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THE INDUCTION OF PREMATURE LABOUR

with especial relation to past and present Continental views of the questions involved.

<u>GENERAL SCOPE</u>. The questions relative to the Induction of Premature Labour resolve themselves into three broad issues: the general justification of the act, the individual indications for it, and the methods advisable in its performance.

<u>THE JUSTIFICATION</u>. It is generally recognised nowadays that the question of the moral justification of the act is inextricably bound up with the special indications of the individual case. General statements then are made on the basis only of statistics of results, and the abstract rightness of the interruption of pregnancy when the foetus is viable becomes as it were an "analytic deduction" from the average of favourable results achieved.

But it was not so at first. The idea, which curiously enough only became at all general in the latter half of the 18th century, was in those days vigorously discussed from the mere religious standpoint. Its adoption was there-

fore very gradual. England had almost the sole credit for its furtherance for some 50 years, and for giving the practice a recognised place among useful and justifiable obstetrical operations.

During all this time the French obstetricians left the operation almost completely alone, and it may be worth while enumerating their objections to it as typical of the abstract considerations which a responsible physician has to weigh against the so-called "indications" for artificial labour in an individual case.

Apart from the political circumstances of that period when French hatred of all things British no doubt had its influence, there were several theoretical objections to adduce: for instance, the uncertainty in the calculation of the period of pregnancy, in the estimation of the size of the foetus, in the measurement of the pelvic cavity, as making impossible a just decision as to the proper time to interfere in cases of Contracted Pelvis. Then there were the possible dangers: a condition like pregnancy, attended especially towards its close with such deep physiological and even pathological changes, might not be suddenly inter-

rupted with impunity: again, the uterine musculature might be held to be insufficiently developed at such period as some would select for appealing for its "collaboration" in an artificial delivery; (for the presence of such coöperation is indeed the essential distinction from artificial abortion as such): further, the method then customary, rupture of the membranes, was to be looked on as uncertain, if not dangerous: finally, certain methods if not all might bring in their train dangers threatening the life of mother or child, such as unfavourable presentations of the foetus (requiring perhaps severe operative interference), port-partum haemorrhage, and various puerperal diseases, which we now trace to septic or infective germs or their products. Added to these considerations was the very possible misuse of the practice by irresponsible or ignorant persons: and in fact it was soon greatly overdone in Germany towards the middle of the 19th century. Kluge* in Berlin induced labour prematurely 20 times in 10 years, and Ritgen* of Giessen 30 times in that period: Germann* at Leipsig exceeded both: the figures are terrible considering the small clinical material at their disposal.

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In the more recent times and up to the present, partly owing to the interminable discussion as to the precise indications for promoting premature labour, and partly to the varied bent and training of different minds and the "personal equation", the law of private judgment largely obtains. In the last resort it is the subjective element that decides for the best; for the objective, the sign-posts, so to speak, that in most other walks of Medicine guide the physician to his goal, will here be absent when the ultimate by-ways of the individual case are reached.

The leading men of the various cliniques here and abroad, who at least are obliged to justify example by precept, are apt to appear dogmatic: one rather tends to assign too much significance to their performances of this operation and ex cathedrâ statements concerning it, for after all the former are relatively rare and the latter "rarely relative", perhaps, to private practice.

Prof. Schauta of Vienna is a good instance of the conservative operator who is yet strikingly independent and original in his selection of certain cases. In an analogous sphere, I have

seen him induce abortion in a girl of 23 when there was absolutely no other "indication" than a recently commencing consolidation of the apex of the right lung.

Prof. Pinard of the Baudelocque hospital in Paris appears to be able to extend the downrightness of his opinions in general into this department of his subject. He lays down the law* that the physician is justified in performing this operation without asking the patient's consent, being very strongly against the idea that she should be told of her state at all. It may be mentioned incidentally that Pinard does not recognise "intercurrent" maladies beginning during pregnancy as indications for the induction of premature labour. *4

THE INDIVIDUAL INDICATIONS:

It will be well to give some recognised classification of the indications for inducing artificial labour: I may choose Prof. A. R. Simpson's* headings for the purpose and embody under them most of the species of deformity or disease that have been brought forward, rightly or wrongly, as reasons for occasional interference: *5

We have then:--

A. Indications from the Maternal side.

B. Indications from the Foetal side.

A. MATERNAL INDICATIONS

1. Mechanical obstructions to the passage of the foetus.

    (a) By Contracted Pelvis.

    (b) By Abnormalities of the soft parts, (including tumours and chronic inflammatory deposits).

2. Morbid conditions affecting the mother.

    (a) Intercurrent Maladies, whose character is modified by the pregnancy during or before which they arise.

    (b) Diseases connected with pregnancy through some fact of causation.

(a) Intercurrent Maladies

Cardiac Valvular diseases

Pulmonary Tuberculosis

Chronic Nephritis

Icterus gravis

Slight Appendicitis

Splenic Leukaemia

Pernicious Anaemia

Diabetes

Certain Skin diseases

Goitre

Certain fatal diseases, (to obtain a living child)

(b) Diseases of Pregnancy:

Albuminuria

Nephritis Gravidarum

Eclampsia

Hyperemesis Gravidarum

Chorea

Hydramnios

Placental Haemorrhages

" Disease

Polyneuritis Gravidarum

Asthma

Ptyalism

Excessive Mammary Hypertrophy

Osteomalacia

B. FOETAL INDICATIONS

(1) In the interest of the child:

Habitual Death of Foetus.

(2) In the interest of both mother and child:

Habitual over-development of Foetus.

A. 1./

A.1. Mechanical obstructions to the passage of the Foetus

(a) Contracted Bony Pelvis. This was practically the first recognised indication for the Induction of Premature Labour, and to this day it still maintains its position as the most important of all, and that for which the operation must most often be undertaken. DENMAN* in the middle of the 18th century is said to have first recommended it; and he states that the first to carry it out, and withal successfully, was the Scottish obstetrician MACAULAY in 1756. In that year, as Denman states*, the question had been for the first time thoroughly debated from its moral and practical aspects at a meeting of leading London obstetricians, where there was a general concurrence of opinion in favour of the operation, founded on the observation that women with a marked degree of contracted pelvis, calculated to render a normal birth at full time impossible, had been able, premature labour having fortuitously set in after the 7th month, to give birth to living infants, whose life by due care could be preserved. It was also recognised that the foetal head at such earlier period lent itself more easily and expeditiously to the process of "moulding", owing to its softer bones, broader

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sutures, and larger fontanelles; and so far therefore the prognosis for mother and child was improved. The circumstance was adduced, that the puerperium of such mothers appeared to run a normal course, so that they at least would seem to reap no disadvantage from an incidental anticipation of the usual term. Above all, was not the proposed operation theoretically preferable both to the Caesarian Section of the period, very fatal as it was for the mother and by no means certain to yield a living child, and to the repellent necessities of Embryulcia, a dangerous proceeding more particularly in days when asepsis was unknown?

Denman himself did the operation "over 12 times" before the end of the century. He was quite aware of the difficulties attending the respective and comparative measurement of pelvis and foetal head: difficulties which to this day are by no means completely surmounted.

It will now be instructive to trace historically the arguments and statistics brought forward by the partial or absolute opponents of the operation in cases of contracted pelvis, and the replies of its supporters.

* A reaction from the before-mentioned German misuse of the operation was bound to come, and it

was SPIEGELBERG* of Breslau (1830-1881) that first voiced this in the year 1869 at the Naturforscher-Versammlung at Innsbruck, after he had already a year previously caused his views to be published through his pupil GIERICH*. Spiegelberg in another place* expresses his doubt of the actual benefits of this operation, founding it on statistics collected by himself, which he considered spoke strongly against Artificial Labour. He maintained that it was not enough to put side by side its results and those of the operations which might be said to compete with it in Contracted Pelvis cases; but that the question at issue was, In what proportion did the disadvantages of such Artificial Labours stand to the dangers, as a whole, which pregnant women with contracted pelvis were subject to: a proportion that could be expressed,— though inadequately, yet for statistical purposes necessarily,— in terms of the mortality of Mother and Foetus. He pointed out the fallacy of confusing for the latter purpose those infants that were born alive with those whose life was longer preserved. His statistics showed in Contracted Pelvis cases a general Maternal mortality of 6.6%, Foetal of 28.7%: the same in cases of induced premature delivery were respectively 18.8% and 66%. He also compared a series of cases

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of spontaneous and artificial premature labour, showing a mortality percentage for Mother and Child of 6.4 and 35 in the former, and of 15 and 66.9 in the latter instance.

With Spiegelberg appears for the first time a definite statement of the supposed size of the pelvis (in terms of the conjugata vera), suitable for the Induction of Premature Labour. On the strength of his statistics he would reject the operation when the Conjugate exceeded 8 cm., and only admit it otherwise in carefully selected cases (for which he at this time stipulated no minimum Conjugate) where earlier pregnancies had terminated very unfavourably owing to the size and hardness of the foetal head, or to malpresentations.

There were, however, three sources of error in Spiegelberg's appeal to statistics. The chief one was to adopt the length of the true conjugate as a measure of the space available at the pelvic brim, without consideration of the variety of pelvis involved. Next, his comparisons related to full-time and premature deliveries of different mothers, instead of those of the same mother. In the third place, he made no distinctions between primiparous and multiparous women; whereas at least the fact that a first infant is commonly the smallest is a

distinction of importance.

LITZMANN* corrected the first of these errors by classifying his cases according to the form of pelvis they presented. Somewhat superfluously also he distinguished four grades of Contracted Pelvis for clinical purposes. In his 2nd grade, he held the Induction of Premature Labour indicated for simple flat and generally-contracted flat pelvis when the true conjugate was between 7.4 and 8.2 cm.; and for "justo minor" pelvis when the conjugate was below 9 cm. From cases under this category he reckoned the percentage of maternal mortality at 7.4 after induction of premature labour and at 18.7 when allowed to go to full time: the percentage of infants born alive 48.1% in the former and 25% in the latter case; but deducting the number that died before the mother was discharged, he obtained practically identical percentages, 25.9% and 25%.

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A most important service was rendered by DOHRN* who first perceived the advantage of comparison being made between deliveries of the same mother. Far more noteworthy were therefore his conclusions, that in multiparae with pelves of Litzmann's 2nd and 3rd (i.e. moderate) degree of contraction, where the former labours had been seriously dangerous to mother and child, premature delivery was the proper course.

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His figures gave these results:--

93 full-time births, foetal mortality 87%.

60 prematurely induced, do. 45%.

Later figures relating to 19 mothers only, with 41 deliveries were*:-- *11

Full time births, foetal mortality 90.3%.

Prematurely induced, do. 40%.

Dohrn went so far as to allege that operation was equally advisable in the case of primipara as of multipara.

He at all events showed that the prognosis for the foetus was in suitable cases greatly improved. Further data by KUENNE* and BERTHOLD* substantiated his inferences. LANDAU* however wished to see the Induction of Premature Labour entirely given up, on account of the ultimate result for the infant appearing so unfavourable. *12 *13 *14

Later on Spiegelberg changed his views* and became more in favour of premature labour. At this time (1878) he caused the publication through WIENER* of new statistics founded on his own cases. He now held the operation indicated in flat pelvis with conjugate 7 to 8 cm. and in justo minor pelvis with 7.5 to 9 cm. A conjugata vera below 7 cm. he considered a contra-indication, because the head of even a "viable" foetus could not cope with this *15 *16

with any chance of survival. In the case of a slighter degree of contraction, viz. with Conjugata vera of more than 8 cm., the operation might be exceptionally undertaken, when a previous difficult labour had led to a careful consideration of the case on its own merits. He admitted there were probably no really improved chances for the infant except as regards "seeing the light".

A series of publications now followed, the chief writers being CONRADI*, WINCKEL sen.*, SABARTH*, GOENNER*, P. MUELLER*, RUMPE*, OLSHAUSEN*, HAIDLEN*, and HECKER*, tending to show that the induction of premature labour for contracted pelvis, when rationally carried out, was not a dangerous ordeal for the mother, and was by no means so unfavourable for the child as Spiegelberg assumed.

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Thereupon the discussion was laid aside for a time, but it was soon resumed in a vigorous fashion owing to the improved operative technique of Caesarian Section, which was giving rise to unexpectedly good results. SAENGER*, to whom the credit for these was due, himself wished to see the operations involving destruction of the foetus, as well as those inducing abortion and premature labour, largely superseded by Caesarian Section.

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His views received support in certain quarters:

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for instance, from ZWEIFEL*[27], who was particularly disposed to have a limit put upon the Induction of Premature Labour, because not only was the foetal mortality high, but also the death-rate within the first year was far heavier than among full-time infants. Others of the same opinion were STRAUCH*[28] and MARTIN*[29], both of whom proposed the adoption of Caesarian Section in many cases in place of premature delivery.

Again, however, the latter procedure soon found its supporters. The first to reply in this sense was WYDER*[30] who by help of statistical data affirmed that the maternal mortality after Caesarian Section performed for contracted pelvis was $3\frac{1}{3}$ times as high as that following the induction of premature labour, and even 7 times as high when the abdominal section was undertaken on relative grounds only, with a so-called 3rd grade of Contracted Pelvis (conjugata vera 5.5 to 7 cm.). He therefore considered it unjustifiable to extend the sphere of Caesarian Section at the expense of Premature Labour: at most could it compete if in the future its dangers should ever become as insignificant as those attending prematurely induced parturition, when the better prospects for the infant might yield the former the preference.

We have the testimony of LEOPOLD* of Dresden to the like effect, and of greater import, owing to his wealth of clinical material. He did not approve of Caesarian Section competing with the Induction of Labour so far as the province of the latter limited itself to pelves whose true conjugate ranged from 7 cm. upwards (or 7.5 in the justo minor variety). His data were the following:-- *31

	Ind. of Prem. Lab.	Caes. Sect.
Maternal Mortality	1.2%	13.2%
Mortality of child up to discharge of case.	36.6%	16%

That Caesarian Section should not encroach on the cases described above, was generally allowed by specialists at the time.

In 1890 at the International Medical Congress at Berlin* a spirited discussion again broke out as to the value of Induced Labour. *32

Nearly all concerned spoke in its favour; but Sänger* was again to the fore on behalf of the Caesarian procedure. He protested against the view of LOEHLEIN that it only competed with Embryulcia: he contended that further improvements in the Caesarian operation were in sight which would make it completely hold its own also against the Induction of Premature Labour. He also combated *32

the proposal of Leopold to distinguish the applicability of Caesarian Section according as the case received hospital or private treatment.

DOHRN* at the same time came forward again warmly in favour of the operation for premature labour, and produced statistics to show that Caesarian Section did not compete with it:-- *32

271 Induced Prem. Labours gave 60.1% living children
171 Full-time do.
of the same mothers gave 29.2% do.

He also gave figures which showed high mortality after Caesarian section, and deduced from them that with a moderately contracted pelvis with conjugate 7 to 8 cm. the Induction of Premature Labour was the most suitable procedure, its value being in no way impaired by the improved results of abdominal section.

LEOPOLD* supported this with a report of 75 prematurely induced births with only one fatality; and 42 Caesarian Sections with 4 fatal cases. As already implied, he preferred the latter operation to be limited as far as possible to hospital practice. *32

FEHLING* quoted his 60 cases of Induction of Premature Labour, with no maternal mortality, and under 20% foetal mortality; and drew attention to *32

the alleged fact that the children born by Caesarian Section have an equally bad "expectation of life" as those born at full time in the Klinik, of which he stated 70 to 80% are lost during the first year.

LOEHLEIN* maintained that even if Caesarian section had gained ground, it was only to the prejudice of the methods involving Embryulcia, and not to that of prematurely induced labour. Where the latter could be undertaken with good prospects for the foetus, a Caesarian Section was contra-indicated; not only because of the practical absence of danger in the minor operation for the mother as against the still-existent mortality attending surgical interference, but also because not infrequently persistent pains appeared to be the legacy of the Caesarian procedure.

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These, the leading German obstetricians, were herein supported by all the foreign specialists at the Congress,-- British, American, Italian, Russian and Danish.

After all this wearisome iteration of its advantages in pelvic contraction, it might have been thought that the operation for premature labour had achieved its proper place; but it was now attacked by the French and American supporters of Symphysiotomy.

The following somewhat one-sided résumé of this phase of the question I translate from the German of KLEINWAECHTER*. *33

"Just as this operation (Symphysiotomy), the "offspring of a morbid brain, that of SIGAULT, was "120 years before to make an immediate end "of Caesarian Section, so now it was completely to "replace the Induction of premature labour. In "this sense the following delivered themselves: viz. "PINARD, his pupils AUDEBERT and VARNIER, the "American NOBLE, and also ZWEIFEL. The most absurd, "however, was the proposing, and even carrying out, "by HIRST, KUFFERATH, EUSTACHE, and BOSSI, of "a combination of Symphysiotomy with the Induction "of premature labour."

The majority of leading obstetricians, however, including Tarnier and Leopold on the Continent, set themselves against the encroachment of Symphysiotomy upon the territory of the Induction of Premature Labour. SARWEY in 1896 thus expressed himself*:-- "Although the scope of Symphysiotomy *34 "has not yet been quite satisfactorily defined, one "may nevertheless say in advance that its limits "will no doubt in the future be still more narrowed "than they have been in the past; and that it can "certainly not encroach on the field held by

"Prematurely Induced Labour, so that the latter is "bound to come out of this latest struggle victorious".

As a matter of fact, the published cases of Symphysiotomy did become fewer in the following years, especially in Germany, where at the end of the century, ZWEIFEL*, FRITSCH*, and FRANK* were the chief friends of the operation. There was also even in France a marked reaction against its exaggerated use: it was expressed by BAR, FOCHIER, CHARLES, and BUDIN in a debate in 1899 at the French Obstetrical Society.* Bar animadverted on its high mortality; Charles declared it to be more difficult and dangerous than Caesarian Section; while Budin recommended its replacement in some cases by the Induction of Premature Labour.

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At the International Gynecological Congress at Amsterdam in 1899* the general view was pronouncedly in favour of the last-named operation as justifiable and salutary, and as one not likely to forfeit, through any future pretensions of its rivals, the esteem in which it was currently held.

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In 1901 appeared a most important work by KROENIG of the Leipsig Klinik of Prof. Zweifel, entitled "Die Therapie beim Engem Becken". He quotes the statistics of that hospital to prove the advantage, presumably from the hospital stand-point only, of

letting all pregnancies complicated by Contracted Pelvis go on to full time. Of interest to general practice is the statement that of 775 cases of generally-contracted or flat pelvis, 614 ended with spontaneous delivery. Of the above 775 cases, for example, 70 were delivered spontaneously out of 133 which with flat pelvis had a conjugata vera of 8.4 to 7 cm: and 82 out of 101 with generally-contracted pelvis. Version was never used in any of the cases, and Krönig avers that the Dresden clinical statistics also support this principle, that it is never necessary to "turn" in contracted pelvis cases as such.

His book practically recommends the discarding of the induction of premature labour in contracted pelvis in favour of Caesarian Section, or above all Symphysiotomy. He recommends as the lower limit for the latter 6.5 to 7 cm. conjugate, and will not combine it with Premature Labour for a conjugate below this.

Undoubtedly Krönig's figures show that by these methods a greater number of infants have survived: but the question remains, whether one is justified, for the sake of saving a few infants, in subjecting a number of mothers to the various dangers of Symphysiotomy and Caesarian Section:

at all events it will be answered in the negative by the ordinary accoucheur in relation to his private practice. Even if, as is now generally conceded, the range of Sänger's operation does not coincide to any appreciable extent with that of prematurely induced labour, the applicability of Symphysiotomy, which does so coincide, is never likely to obtain a recognition commensurate with its deserts so long as the patient and her relatives have any say in the matter; because an attitude of indifference on the part of the lay mind as to whether the knife is used or no is not easy to imagine or predict.

It is not beside the question to mention that Krönig's strictures on the use of Version were challenged in statistics by B. WOLFF* (Charité, Berlin) and ALBERT* (Frauenklinik, Dresden). *39 *40
Wolff obtained extremely favourable results with version in Contracted Pelvis with Conjugate down to 8 cm. and unruptured membranes: the foetal mortality in 58 cases being only 1.7%. Albert used version in 60 cases with conjugates from 7 to 9.5 cm. and obtained 81.3% living children. As a rule however, we find the province of Version in narrow pelvis reserved for cases of minor degrees of contraction, which do not come within the limits

which as we shall shortly see are usually set upon Symphysiotomy or the Induction of Premature Labour.

Now that the maternal mortality has been practically reduced to zero by improved procedure in the Induction of Labour:— although Krönig estimates it still at 1 to 2% and the recent statistics of AHLFELD, HAUFFE, and SCHOEDEL show two mothers lost in each list,— the main question of the future is the possibility of improving the foetal chances of life. Published figures for the year 1901 when put together* return an average death-rate of 35% in the cases under consideration. This is no improvement on the general results of the last seven years of the 19th century, as given in the table below by Schödel of Dresden*.

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Table/

Author	No. of Cases	Maternal mortality	Infants			
			Born alive	Born dead	dismissed alive number	dismissed alive p. cent
BUSCHBECK	470	8	-	-	-	65.7
KUFFERATH	10	-	7	4	6	54.5
V. SAEXINGER	25	-	24	1	21	84
OLSHAUSEN	21	-	16	5	16	76.2
RUNGE	15	-	11	4	11	73.3
P. MUELLER	21	2	15	6	13	61.9
AHLFELD	50	1	39	11	30	60
SARWEY	60	1	50	10	43	71.7
VOGT	24	-	16	8	13	54.2
LOEHLEIN	57	1	43	14	32	56.1
KUESTNER	29	-	23	6	19	65.5
FRITSCH	16	-	12	4	11	68.8
LEOPOLD	41	1	35	6	26	63.4

As regards the chance of survival for the infant, which can really not be estimated in the case of illegitimate children, since they often succumb to lack of care, Ahlfeld publishes an article* stating that he has followed the history of the 55 legiti-:mate infants in his series for one year, and found that 50 survived. Similarly RASCKOW* quoting from the Kiel klinik cases, says that 37 infants were kept under observation and only 4 died during the first year. Zweifel*, who found only four of his own cases survived the first year, brings objections to these statistics: the Kiel cases being usually induced after the 36th week and for only slight degrees of narrow pelvis. He grants, too, that the fact of the infants being nursed by their mothers explains in great part results so superior to his own.

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What, then, are the varieties of Pelvic contraction which we have to take into practical consideration when we have this in mind as an indication for the induction of premature labour? It is probably enough to name,--

The Uniformly Contracted Pelvis ("Justo Minor")

The Simple Flat Pelvis

The Flat Rachitic Pelvis

If we include all the other forms of pelvic deformity

the Conjugata Vera is a very inadequate indicator of the space available for the passage of the foetus; but in practice it derives its importance from the fact that pelves contracted in this diameter are by far the commonest abnormal forms met with, and that the rarer deformities, though equally serious, can often be diagnosed from other signs.

In any case, however, the determination of the true conjugate must be supplemented by the comparison of three important measurements,— the inter-spinous, the intercristal, and the inter-trochanteric; this routine being absolutely relied on in the German and Austrian Kliniks for the differentiation of the commoner varieties of pelvis.

THE UNIFORMLY CONTRACTED PELVIS: This form is one of the most dangerous that we have to deal with, as its existence is most easily overlooked. A shortening of its conjugata vera to 8 cm. (say 3 1/8 inches) is almost universally taken as an indication for premature delivery, and in such case not before the 34th or 35th week of pregnancy; and it may often be advisable with a conjugate up to 9 cm. (3½ inches). If, on the contrary, one undertakes the procedure for a case with conjugate below 8 cm., it is necessary to perform it soon after the 30th week,

when the chances of life for the foetus are unfavorable: and the alternatives in such case are, of course, Symphysiotomy, Embryulcia, or even Caesarian Section. The foreign authorities on the subject give the following as suitable conjugates (in centimetres): Sarwey* 7.5; Pestalozza* 8; Calderini* 8.5; Schulz* 7 to 9; Leopold* 7.5 to 8; Litzmann* "below 9"; Spiegelberg* 7.5 to 9; and Schauta* 8 to 9.

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*48 *49 *10
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FLAT PELVIS: As regards simple flat pelvis, there is probably never such a shortening of the diameter as to render impossible the extraction of an average full-time foetus. We have then merely to distinguish it from the rickety form, which is by far the commonest type of deformed pelvis and therefore that for which Premature Delivery is most often called into use. Its maintenance of a relatively or absolutely good transverse diameter at the brim allows, by adaptation, the passage of a given size of foetal head, to which a "justo minor" pelvis of the same conjugate may oppose a complete barrier. Hence a Conjugata Vera of about 7.5 cm. is usually taken as more compatible with the induction of premature labour in the former variety. This is generally given by Continental authors as the

minimum conjugate, but Veit* and others allow 7 cm. (2¾ inches).

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To this mere skeleton of the indications, so far fixed, one must constantly try to adapt the ever-various features of the particular case, and even then all one's judgment will be needed to clothe such an embodiment of the material with its significance for treatment. Due importance must be attached to the history of previous pregnancies, the exact estimation of the period of gestation, the presence of acute disease in the mother, the ascertainment that the foetus is alive, its presentation and position and the size of the head, the possibility of twins, and, above all, the careful vaginal examination of the whole true pelvis.

A.1. (b) Abnormalities of the soft parts obstructing the passages.

These form a group, so to speak, more of contra-indications than otherwise, and the history of their rejection from the sphere of Premature Labour seems to show that it has been difficult to disassociate the idea of them from the analogy of Group (a) (contractions in the bony pelvis). They are also doubtfully classed under the Mechanical Hindrances

to Normal Labour, for in most there is, too, a predominant element of danger of complications arising not through the parturition but the pregnancy.

The following are mentioned as possible indications for inducing premature labour:--

(1) Connective-tissue growth from previous inflammatory mischief, obstructing at least one-half the pelvic passage (Felsenreich*). *52

(2) Severe stenosis of Cervix from scar tissue, (Braun*). This as affording any indication by itself, requires naming only to be dismissed. *53

(3) Uterine Myomata. The Induction of Premature Labour in these cases has been practically given up; not only owing to the dangers inherent in the precedure, but in view of the likelihood of haemorrhage and delays in the 2nd and 3rd stages of labour (Pozzi*). If pregnancy, owing to complications threatening the mother's life, must be interrupted, various surgical methods stand to the choice of the operator. *54

(4) Ovarian Cystomata. The possible choice of Premature Labour can only be considered in cases where the removal of the growth appears feasible neither per vaginam nor by abdominal section, (Benckiser*), or at all events would entail a severe operation with much loss of blood (Pfannenstiel).* *55 *56

(5) Carcinomata of Rectum and Uterus. Although cases of the Induction of Premature Labour with a view to a later operation on the involved viscus are on record, the first-named procedure is now entirely given up, except in selected cases where the imminent death of the patient would suggest such means for the rescue of the foetus.

A.2. MORBID CONDITIONS AFFECTING THE MOTHER

This side of the question was brought into intention:al prominence at the Rome Congress last year, and the following short abstract is by way of a comparison of some of the views expressed, with the aid of some personal observation in the Viennese and German lying-in hospitals during the past year.

One undoubted inference to be drawn from the rather wide differences of opinion at the Congress is that here more than in perhaps any other Gynecological condition a strict individualising is wanted: each case is to be judged on its own merits, and the general rule forgotten in the ever present exception to its cogency. Thus there is no "abso:lute indication" in any disease: none in any particular stage, or severity, of a disease: none,

in fact, until the isolated case is reached.

Another point of interest is the number of instances adduced in which with severe cases of disease in or of the gravid state the perils of full-time birth have been successfully met by mothers, in spite of previous indications, often affirmed by noted specialists in the lesions involved, to interrupt the pregnancy. The obstetrician will rather keep in view the general dangers of parturition, where the physician is impressed more by the possible ill effects, on the course of the disease, of gestation. In this connection one finds the majority of speakers except perhaps Rein and Zweifel conservative as regards the medical indications for inducing premature labour; the remarkable fact of the wide range in adaptability of diseased women during pregnancy and labour being tardily recognised, though it has for some years been emphasised by Edinburgh teaching and methods of treatment. Professor Pinard out of 22,708 cases of pregnancy had induced labour prematurely only 20 times; and Professor Schauta among 12,525 labours, 32 times.

When medical considerations are to determine the interference with gestation, the mother's interest stands foremost in all but a few imminently fatal cases; and in many serious conditions we can

take no account of the fate of the foetus. Yet such sacrifice is "more apparent than real"; for as the disease progresses it means in most cases the loss not only of the mother's but of the child's life. The tendency, which in the domain of pelvic contraction some Continental experts are following, in favour of more liberal interference on behalf of the product of conception, can have no analogy in the sphere that we have now to consider.

(a) Pre-existing or Intercurrent Maladies. This class includes those diseases, to quote Prof. Simpson, "the prognosis of which is made more un-"favourable by the pregnancy, or which are such as "to modify the prognosis of the gravid state itself."

CARDIAC VALVULAR DISEASES:

Schauta, in his review of this question at the International Congress, bases his statements specially on 900 pregnant women in his wards who were carefully examined for heart affections by Fellner*; and generally on 30,613 such women admitted within the previous nine years who had undergone no such strict scrutiny. In the whole latter series, only 94 cases of valvular disease were recorded, while

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among the 900 twenty-two had such disease and in 159 murmurs were audible. He judges that elsewhere also valvular disease is overlooked in a like proportion of pregnancies, perhaps six-sevenths of all cases remaining undiagnosed. In such case the prognosis in cardiac lesions becomes correspondingly at variance with ordinary clinical statistics: and, in fact, the heads of large hospitals abroad do not seem to regard them as so prejudicial to a normal issue from pregnancy as the text-books would have us believe. On the other hand, Rein, of the large Kief hospital, declared that disease of the heart constitutes, next to that of the kidney, the most frequent occasion for the induction of premature labour. All agree that the act of giving birth is a very dangerous one for a mother with badly-compen-:sated valvular disease. But the results of the induction of premature labour in such cases are dis-couragingly bad: of 26 collected from various records 13 ended fatally. Nor are they particularly favourable in less hopeless cases. Again, death, during pregnancy, from cardiac disease is said* to be extraordinarily rare; and, indeed, to occur very seldom during parturition.

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Yet it is widely accepted that with patients in whom compensation fails at any period of pregnancy

and is unrecovered by a week or two's suitable treatment, the uterus must be forthwith emptied.
Schauta would also induce labour after a limited improvement had been achieved from internal remedies: again also in Mitral Stenosis with even slight failure of compensation: and finally, in compensated heart cases with only such patients as had nearly succumbed thereto in the preceding pregnancy.

Others, such as Sänger and Kleinwächter*, consider cardiac disease no indication at all for interrupting pregnancy, unless, indeed, the latter is attended with such complication (narrow pelvis, etc.) as would lead to difficult labour,— the worst mishap for the subjects of valvular mischief. *59

PULMONARY TUBERCULOSIS.

Since the recommendation of D'Outrepont* in 1828 it has usually been thought a plausible and even proper course to induce a premature birth when the mother through rapidly advancing tuberculosis of the lungs has no chance of surviving the full-time delivery: the child, if its viability has been awaited, has then at least a chance of life. Within the last few years a new indication has been put forward and endorsed by many, namely, the mother's interest; premature labour as distinct from abortion *60

being induced when a rapid advance in the disease begins first in the later months. Jaffé* and Remy* oppose the practice; and Schauta points out its uselessness as compared with an early artificial abortion.

*61 *62

CHRONIC BRIGHT'S DISEASE is preferably considered later together with the "Nephritis of pregnancy."

ICTERUS GRAVIS.

When there is high fever present, with petech:iae and especially nervous symptoms, Schauta recommends immediate induction of premature labour. One would rather doubt the advantage of this, since death of the foetus will surely follow such a rise of temperature: and, in the sequel, its delivery.

SLIGHT APPENDICITIS.

Though this was mentioned, one should at all events treat Appendicitis, like other acute inflammations, as a contra-indication in any case where, apart from the factor of pregnancy, the mere idea of immediate surgical interference could be entertained.

SPLENIC LEUKAEMIA.

This is one of the rarest complications of

pregnancy and the reported cases are too few to found a judgment on. It is possible that the disease is sometimes a pathological outcome of the blood changes in pregnancy, Schröder* recording a case where a patient survived the pregnancy during which the Leukaemia appeared to arise, and underwent other pregnancies with a recrudescence of the symptoms each time. Usually the disease goes from bad to worse in the later months and proves rapidly fatal, so that the premature delivery of a living child may sometimes be indicated (Sänger*, Schauta*). *63 *64 *65

PERNICIOUS ANAEMIA.

This disease, rarely as it occurs in pregnancy, may also have some unknown causal relation with it. Gravidity has a very unfavourable effect, particularly in its later months, on the course of Pernicious Anaemia. Gusserow* recommends the induction of premature labour in order to anticipate the supervention of such a state that slight loss of blood means death. Schauta considers it indicated possibly in fatal cases alone, for the benefit of the foetus. Jaworski* and Kleinwächter* are against its use. *66 *67 *68

DIABETES.

One out of every three cases of Diabetes asso-

:ciated with pregnancy results in spontaneous premature delivery, owing probably to death of the foetus. According to Schauta, one in four of such pregnancies ends fatally. Contrary to general opinion, he suggests anticipating the usual term by delivering the infant when living and viable. As against this one may raise the self-evident objection, which applies in those diseases where operations cannot in so many words be defended as matter of necessity, and especially in this disease where they often prove dangerous,— namely, that the accoucheur will with or without his colleagues have to bear the brunt of a heavy responsibility for disaster if it occur.

CERTAIN SKIN DISEASES.

Pityriasis versicolor, Pruritus, Eczema, and Pemphigus were mentioned in the Rome Congress* as capable of causing violent pains during pregnancy and in certain cases improving after its close: thus affording particular indications for the induction of premature labour.

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CERTAIN FATAL DISEASES.

These would include, besides those already referred to, imminently fatal cases of tumour or haemorrhage of the brain, and a high grade of Cachexia from malignant disease.

(b) Special Diseases of Pregnancy

ALBUMINURIA, NEPHRITIS and ECLAMPSIA.

A species of toxaemia which proceeds from the pregnant state is considered to be the cause of these diseases, Eclampsia equally perhaps resulting direct-:ly from the systemic distribution of the same toxin. We may at the same time dwell upon the chronic Nephritis in which pregnancy is a circumstance, but whose prognosis suffers a complete change for the worse in consequence. Its dangers in such case are the fatal possibilities of ascites and hydro-thorax, but rarely those of Eclampsia. The latter, on the other hand, is the standing risk of the so-called Nephritis of Pregnancy, though the general prognosis of conception in a case of Contracted Kid-:ney is worse.

Unfortunately, the differential diagnosis is not easy, the anamnesis being the most helpful factor. In both we may find the passage of an excessive quantity of watery urine, a high-tension pulse and indications of great cardiac hypertrophy. The absence of these signs in the numerous pregnancies which develope marked Albuminuria with oedema of the lower extremities is a proof that such cases present so far no great cause for anxiety. It has been

shown that diseases of the Placenta, or haemorrhages in connection with it, are not uncommonly the sequel of pre-existent kidney disease; either of which may by the death of the foetus cause interruption of the pregnancy.

The mortality of the foetus reaches a high figure in Bright's Disease: hospital statistics, no measure indeed of the average in a general practice, give, according to Hofmeier*, 60 per cent. Apart from these cases, premature labour often sets in of itself, anticipating, as it were, our doubt whether to invoke its aid. It is curious to see how this tendency in kidney and other diseases is used as an argument, by some in favour,— "Nec Deus intersit, nisi dignus vindice nodus",— and by others to the prejudice, of the artificial induction of labour.

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The treatment of Eclampsia has a large literature of its own. As a consequence the ordinary practitioner has a multitude of counsellors, urging methods ranging from a diametrical opposition to a degree of difference which is left to private judgment. According to Pinard, existing statistics are not sufficient to sanction the use of the Induction of Premature Labour. The same feeling exists in Edinburgh, I suppose, where the treatment by drugs, especially morphia, obtains.

Apart from the convulsions that have actually set in, premonitory signs may exist, as is generally agreed, which justify the induction of labour: of importance is a progressive increase in the albuminuria (if it exist) and diminution of urea.

As regards Kidney affections generally, exclusive of Acute Nephritis, most authorities abroad would induce premature labour when there is a constant increase in albumin, with tube-casts signifi:cant of an advancing lesion in the kidneys, and again when dropsy is becoming general and invading thorax and abdomen.

To summarise the indications named at the Gynecological Congress: HOFMEIER recommends interference in Nephritis Gravidarum growing continuously worse in spite of treatment, if only for the fact that Eclampsia is a frequent outcome: also in Chronic Nephritis failing treatment, because of its prejudice to the system and ill omen for the foetus. When convulsions are actually present, he prefers Caesarian Section; but gives as an alternative a speedy evacuation of the uterus with the aid of the "Metreurynter". SCHAUTA's indications are:-- Albuminuria arising in the first half of pregnancy; Nephritis Gravidarum appearing before the 8th month; Chronic Nephritis as soon as the foetus is viable and

when secondary symptoms do not improve under treatment; and Eclampsia when treatment fails and the fits become more and more frequent, or end in Coma. PINARD would deem Albuminuria an extremely rare indication; but in Chronic Nephritis it were wise to interrupt pregnancy if the 24-hourly urine goes below 800 gm. and remains so. For REIN, Kidney diseases constitute the most frequent cause for the induction of premature labour, in which operation he is a great believer.

From a theoretical point of view, one is disinclined to respect every such indication. The induction of labour in the later months produces an increased blood-pressure in the systemic vessels which must react most deleteriously on the kidney trouble, and precipitate uraemic symptoms and pulmonary oedema, or at least bequeath to the "kidney of pregnancy" the organic changes of a chronic Nephritis. Dangers, perhaps imaginary, are here met with means more likely to substantiate them.

HYPEREMESIS.

In the treatment of this disease late years have seen a distinct improvement. I have personally heard from Professor Klein (Munich) and Prof. Shauta remarkably favourable reports of cases under

their private care. The latter advises against interference with pregnancy, since he regards all cases as amenable to treatment. He has dealt with 23 patients, after they had been through the hands of "distinguished specialists" without avail, and tided them safely over the parturition, except one of two with whom premature labour was induced. Cases of Hyperemesis seem, however, to be rare in Austria and Germany.

Pinard, who premises that timely treatment can keep the symptoms safely under control, would interrupt pregnancy when the pulse-rate keeps over 100 p. min. He intends publishing certain lectures on the subject this year.

HYDRAMNIOS.

An indication, according to Pinard, under two conditions:--

(1) Accompanied by a more or less marked general Oedema, with dyspnoea and asphyxial phenomena.
(2) When with a rapid increase in size of the uterus very acute pains referable to abdomen, chest-wall or diaphragm appear, and there is marked loss of flesh, and the 24 hours urine sinks as low as 500 or 600 grms.

Hydramnios is one of the most distinct indica-

tions for inducing premature labour, though not before about the 33rd week unless the patient's life is in danger.

CHOREA GRAVIDARUM.

Some of the worst cases of Chorea arise during pregnancy, and probably with specific relation to it. Though Schauta and Pinard advise no interference in any case after the 8th month, as the act of birth then so seriously affects the disease, the latter often disappears quickly after the lapse of a spontaneous premature labour. Zweifel (Leipzig) stated his own experience that Chorea is an extremely dangerous complication of pregnancy, quickly altering for the worse and easily leading to death: he named it as a strict indication for inducing premature labour. Records show, however, that this proceeding does not always save the patient's life.

PLACENTAL DISEASE and HAEMORRHAGE.

So far as these are evidence of diseased kidneys, their importance should be recognised in subsequent pregnancies. The treatment of placenta praevia hardly comes within the scope of my subject.

NEURITIS/

NEURITIS.

Severe Peripheral Neuritis associated with pregnancy is said to justify an interruption of the latter, to save the mother's life. (Schauta; Johannsen*). *71

OSTEOMALACIA.

The treatment of a patient in whom the osteomalacic pelvis is found is to be decided by the individual circumstances; and depends on all the considerations applying to cases of narrow pelvis, on previous pregnancies, and on the condition of the patient. Opportunities for early delivery may be sought for with a view to the subsequent cure of the disease, whether it arise exclusively from the gravid state, or be of a more chronic and severe type.

Diseases or Symptoms not enumerated may be taken as affording no excuse in themselves for interfering with pregnancy, although individual exceptions may occur owing to an added complication. Among those specified by Schauta as contra-indications are Acute Pneumonia, Pleurisy, Pneumo-thorax, Acute infections such as Scarlet Fever, Measles, Small-pox, Erysipelas

and Diphtheria, Acute inflammatory diseases, Rheumatic Fever, Acute Nephritis, Peritonitis, and Intoxications. Pinard mentions for his own part Nervous diseases and Pulmonary Tuberculosis.

B. INDICATIONS ON THE PART OF THE FOETUS

(1) Habitual Death of the Foetus.

It is a known fact that though most cases are attributable to Syphilis, Bright's Disease, Anaemia or Cancer, others remain unaccounted for; and in certain of these it may be possible to ascertain the date in previous pregnancies at which the foetus perished, and justifiable to induce labour in connection with the current pregnancy somewhat before such date.

(2) Habitual Overgrowth of the Foetus.

This appears very seldom in the foreign reviews of Midwifery*; but no doubt the existence of a large child must fairly often cause difficult labour owing, let us say, to a slightly narrowed pelvis that would lead to little difficulty were the head normal.

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METHODS OF INDUCING PREMATURE LABOUR

Such methods are divisible into four classes, each of which is more or less represented in present-day practice. These are briefly:—

Separation of the membranes
Irritation of the Cervix
Rupture of the membranes
Dilatation of the Cervix.

One might describe, for example, the procedure in vogue since '97 at the Dresden Frauenklinik*, and use it for comparison with the means employed elsewhere. *73

A flexible male bougie, sterilised and suitably lubricated, is slowly and gently introduced through the Cervix till the end button reaches the Os externum. If after 24 hours there are no pains or apparent progress, another bougie is passed up by the side of the first, and at the end of the next 24 hours the cervical canal generally allows of 1 or 2 fingers being admitted. As soon as this occurs the bougies are withdrawn and an india-rubber bag in the form of Braun's Colpeurynter, capacity 250/300 ccm., having been scrubbed with soap and water and then with corrosive lotion, is introduced folded into the uterus above the os internum, the

anterior lip of the cervix being drawn down; and then 5, 8 or 10 syringefuls of 50 ccm. sterile water are injected by the tube leading to the bag. Patient is made to lie on her side, or on her back with the pelvis raised, and a weight of 1 Kgm. is brought to bear on the tube.

Here, then, is a procedure in 2 stages: more than this, a combination of two distinct methods. The question that first strikes us is:— "What are the advantages or otherwise of a combination of two or more methods or stages in the Induction of Labour?"

Here, again, are examples of the two main principles which, as alternatives to each other, are most in use at the present day. The next question then seems to be:— "What are the relative advantages or special uses of the two principles, namely Separation of the membranes and Dilatation of the Cervix?"

Here, finally, are two modes of interference which must needs entail a rough mechanical disturbance of the infinitely delicate balance in living tissues. A third question then arises:— "What methods exist, other than those here represented, to bring us out of some of the dangers of empiricism nearer to those physiological processes which initiate normal labour?"

Rupture of the membranes, application of vaginal douches, and the administration of certain drugs,— these partly comply with such conditions. For spontaneous escape of amniotic fluid may be the first event to herald an otherwise normal labour. Further, the mechanical stretching of the vaginal fornices by Kiwisch's hot douche is supposed to react on the cervix uteri comparably with the unknown factors which cause its shortening and tendency to open before ordinary labour sets in. And the actions of drugs, so far as they can elicit uterine contractions resembling labour pains, have their analogy in the immediate impulses of the nerve-centres that control the uterus.

Unfortunately, none of these methods is universally active; and in a field of therapeutics where by hypothesis it is no indifferent matter as to whether prompt interference is carried out or not, the disadvantage is heavy. Professor Schauta indeed, among many others, used the "Rupture of the membranes" up to recent years with great success*, finding the duration of labour vary from 7 to 22 hours but occasionally the commencement of pains not occurring till the 2nd or 3rd day. On my recent visit to Vienna however, he was using the intra-uterine bag and Bossi's instrument. The

*74.

method is undoubtedly very useful in certain cases, the general indication being a wish to reduce the size of the uterus quickly: as in Hydramnios, or in any disease where the abdominal tension is aggravating the patient's general condition; the waters being released as slowly as possible and the abdomen bandaged, especially in heart disease*. *75
Records from Prof. Chrobak's Klinik*, where in nine years 35,062 labours included 93 prematurely induced, *76 of which 57 were for narrow pelvis, show this method to have been used 15 times, labour ending in from 4 to 51 hours. It is contra-indicated for contracted pelvis.

The Kiwisch method has its diligent supporters among German writers of recent date (Sarwey*, *77 Schulz*, Hessler*, Fehr*) though many use it only as *78 *79 *80 preparatory. Objections made to it are the slow working, the discomfort to the patient, the necessity for the physician to carry out the irrigation himself, and the possible injury to the vaginal walls to the encouragement of sepsis (Heymann*, Skutsch*). *81 *82

The worth of drugs, except as supplementary means, suffers from a further element of uncertainty; because the reaction of the uterus, variable as it is in different women even to direct mechanical irritants, is still more so to the internal use of

the medicines hitherto tried. Of these, Pilocarpin (formerly a favourite in the Vienna Klinik) and Ergotin are used by some, especially in the way of preparation, but their use in innocuous doses cannot be depended on to produce labour.

Next as to the combination of methods and its advisability, one must admit that each added act of interference, manual or instrumental, forms one more danger of introducing septic germs into the maternal passages. The use of a second method pre-supposes a slow first method, and with such lapse of time the mucous membranes become extraordinarily susceptible to infection. On the other hand labour is brought more quickly to a close,— and time is often the main consideration; for the duration of the 2nd process, if as customary it is a mechanical dilatation of the cervix, depends merely upon the judgment of the operator. Thus the method now in use at Florence* is to achieve the first stage with Hegar's dilators, followed by a 36 to 48 hours' plugging with iodoform gauze: and them to finish with Tarnier's metal dilator; (not an ideal instrument, the author says).

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We may, lastly, compare the two sets of methods which involve respectively a separation of the membranes and a mechanical dilatation of the cervix.

The former principle in some respects approximates to the physiological order, as the natural inception of labour is preceded by some such separation in the lower uterine segment. Professor Hamilton's method, (where this is performed by the finger), has practically gone out of use: yet it is said to be very satisfactory (Fehling*, Dr Moir*). *84 *85

The other representatives of this class of method involve the additional factor of a foreign body introduced between uterine wall and membranes, and left in situ. The greatest safety compatible with the greatest success is, I think, attained by them. The injection of a fluid, first recommended by Cohen, has been, as a practice, much neglected. It is probably one of the best and safest plans, provided that air can be excluded with certainty and the amount of fluid (sterile water at body temperature) be limited to 80 grm. (Kleinwächter*). *86 Glycerine injections though very active for many reasons are usually avoided now, since reports of toxic effects have been published.

The usual method is the simple introduction of a bougie. Thus the technique employed at Mannheim by Mermann in 107 cases* has been to use *87 red American bougies 8 to 10 mm. thick, boiled 10 min., one of which is passed in its whole length

beyond the os internum, but with an attached silk thread. It is not removed even when the labour pains are active. In ten cases a second bougie was necessary. The average duration of labour in 52 hospital cases was 36 hours: in 42 outside cases, with fewer cases of pelvic contraction, 27 hours.

This so-called Krause's method, (introduced independently in Edinburgh by Sir James Simpson*), is the most generally applicable of all. As a rule it saves the bag of membranes, which especially in cases of narrow pelvis is important in view of possible indications for Version. The objection to it, broadly stated, is that it does not empower the operator to limit the duration of labour.

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This then is where methods involving a more or less mechanical dilatation of the cervix have their raison d'être. Not that they compete with the simpler plan in the cases where a day or two's delay cannot matter. Or rather they so compete in the hands of that operator only who can make of asepsis an exact science. They have at least valid excuse in those serious instances in which speedy emptying of the uterus is required. Within the last few years in an extraordinary number of cases the use of metal dilators and intra-uterine bags has been adopted without respect to this indication. There

is a tendency to emphasise the advantages of a rapid delivery, and to overlook the degree of the shock that a mechanical dilatation of the cervix uteri must cause in the mother. According to Professor Schauta, whom I watched as he employed Bossi's dilator in a case of Eclampsia, this is avoided where necessary by deep anaesthesia. At all events, in the woman referred to, the fits did not cease after delivery: that the fault was the chloroformist's is a hard thing to say!

The intra-uterine bag cannot be introduced through the cervix unless the latter is wide enough to admit a finger or two. Hence tents or other means are often required first. Champetier de Ribes' bag is the most scientific of all, and does not need removing for successively larger bags. Serious objections to their use were discovered by Ahlfeld*. In his cases 44.8% only of the children were born alive, as against 60.4% under Krause's method. The acknowledged spoiling of the presentation he does not lay stress on: but he declares in breech cases there is a closing around the foetal neck of the tissues which had been only passively dilated by the bag. Löhlein* replied to this article that he had met with no such "stricture": he obtained still 60.5% living infants, and had

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reduced the average period of labour from 60 hours to 15.

We may lastly notice Bossi's favourable statistics in the use of his dilator. He reported at the Rome Congress its successful use (by him or his pupils) for medical reasons over 150 times. Leopold* has quite lately adopted it at Dresden for all cases requiring speedy delivery, and so far, in 12 cases including 7 of Eclampsia, always with success. It remains at present mainly an instrument for hospital use, as tears in the cervix uteri are not unknown, even where the dilator has been expanded with all gentleness.

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I cannot pretend to estimate the value of British contributions to my subject; having for one thing had access to few English works during the past ten months. But little doubt exists that the German and French schools have provided an endless material both in theory and practice for the consideration of the questions involved; and although specialisation may sometimes prevent their workers from comprehending the issues as a whole, such limitations do not diminish one's admiration and are even

justified by the still unsettled condition of the individual factors concerned.

Even if, in view of the facts I have tried to illustrate, we cannot say with Professor Pinard: "L'Embryotomie de l'enfant vivant a vêcu"; we may still regard the new century as capable of interpreting its ever-increasing mass of data, and of rendering therefrom wise rules for the Induction of Premature Labour; such as may best subserve the physician's ideal,— the genius to recognise an emergency at the right moment and in the right manner.

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