWING RELATIVE FREQUENCY OF THE SEVERAL TYPES OF CONTRACTED PELVIS IN WHITE AND BLACK WOMEN

TYPE	WHITE						BLACK					
	1-4500		4501-		TOTAL		1-4500		4501-		TOTAL	
		%		%		%		%		%		%
G. C. Typical	85	4.13	219	5.04	304	4.74	294	18.62	574	15.75	868	16.62
G. C. Funnel*	12	0.58	29	0.67	41	0.64	45	2.84	180	4.94	225	4.31
G. C. Rach.	13	0.63	20	0.46	33	0.52	149	9.43	593	16.25	742	14.21
Simple Flat	53	2.58	103	2.38	156	2.43	11	0.70	33	0.91	44	0.84
Flat Rach.	4	0.19	15	0.34	19	0.30	20	1.27	33	0.91	53	1.02
Atypical	10	0.49	11	0.23	21	0.33	2	0.13	15	0.41	17	0.29
Total	177	8.60	397	9.12	574	8.96	521	32.99	1428	39.17	1949	37.31
Typical Funnel*	75	6.29	214	4.92	289	5.03	53	6.45	235	6.45	288	6.44

*Measured only after admission, No. 2,000.

as the variations in the order of frequency of the several types in white and black women. Furthermore, it enables us to ascertain what, if any, differences exist between the tabulations of 1910 and 1924, respectively.

TABLE II

SHOWING THE ORDER OF FREQUENCY OF THE SEVERAL TYPES EXPRESSED AS PERCENTAGES OF THE TOTAL NUMBER OF CONTRACTED PELVIS IN EACH RACE

WHITE		BLACK	
G. C. Typical	35.23%	G. C. Typical	38.80%
Typ. Funnel	33.49	G. C. Rach.	33.17
Simp. Flat	18.07	Typ. Funnel	12.87
G. C. Funnel	4.75	G. C. Funnel	10.06
G. C. Rach.	3.82	Flat Rach.	2.37
Atypical	2.43	Simp. Flat	1.96
Flat Rach.	2.20	Atypical	0.76
	99.99		99.99

Upon considering the total figures, it is seen that in our material the usual types of contracted pelvis occur somewhat more than four times less frequently in the whites (8.96 and 37.31 per cent), while the incidence of funnel pelvis is practically identical in the two races. This at once makes it probable that whatever factors are concerned in the production of the usual types operate more powerfully in the negro, while those concerned in the genesis of funnel pelvis operate approximately equally in the two races.

Furthermore, upon consolidating into a single group the generally contracted and generally contracted funnel pelvis, it is seen that combination is the most usual one in both races, but that it occurs nearly four times more frequently in the blacks (20.93 and 5.38 per cent). Moreover, in white women, the generally contracted pelvis is closely followed by the typical funnel pelvis, while in the black the generally contracted rachitic is the second in order of frequency. Again, upon uniting the generally contracted rachitic and flat rachitic

pelves into a single group, it becomes apparent that rickets plays an extraordinarily important part in the genesis of abnormal pelvis in black and an almost negligible one in white women (15.23 and 0.83 per cent). In other words, in our material rachitic pelvises occur eighteen and one-half times more frequently in the former. Finally, it should be noted that, while the simple flat pelvis is relatively frequently observed in white women and, in general, may be regarded as the pelvic abnormality par excellence in that race, it possesses but slight significance in black women.

For further clarity, these relationships are expressed in Table II, in which the several types are arranged in their order of frequency, and are expressed as percentages of the total incidence of contracted pelvis in each race. It should be noted that the funnel pelvis has been included in this tabulation, otherwise, the percentages of the other types would be higher.

Reverting to Table I, it is seen that the incidence of abnormal pelvis in our white patients was almost identical in the two periods studied (8.60 and 9.12 per cent), while in the blacks an increase of over 6 per cent had occurred during the second period (32.99 to 39.17 per cent). Such a difference cannot be attributed to increased skill in the detection of pelvic abnormalities, for, if it were, the findings in the white women should exhibit a corresponding change, but, as that is lacking, the increase noted must be due to some other factor. Upon analyzing the figures tabulated, it is seen, if those for the generally contracted typical and generally contracted funnel pelvises are combined, that the percentage incidence for the several types in black women shows only insignificant variations, except in so far as the generally contracted rachitic type is concerned; but in that category the incidence has increased from 9.43 per cent in the first to 16.25 per cent in the second period, an increase of 72 per cent. Or, to express it in another way, we now find seven women presenting generally contracted rachitic pelvises, instead of four prior to 1910.

This unexpected finding is difficult of explanation, for a priori one would expect that the improved living conditions and greatly increased wages, which the lower classes have enjoyed for many years, would have resulted in a diminution rather than an increase in the occurrence of rickets in general, and of this pelvic abnormality in particular. As our observations indicate the contrary, however, it would appear that the increased prosperity of the negro race in this locality has not had the results anticipated, and in general has not led to increased well-being of their offspring. This is not the place to attempt to study the question in detail, but our experience would seem to indicate that under the influence of urban life, the negro tends to degenerate physically, and the startling disproportion in the incidence of rickets in the two races affords additional confirmation of such a belief. In a general way, it may be said that we are now treating the daughters of the

women delivered during the first period of the activity of the clinic, and it is our impression that, while the frequency of rachitic pelvis has increased, there has, at the same time, been a relative decrease in the number presenting excessive contraction.

Course of Labor.—We shall now consider the course of labor in the 2,274 births complicated by contracted pelvis, which occurred in the second series, 1910 to 1924. Those in the first series have been omitted from our immediate calculation for the reason that they were tabulated in such a manner that their utilization might give rise to certain statistical complications.

Before taking up this study, attention should be directed to the fact that we have somewhat restricted the implication of the term live-birth and have limited it to those cases in which a living child accompanies the mother on her discharge from the Clinic. Such a restriction must necessarily tend to diminish somewhat our conception of what may be accomplished spontaneously by Nature or artificially by operative means; but, nevertheless, we believe that it gives a more correct idea as to what is actually accomplished in the treatment of obstructed labor, as it excludes from consideration the children who die from the effects of disproportion, as well as those succumbing to syphilis, malnutrition, or other causes during the two weeks following delivery.

Excluding 32 labors which occurred in women presenting the so-called atypical varieties of contracted pelvis, such as spondylolisthesis, coxalgia, lumbar kyphosis, etc., there were 2,242 labors in the series: 476 in white and 1,766 in black women.

Fig. 1, in which the ordinates of the graph represent the percentage frequency and the abscissae, the length of the diagonal conjugate, expressed in half centimeters, gives a graphic picture of what occurs in each group, and indicates the great difference in the significance of contracted pelvis in the two races. In the first place, it shows that with every additional half centimeter of contraction the colored woman has more spontaneous and fewer operative labors than the white woman. For example, at the upper limit of contraction, with a diagonal conjugate of 11.5 cm., there were several per cent more spontaneous labors and several per cent fewer operative labors in the blacks; whereas, at the other end of the graph, with a diagonal of 8.5 cm., it is seen that the operative incidence was 100 per cent in white women, while a certain proportion of colored women were still able to expel the child spontaneously.

This difference is due to several factors: in part to the lesser weight of the colored children, but more particularly to the smaller size of their heads, as well as their greater compressibility and malleability. Furthermore, it would seem that the lower nervous organization of the colored woman enables her to withstand with relative impunity a greater intensity of uterine contractions, as well as a longer duration of labor, than the white woman. For these reasons, it sometimes

happens that with an identical degree of disproportion a spontaneous outcome may occur in the former, which would be out of the question in the latter.

These differences become even more striking upon studying Fig. 2, which was constructed to emphasize the difference in the course of labor in the most important type of abnormal pelvis in each race, namely, the simple flat in the white and the generally contracted rachitic in the colored.

This graph, which is based upon the analysis of 135 labors in white and 749 in colored women, shows clearly how much more serious the

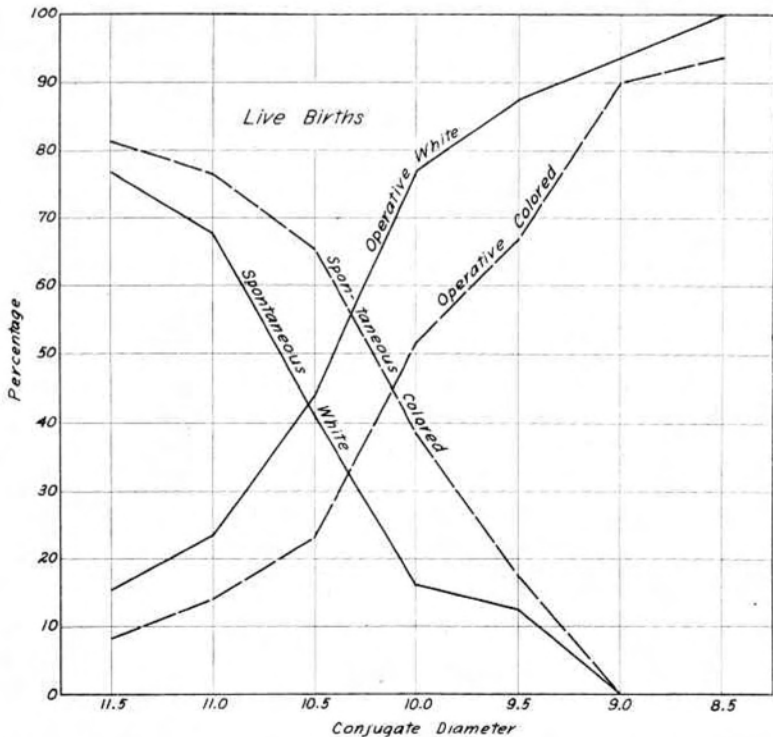


Fig. 1.—Graph showing the number of spontaneous and operative live births, occurring in the two races.

simple flat pelvis is to the former than the generally rachitic is to the latter. In the white woman there are fewer spontaneous and many more operative labors than in the black; and the contrast is further heightened by the fact that, in the simple flat pelvis, the operative incidence becomes 100 per cent when the diagonal conjugate reaches 9.5 cm., whereas in the generally contracted rachitic type spontaneous labor may occasionally occur when the diagonal measures one centimeter less.

From what has been said, no further argument is necessary to prove our contention that the simple flat pelvis constitutes the contracted

pelvis par excellence in the white woman, and in our experience it may give rise to serious dystocia even when mensuration indicates only very moderate anteroposterior shortening. Consequently, we do not hesitate to state that in the white woman a simple flat pelvis, with a diagonal of 10.5 cm., is quite as serious as a generally rachitic one in a colored woman with one-half to one centimeter greater shortening, and that failure to recognize this fact in the past was responsible for the loss of not a few white children.

How can the difference be explained? Very simply to our minds, as the evidence available points to the probability that the generally con-

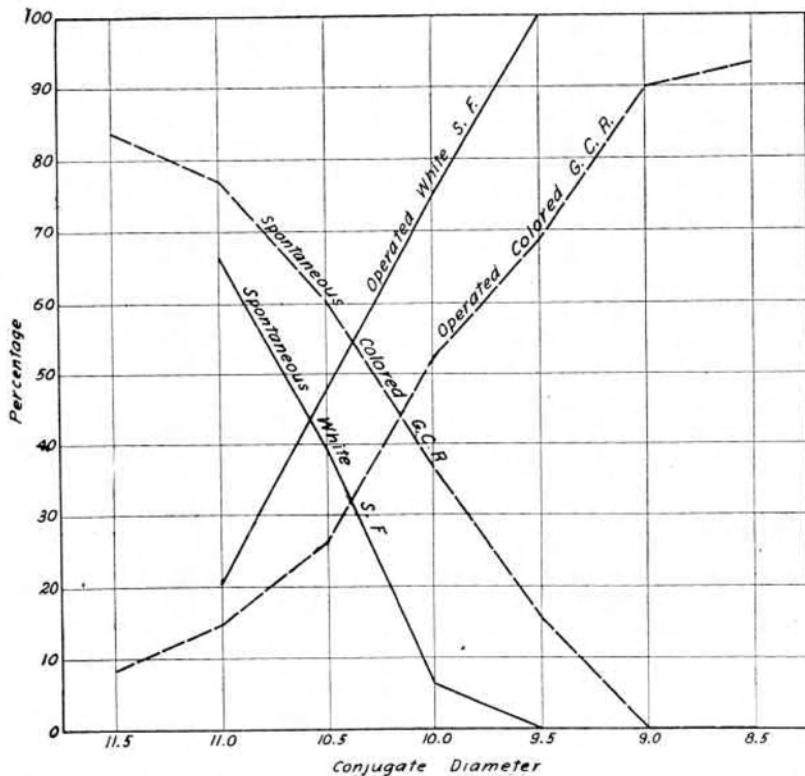


Fig. 2.—Illustrating the course of labor in white women with simple flat, and in colored women with generally contracted rachitic pelvises.

tracted rachitic pelvis should be regarded as a manifestation of degeneration, and that the child takes part in the process, as manifested by its smaller size. On the other hand, white women presenting flat pelvises, as a rule, manifest no signs of physical degeneration, frequently exceed the average in height and weight, and have babies of more than the average size. That this is not a fanciful conclusion will become apparent when we consider, in the last section of this paper, our figures concerning the size of the child. And here it will suffice to say that in both races the largest children are born to patients presenting simple flat or typical funnel pelvises, while the smallest are associated with the

were clearly not due to the service. One of these patients (No. 2,229) died from toxemia, with no sign of infection at autopsy, while the other three (Nos. 372, 694 and 2,568) were admitted infected with dead children after futile attempts at delivery by outside physicians, and died later from infection. The remaining seven deaths were due to the service, and included five deaths following cesarean section. One of the remaining two deaths was due to infection following the only symphyseotomy done in the Clinic, and the other was from shock following rupture of the symphysis in a very stout woman. It might be added that the cesarean deaths occurred during our period of learning, and that only one of them followed an elective section, while the other three occurred in patients who were operated upon late in labor and after the development of intrapartum infection, in other words, in the type of case which we now treat by radical or by low cervical section.

Passing to the consideration of the eighteen deaths in the second series, it is found that eight of them had no connection with contracted pelvis, as becomes evident from their mere enumeration:

- No. 5,709, Rheumatic endocarditis
- “ 6,096, 9,046, 9,288, 10,578, Eclampsia
- “ 9,491, Influenzal pneumonia
- “ 12,481, Typhoid fever
- “ 12,905, Late chloroform poisoning

Of the ten deaths remaining, we feel that three certainly and probably a fourth, should not be attributed to the service. Thus, Cases 9,767½ and 10,054 were already infected when admitted, while Case 7,501 had lobar pneumonia and died from a late pneumococcus septicemia. There may, however, be some discussion about the fourth death (7,390). This occurred in a black patient with a 11.5 cm. generally contracted pelvis, who was admitted in labor with a dead child. She had an osteomyelitis of one knee, primary syphilis and a suppurating bubo. Labor was spontaneous and easy and no vaginal examinations were made. Death occurred on the tenth day, and autopsy showed that it was due to streptococcus peritonitis. It appears clear that the fatal outcome was not the result of dystocia, nor of infection originating with us, although its exact mode of production must be regarded as open to question.

On the other hand, we must accept full responsibility for the six deaths remaining. Three of them were due to infection following spontaneous or forceps deliveries. The fourth death (6,730) was due to hemorrhage and shock following rupture of the uterus, which had occurred in the out-patient department. The fifth death (9,422) occurred unexpectedly a few hours after a pubiotomy and was probably the result of shock or of an embolus, but, as an autopsy was not obtainable, its exact cause will never be known. Finally, the last death (8,836) resulted from general peritonitis following an elective cesarean section,

and was due to accidental injury to the intestines which were adherent to the abdominal scar of a previous section.

We feel that the deductions made will bear rigorous criticism, and justify the statement that only six of the eighteen deaths in the second series should be attributed to the service. This constitutes a striking diminution in mortality and indicates that the danger of labor complicated by contracted pelvis was far less in the second than in the first series. The improvement was especially marked in the results following cesarean section, as five deaths occurred in the 26 operations performed in the first series, as compared with a single death in the 221 operations in the second series, a reduction from 19.23 to 0.45 per cent.

In connection with the maternal mortality it is interesting to note that only three of the 29 deaths in both series occurred in white women. As there were 669 white and 2,303 black labors in the two series, it appears that one death occurred to every 223 and 89 labors in the two races, a percentage of 0.45 and 1.12, respectively. This means that the gross mortality was two and a half times greater in the black women. Moreover, the discrepancy becomes even more striking when only the net mortality is considered. In this event it is found that all but one of the deaths occurred in colored women, a percentage of 0.15 and 0.57, respectively. In other words, the net mortality was three and eight-tenths times higher.

How can this difference be explained? We must confess our inability to give a satisfactory answer, but as the patients were treated in the same institution and along the same general lines, it would appear that the solution must be sought in certain conditions peculiar to the negro race. At the first glance, it might be suggested that more colored women enter the service after becoming infected outside, either as the result of imperfect medical attention or of ill judged attempts at delivery; and, if the gross mortality alone were considered, this might be regarded as a plausible explanation. On the other hand, the discrepancy becomes even more striking when the net mortality is considered; but, as in that calculation all such cases had been eliminated, we are forced to seek some other explanation.

Again, it might be argued that more severe degrees of disproportion are encountered in the negro women, so that when a cesarean section is not done on account of an error in prognosis, the patient will be exposed to greater danger of infection and exhaustion. This suggestion, however, scarcely appears tenable when it is recalled that we have already shown that more severe dystocia occurs in white women with simple flat than in black women with generally contracted rachitic pelves. This being the case, it would seem that the explanation must be sought either in the supposition that the black woman is less resistant to the strain of difficult delivery, or that there is something about her which renders her more liable to infection and more susceptible to it when it develops.

third than in the second period, which indicates that more extended experience and more rational treatment has led to progressive improvement in the chances for the child.

In the preceding section attention was directed to the differential maternal mortality in the two races, and, accordingly, the question arises as to whether similar differences obtain in the fetal mortality. Upon analyzing our figures such was found not to be the case, the gross fetal mortality being essentially the same in both races, 12.11 per cent in 670 white, and 11.71 per cent in 2,305 black labors. On the other hand, the mortality due directly to contracted pelvis was distinctly greater in the white children, and exceeded by two-fifths that of the colored children (6.73 and 4.12 per cent). Such figures can only mean that more black children succumb to causes unconnected with disproportion, and a little reflection will confirm the correctness of such a conclusion, as we know that syphilis, prematurity and general debility take a much larger toll from them than from the whites. Furthermore, the difference in the size and malleability of the fetal head in the two races would imply that the dangers of disproportion should be less in the black race; whereas, in white patients, any error in determining the degree of disproportion will necessarily be attended by more serious consequences.

Treatment.—During the twenty-eight years covered by this study, the treatment of labor complicated by contracted pelvis has undergone many changes, which in general can be studied most conveniently by dividing out activity into three periods: 1896 to 1905, 1905 to 1910, and 1910 to 1924, which we shall abbreviate as periods, A, B, and C.

A glance at Table V shows that a single operation predominated in each of the three periods and that version and extraction, pubiotomy, and cesarean section, respectively, followed one another as the operation of choice.

TABLE V

SHOWING THE NUMBER OF OPERATIONS FOR CONTRACTED PELVIS IN EACH PERIOD, AND THE PERCENTAGE INCIDENCE OF THE SEVERAL OPERATIONS

	PERIOD			PERCENTAGE		
	A	B	C*	A	B	C*
Low and mid forceps	9	8	19	13.63	13.33	5.54
High forceps	10	1	14	15.15	1.67	4.08
Version and extraction	24	15	32	36.36	25.00	9.33
Cesarean sections	15	11	221	22.73	18.33	64.43
Pubiotomy	1	24	12	1.52	40.00	3.50
Destructive	7	1	45	10.61	1.67	13.12
Total	66	60	343	100%	100%	100%

*Not including ten breech extractions or sundry operations.

During the first period, the mortality from cesarean section was still relatively high, and, except in occasional instances, the operation was not resorted to until the patient had been subjected to the test of labor; in other words, we had not yet learned that it gives ideal results only

end to the reproductive career of the patient. It will be noted that during this period high forceps almost completely disappeared as an operative procedure; while version and extraction, either as a means of delivery after pubiotomy or as an independent operation still enjoyed a considerable vogue.

It was during this second period, that we learned that the employment of radical operative procedures in place of the so-called conservative ones not only led to a reduction in the total operative incidence, but also to a considerable lowering of the maternal and fetal mortality. A glance at the table shows that the combined incidence of pubiotomy and cesarean section was only slightly inferior to that of the latter operation in the third series.

This brings us to the last period, 1910 to 1924, and Fig. 3 shows better than words the tendencies which have governed the operative

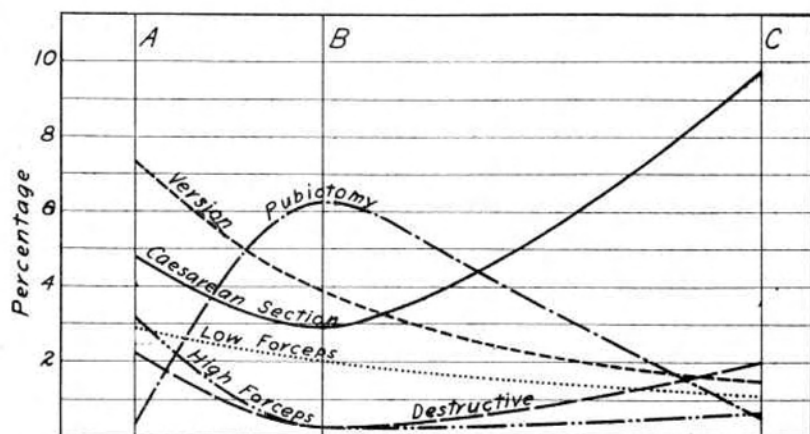


Fig. 3.—Graph showing the variations in operative procedure in each of the three periods.

treatment of pelvic dystocia during the entire twenty-eight years under consideration.

The last period is characterized by two outstanding features: first, the greatest possible extension in the application of prenatal care, and, second, a considerable increase in the employment of cesarean section. The patients are encouraged to register in the prenatal service as early in pregnancy as possible, and to return at monthly and later at biweekly intervals. In this way, no cases of contracted pelvis escape recognition, and as pregnancy advances the development of disproportion and the occurrence of abnormal presentations are detected. Approximately a month before the expected onset of labor, all patients who present any problem, are examined by the head of the department or by his chief assistant, and if necessary return at intervals for further investigation. At these examinations, not only are the pelvic measurements verified, but every effort is made to determine the degree of

as it is liable to lead to abuse by ignorant or conscienceless practitioners, who may become so liberal in their indications that the two curves must inevitably coincide. We do not believe that even the most captious would venture to suggest such a criticism in our case, for we feel that we have been truly conservative in our indications, as we have been constantly guided by the following considerations: First, we have always contended that the greatest conservatism consistent with the welfare of the patient should be practiced in a teaching clinic; second, we have consistently taught that every operative interference should be regarded as a failure on the part of Nature, and that a much higher

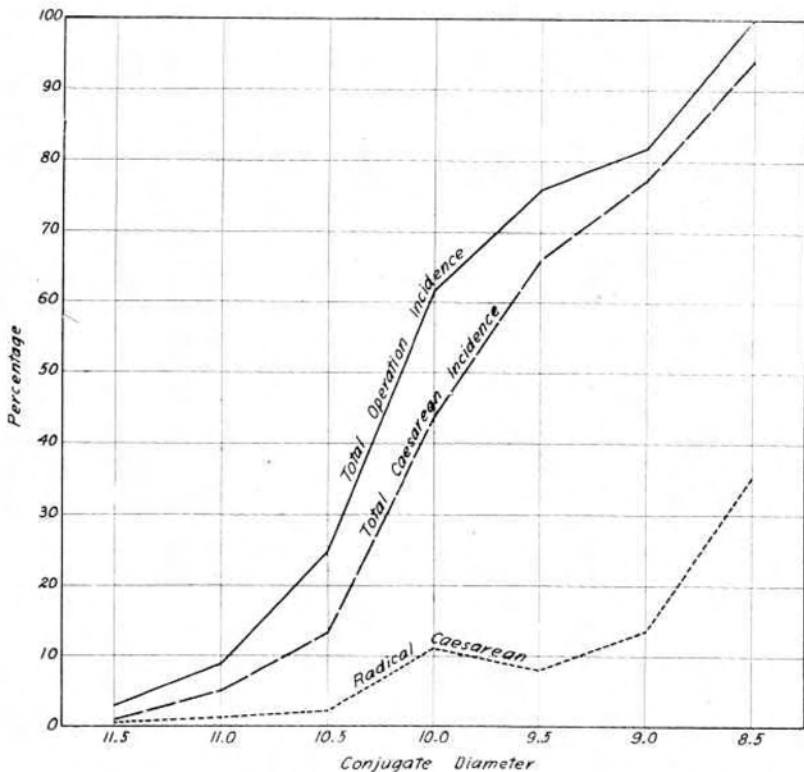


Fig. 4.—Graph showing the total operative incidence and the part played by caesarean section in the third period.

degree of intelligence is required to predict a spontaneous outcome in a borderline pelvis and to see it occur than to perform any operation, no matter how brilliant; third, the performance of 221 sections in the last series of 2,275 labors complicated by contracted pelvis, an incidence of 9.7 per cent, in itself affords conclusive evidence that we have not been unduly radical; and fourth, and finally, from what we know of the operative tendencies throughout the country, we are convinced that few heads of clinics, with so large a contracted pelvis material, would be content to allow anything like so many operative possibilities to escape as we have.

it is found that the number of children which attain or exceed that figure varies greatly in the two races, as well as in the several types of pelvis. This is clearly shown in Table VI, which indicates that practically one-half of the white and two-thirds of the colored children fall below that limit, which makes it readily understandable why so many more spontaneous labors occur in the blacks than in the whites.

TABLE VI
ANALYSIS OF THE WEIGHT OF THE CHILDREN BORN AFTER 1910

	WHITE			BLACK		
	NUMBER	3,250 GR. OR MORE	%	NUMBER	3,250 GR. OR MORE	%
G. C. Typical	258	94	32.6	728	219	30.8
G. C. Funnel	38	9	23.7	204	44	21.5
Simple Flat	135	77	57.1	41	21	51.2
G. C. Rach.	30	14	46.7	749	212	28.3
Flat Rach.	46	20	43.5	15	9	60.
Typical Funnel	230	115	50.	259	90	34.7
Total Number	737	329		1996	595	
	44.64%			29.81%		

The study of these findings, as compared with those obtained from the average weight as in the first series, shows how much deeper an insight into the situation can be obtained by the modal method. For example, upon calculating the average weight of the 701 children in the first series, it was found that the 177 white and 524 colored children presented an average weight of 3,212 and 2,992 grams, respectively. In other words, the former averaged 220 grams heavier than the latter. To most of us this difference of a little less than eight ounces has only a limited significance and in no way prepares us for the fact that less than one-third of the colored children attain to what is usually considered the average weight. Further consideration of Table VI also reveals several additional interesting facts. In the first place, it appears that in every type of abnormal pelvis more heavy children are born to the white than to the black women, the only exception being in cases of flat rachitic pelvis, which occurred so relatively infrequently in the colored race as to make any calculation dubious. In the second place, it is evident that in both races the heaviest children are born to women presenting simple flat pelvises, and the lightest to those with generally contracted funnel pelvises. On the other hand, the typical funnel pelvis appears to be associated with the second heaviest group of children, while in the colored race the children born to mothers presenting generally contracted rachitic pelvises are unusually small.

In other words, it appears that small children are associated with all of the generally contracted types of abnormal pelvis, and relatively large ones with the simple flat and typical funnel varieties. Naturally, it is impossible to explain such variations satisfactorily, but it would

DR. J. WHITRIDGE WILLIAMS, of Baltimore, read (by invitation) a paper entitled **A Statistical Study of the Incidence of Labor Complicated by Contracted Pelvis in the Obstetrical Service of the Johns Hopkins Hospital.** (See page 735.)

DISCUSSION

DR. JOHN O. POLAK.—This presentation of Dr. Williams must be classed as one of the best contributions we have had on this subject, for the reason that it shows what has been accomplished in lowering the maternal and fetal death rate by the evolution of scientific obstetrics. In looking at the figures as he threw them on the screen, I note that our knowledge of the ways of the black woman is too limited to permit us to discuss that part of his paper. From his statistics we find that the incidence of contracted pelvis in Baltimore in white women is not quite as high as the incidence of contracted pelvis in white women in and about New York. The incidence here is somewhere between 10 and 11 per cent. A type of pelvis that the doctor did not mention is that which we have been seeing so frequently in the last few years since the importation of that large group of war starved Russians. These women have normal external measurements with a high promontory and an increased pelvic inclination and have given us many of our difficulties in infravaginal delivery. Our experience has been practically the same as far as the incidence of the generally contracted pelvis and generally contracted funnel pelvis among white women is concerned.

Another interesting thing in the notation is that his figures are almost identical with ours as far as spontaneous deliveries in minor degrees of contraction in white women are concerned. In three series of cases of 100 each that we studied we found the incidence to be 79, 80 and 81 per cent, respectively, where the labors terminated spontaneously; this practically agrees with his 78 per cent. The interesting point is the very low maternal mortality that he has finally attained by the introduction of the methods that are now in use. Another point that is impressive from the charts is that high forceps has become obsolete, and that there is not among obstetricians today such an operation as high forceps. Furthermore, that instead of doing pubiotomy and version, which at one time seemed to be the trend of Baltimore, there has been a gradual trend towards cesarean section.

This paper would be a dangerous one outside a special society like this, as the doctor makes the statement that he is able, and has shown by the charts that he is able, in a very great proportion of cases practically to foretell exactly what the particular head is going to do in the particular pelvis without estimating the individual expulsive powers of the patient or the moldability of the head. The doctor's statement that his sections have gradually increased to nearly 10 per cent of the operative interventions is entirely in accord with our experience in New York; we are doing less of the test of labor; that prolonged test of labor hour after hour that we were giving our patients years ago is gradually being shortened. As a result we are delivering more living babies and have more living mothers. I am

of the patient. I do not think that the low flap operation will ever entirely replace the radical operation, although I think it represents a very considerable advance. Moreover, I believe that the article which Hofbauer has recently written, showing the existence of a peculiar protective mechanism at the base of the broad ligaments, gives a clue as to why the operation proves so satisfactory in what at first glance appear to be unpromising cases. When it was first discussed, I talked to Dr. Halsted about it, and he said he thought there could be no worse operation surgically, as there could be no better way of bringing about a spread of infection than by widely opening up the pelvic connective tissue. Nevertheless, experience has shown that it is a very satisfactory operation in appropriate cases, but we must guard against going to extremes, and we must bear in mind that we have always alternative operations. If you have carefully studied your patient and do a classical cesarean a day or so before the onset of labor the result should be ideal. If, however, you miss the time of election, the low cervical operation comes into play, but if the patient is not seen until infection has occurred, the radical section then becomes the operation of choice.

I think in a teaching institution, such as the one with which I am connected, we must constantly bear in mind that we are teaching inexperienced people who are prone to run away with what we say. Consequently, we must be prepared to justify every operation we do. If many obstetricians had the material that I have, with its large number of colored patients with contracted pelves, I think they would do many times more sections than I have done. I always try to impress upon the students the fact that it requires a great deal more intelligence to decide to let a woman have a spontaneous labor through a contracted pelvis than to do any operation, and I frequently quote Leopold's dictum: "The important thing is to fix the indication; operating is only handiwork—any carpenter can do it." Furthermore, we should always remember that every justifiable obstetric operation represents a failure on the part of Nature, and we must always be on our guard lest it represents a failure of our intelligence as well.