Cranial presentations and cranial positions : suggestions, practical and critical / by R.U. West.

CRANIAL PRESENTATIONS

AND

CRANIAL POSITIONS:

SUGGESTIONS, PRACTICAL AND CRITICAL,

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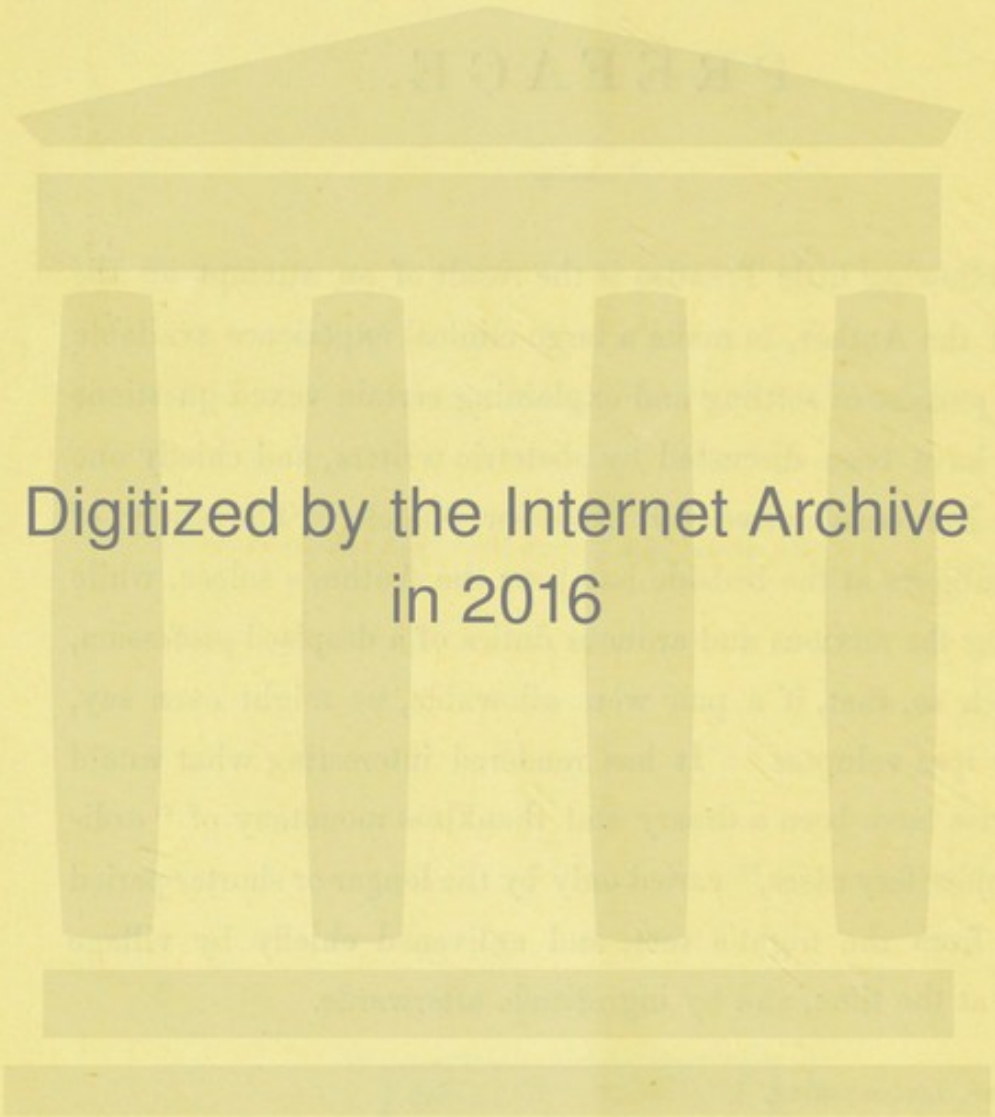
"In what different ways may the child's head present during labour?"—*Question in St. Andrew's Examination Paper for the degree of M.D. October*, 1855.

PREFACE.

THE following little Treatise is the result of an attempt on the part of the Author, to make a large clinical experience available for the purpose of settling and explaining certain vexed questions which have been discussed by obstetric writers, and chiefly one which has been raised by Professor Nägele. The study of these subjects at the bedside has been the Author's solace, while fulfilling the anxious and arduous duties of a despised profession, so much so, that, if a pun were allowable, he might even say, "*labor* ipse voluptas." It has rendered interesting what would otherwise have been a dreary and thankless monotony of "ordinary midwifery cases," varied only by the longer or shorter period stolen from the night's rest, and enlivened chiefly by village gossip at the time, and by ingratitude afterwards.

ALFORD, LINCOLNSHIRE,
Sept. 1, 1856.



PART I.

CLASSIFIED AND NORMAL POSITIONS.

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It may seem strange that there should be such discordant and opposite opinions among accoucheurs on the subject of the positions of the head of the fœtus in its passage through the pelvis, but such is unfortunately the fact. Some of the most eminent writers on midwifery, such as Fielding Ould, Burns, and Denman, do not attempt to indulge in the refinements with which so many others puzzle the student; they give no classification of cranial positions, but content themselves with saying, in general terms, that in vertex presentations the head descends with the face turned to one side and the occiput to the other, until the head has got down into the pelvis, when the occiput, as a general rule, turns forward under the arch of the pubes. But the majority of those who have written on this subject, having observed some varieties in the amount of obliquity with which the occiput is placed towards this side or that, have attempted to enumerate those varieties, and after classifying them, to determine the relative frequency with which they occur. That these attempts have been peculiarly unsuccessful and unsatisfactory, must be abundantly manifest from the tabular statement subjoined. Assuming that there are eight possible or impossible positions in which the vertex (for all appear to take the vertex as the presenting part in making their divisions) may present at the brim and descend into the pelvis, we find the following arrangements made by different writers: some of them adopting all the eight positions, but arranging them differently; some adopting six, arranging them differently and not agreeing as to which six they will take; some adopting four, and some two only, but still differing from one another in the same particulars. I place Ritgen's classification of eight positions first; because, although it is quite an arbitrary one, like all the arrangements in which the positions are not placed in the order of their supposed relative frequency, it is, nevertheless, founded on the intelligible principle of commencing at one point of the brim of the pelvis, and travelling thence quite round.

Ritgen, indeed, mentions a single case, which he thinks justifies a position between his fifth and sixth: amusing enough when the opinions of Nägele are considered, who decidedly rejects both these positions, and of course, by implication, all imaginary ones between them! But let us here leave this ninth position out of the question altogether.

With regard to the relative frequency of these several positions, the opinions of authors differ considerably. It is needless to particularize the whole of these opinions, as it will suffice for my object to say that between Baudelocque, Lachapelle, and Boivin, on the one hand, who allege that the frequency of their second position, as compared with that of their first, is as one to about four, and Nägele, on the other hand, who maintains that this second position never occurs at all,—we find numerous writers giving every variety of opinion with respect to the relative frequency, not only of these two positions, but also of other positions, which others besides Nägele say never occur in nature. This will be apparent on a comparison of the numbers and blanks given in the following table:—

See diagram of brim of pelvis (fig. 1, Plate I.), showing Ritgen's eight positions: the figures denoting the positions of the occiput.		Occiput to *left* sacro-iliac synchondrosis.	Occiput to middle of left linea innominata.	Occiput to *left* oval foramen.	Occiput to symphysis pubis.	Occiput to *right* oval foramen.	Occiput to middle of right linea innominata.	Occiput to *right* sacro-iliac synchondrosis.	Occiput to middle of sacrum.
Eight positions.	Ritgen,	1	2	3	4	5	6	7	8
	Flammant,	5	7	1	3	2	8	4	6
	Ramsbotham,	5	1	3	7	4	2	6	8
Six positions.	Solayrès de Renhac,	6	..	3	1	5	..	4	2
	Baudelocque, Velpeau, Boivin, Gardien, Dubois,	5	..	1	3	2	..	4	6
	Lachapelle,	4	5	1	..	2	6	3	..
Four positions.	Dugès, Saxtorph, Maygrier, Capuron, Bodin, Lambin, Busch, Moser, and others,	4	..	1	..	2	..	3	..
	Carus and Jörg,	3	..	1	..	2	..	4	..
Two positions.	Kilian,	..	..	1	..	2	..	..	..
	Nägele, Simpson,	..	..	1	..	..	..	2	..

Now, I am unwilling to believe that all these great discrepancies can have arisen from any of those eminent observers having altogether mistaken one fontanelle, or one suture, for another, as suggested by Nägele, or from secondary having been confounded with primary positions, as also suggested by Nägele, as well as by Busch and Moser, by Van Höfft and others; neither do I think that preconceived opinions have been allowed to influence observers so much as some suppose. I would much rather believe, and indeed my own observations have suggested to me, that there is something inherent in the nature of the subject itself which has

deceived some, and thus led to these opposite opinions; that possibly all these writers have correctly observed what they describe; but that conclusions, more or less erroneous (for their *conclusions* cannot *all* be true), have been arrived at in certain instances, through their having omitted to take all the elements of the subject into their consideration.

My object, therefore, in this paper will be to endeavour, if possible, to reconcile these discordant opinions one with another, and to point out how and why the observation of what must have been the same sets of phenomena by different writers, should have been so differently described and explained.

Nearly all writers describe in a similar way that position which they all almost equally admit to be the most frequent, namely, that one in which the posterior fontanelle is turned to the left and forwards—the position usually, therefore, denominated the *first*. It is chiefly with reference to the next most frequent position that opinions have become so discordant; and as Nägele, in describing this position, explains, at the same time, in what respects he is at issue regarding it with all preceding writers, I think I cannot here do better than reproduce, as nearly as I can by means of a translation of my own, his own words on the subject, and that because the principal object of this paper is to discuss the opinions of Nägele on this point, as compared with those of the writers with whom, in this part of his work, he is at issue.

Nägele admits only two positions of the cranium, which he briefly describes as follows:—

"In cranial presentations, the fœtus is generally placed in two different ways in the entrance of the pelvis, namely—

"1st. With the right parietal bone, as the part standing deepest, foremost; the smaller fontanelle directed towards the *left* side, and more or less *forwards;* and

"2d. With the left parietal bone foremost, the smaller fontanelle being directed towards the *right* side, and more or less *backwards.*"*

He then says:—

"With reference to the frequency of the occurrence of these two common kinds of cranial presentations, it must be observed that the first is met with most frequently. Of 4,042 children which were born in the lying-in institution at Heidelberg, between the years 1819 and 1837, 3,834 presented with the head, and of these 3,795 with the cranium and 39 with the face foremost. After deducting 94 cases, in which the original position could not be made out with certainty, in consequence of various different circumstances, we have 3,701 carefully observed cases of cranial presentation. Of these, 2,457 were examples of the *first* position, and 1,244 of the *second*. We therefore feel justified in naming the first-mentioned kind of cranial position the *first*, and the other the *second* position of the cranium."†

* Die Lehre vom Mechanismus der Geburt, Sect. IV., page 10.

† Op. cit. Sect. V., page 10.

Nägele then describes at considerable length his first position, pretty much in the same way as this position is described by all other writers, differing certainly in some particulars, which I must be excused for looking upon as unimportant. He then comes to his description of his *second* position, as follows:*—

"The head, in this position likewise, offers itself originally, as in the first position, as well sloping as somewhat obliquely, but with this difference, that the fontanelles take the opposite directions; that is to say, at the commencement of the second stage, in multiparæ somewhat earlier perhaps, we feel the large fontanelle turned towards the left acetabulum, and the small fontanelle to the right sacro-iliac synchondrosis—they are felt at about equal heights; sometimes one, sometimes the other, is most easily felt. As in the first position of the cranium, the *right* parietal bone stands deepest, so in this it is the *left*. The point of the finger, passed in the direction of the middle line of the pelvic cavity, strikes on the tuberosity of this parietal bone.

"As the labour proceeds, while the head is pressing into the brim of the pelvis, and is gradually sinking down into the cavity of the pelvis (during which process the left parietal bone is always the lowest), either both fontanelles remain at equal heights, or at times the great fontanelle, but more frequently the lesser fontanelle, sinks down the lowest. Most frequently the lesser fontanelle, during this stage, is more easily felt than the greater. Nevertheless, the reverse frequently happens without the slightest prejudicial effect on the progress of the labour. The great fontanelle remains, *as the small one does in the first position*, constantly turned towards the left oval foramen, throughout the whole of this process. When the head has come right down into the cavity of the pelvis, both fontanelles are commonly again at equal heights.

"Now, when the head has arrived into the cavity of the pelvis, and begins to feel the resistance which the floor of the cavity, or the inclined plane formed by the under half of the sacrum, the coccyx and the sacro-ischiatic ligaments, opposes to it, then there follows, at times even somewhat earlier, the following regular *alteration of its position:*—the straight diameter of the head turns itself gradually, out of the right oblique diameter of the pelvic cavity, into the transverse diameter of the same; that is, the lesser fontanelle turns to the right and forwards towards the *right* oval hole.

"This turn of the head, in which it describes the fourth part of a circle, takes place, as just observed, for the most part gradually, in screw-like movements forwards and backwards. In order to obtain a clear idea of this turning, examinations must be made at different times, in the absence of pains, during the pains, and again in different stages of the pains. For example, if one makes an examination in the absence of a pain, and finds the posterior fontanelle still directed to the right and backwards, one may often find the same part, during the next pain, and especially when it has reached its acme, turned quite towards the right side, namely, towards the ascending ramus of the right ischium, and then, as the pain goes off, it returns to its old place again. If these examinations be repeated during and in the absence of pains, or if the finger remains in contact with the head, it will be found that, as the labour proceeds, the lesser fontanelle, which *in the absence* of a pain had been directed completely to the right side, is, *during* a pain, turned forwards and towards the right oval foramen, with the relaxation of a pain again turning somewhat backwards; or, that the head turns with its direct diameter out of the transverse diameter of the pelvis into the left oblique diameter, and gradually again turns back into the transverse, until at last, towards the end of the third stage of the labour, it remains in the oblique position, namely, with the posterior fontanelle turned towards the right obturator foramen. We think that precisely here we must not omit the remark, that this turning screw-like pressing forward of the head goes on much

* Op. cit. Sect. IX., pages 25—41.

quicker with an *increasing* pain, than the yielding backwards, which follows it, does with a *decreasing* pain; and that the head, after the pain has entirely ceased, still continues slowly to return to its former position and direction. In the interval between two pains, one commonly finds the head at the greatest distance from the situation it had held during the acme of the preceding pain, immediately before the commencement of the following pain. These facts make something like a continuous examination manifestly necessary.

"The just described, as it were trial-wise, repeated turnings, or forward and backward movements of the head, one may perceive in a reasonably slow progress of the birth, for a longer time throughout, and that as well with multiparæ as with primiparæ, but for obvious reasons more especially with the latter.

"As the head approaches nearer and nearer to the outlet, it is the posterior and upper fourth of the left parietal bone which, in the cavity of the pelvis, stands opposite the arch of the pubes, so that the point of the finger brought almost perpendicularly towards and under the symphysis pubis, strikes almost on the middle of the hinder and upper fourth of the left parietal bone, and exactly this part it is which, as the head advances between the labia, first becomes visible, with which the head cuts in (*einschneidet*), and on which the *kopfgeschwulst* (head-swelling) forms itself. As in cases of the first position, the lesser fontanelle, when the head is at the outlet, remains commonly directed towards the left, so here, for the most part, it remains turned to the right; the head retains here, as there, during its further pressing forward between the labia, its oblique position; and when it has fairly escaped from the outlet, we find ths face turned towards the inner and under side of the left thigh of the mother.

"In the second position also, we have at times, under the especial circumstances given above,* the *first head-swelling* (*kopfgeschwulst*). As, further, the head-swelling which arises in the first position before and during the opening of the labia (*ensehneiden*) is, for the most part, limited to the upper and hinder fourth of the right parietal bone, so here it is limited to the same part of the left; and as also, immediately after the birth, in the former position, the right half of the skull is the most raised or swollen, the right parietal bone being more prominent than the left, so here the converse holds. This difference in the configuration of the head is unmistakable at the first glance, and these two appearances—the form of the head, and the situation of the head-swelling—are so remarkable, so distinct, that one may, after the birth, although one may not have investigated the matter during the progress of the labour, be mostly in a condition to decide whether the head has been in the first or the second position; always supposing that the progress of the labour has been normal, that is, slow enough.

"The shoulders, in the second position of the cranium, also offer themselves at the outlet in an oblique position; only that the left shoulder, which is directed forwards and to the left, first presents itself, and the right shoulder, being in the opposite direction, as well as the rest of the body, follows quickly after.

"The similarity of the progress of labour in the second position of the head to that in the first, as far as regards the first, second, and fourth stages, with the exception of the reserved position of the head, has permitted us to give more briefly the description of it, as we can refer to the more extended description of the first position, given above.

"Labours in the second position of the head are completed throughout without greater difficulty than in the first, and it has not the slightest influence on either mother or child, whether the head present in the most common, or first position, or in thesomewhat less frequent, or second pesition; and in order that such labours may be completed by the unassisted powers of nature in the same time, there are required neither stronger pains, nor a greater expenditure of strength, nor any more favourable circumstances with reference to the size of the child's head, the capacity of the pelvis, &c. &c.

* Viz., in the description of the first position—Sect. VII., p. 17—the *circumstances* referred to are obvious.

"SUPPLEMENT.—We cannot refrain from adding here, for the sake of perspicuity, a few words with reference to the preceding, which would, perhaps, be better suited to the second division of this work, when its contents are considered—we mean with reference to the frequency of this *second* position of the cranium, so styled by us, but by others commonly called the *third*—to the manner in which the progress of the labour in this position is usually described—to an examination of the reasons why this position has been so universally mistaken—to the difficulties of its recognition, &c. &c.

"After that position of the head described by us as the mosf frequent, and by us, as well as by most other writers, described as the *first* position, it has been universally considered, until the present day, that that position is most frequent in which the long diameter of the head corresponds with the left oblique diameter of the brim of the pelvis, the lesser fontanelle being turned to the right acetabulum, this position having been commonly called the *second*. Less frequent than these two are said to be the positions named *third* and *fourth* by most modern German writers; those, namely, in which the head is placed in similar directions to the two first, but reversed as far as the fontanelle are concerned—in one, the *third* position, the large fontanelle being turned to the left; in the other, the *fourth*, to the right acetabulum. By several authors, these two positions are iooked upon as abnormal altogether.

"With reference to the prevailing opinion on the greater or lesser frequency of the different kinds of head positiou, I shall limit myself to very few questions. Froriep, in his much read hand-book, gives no definite proportions. He merely says, that the *third* position is less frequent than the *second*. Others have given us some definite proportions. For example, Baudelocque at one time said, that the *first* was to the so-called *second* position as 7 or 8 to 1 in frequency, and to the third and fourth, as 80 or 100 to 1. He subsequently found these proportions incorrect, and decided, after observations on a great number of births, that the frequency of the *second* was to that of the first as 1 to $4\frac{3}{4}$, and of the *third* to the *first*, as 1 to 346. According to observations collected by Lobstein in a midwifery institution at Strasburg, the number of *second* positions was to that of the *first*, as 1 to $2\frac{2}{13}$; and of the *third* to the *first*, as 1 to $17\frac{1}{3}$. At Würzburg, in the midwifery hospital, the numbers were in 1812–1813, 213 cases of first *position*, and 56 of *second* position, out of 269 ascertained head-positions, 4 being deducted as not made out—a proportion of above 1 to 4. In the same institution, in 1821–1822, 271 children were in the *first* position, 4 in the *second*, and 3 in the *third*. In 1829, 115 in the *first*, 19 in the *second*, 1 in the fourth, and so on. Carus says, that among 100 so-called *occipital* presentations, he met with the first position 79 times, with the second 21 times, while of the *third* and *fourth* positions, he says they must be very rare, as, out of 150 or 200 births, scarcely one or two of them came before him. Lachapelle says that, after the *first*, the *second* position is the most frequent; and that among 14,667 cases of head-presentation, there were 11,634 examples of the *first* position, 2,853 of the *second*, 112 of the *third*, and 78 of the *fourth*.

"All this by no means agrees with observations made for a long series of years on this very subject. After numerous observations made with the greatest care, we have found that, after the *first* position, among all kinds of head-position, the so-called *third* position is by far the most frequent; and, on the other hand, that the so-called *second* position, which has been considered by so many writers to be so frequent, is the rarest of all. We have already given the result of those observations, according to which the general proportion of the so-called *third* position is to the *first* as 1 to 2. This position cannot, therefore, in point of frequency, be at all compared with other positions of the head, which other positions would stand thus:—*Face presentations*, least seldom; *fourth position*, more seldom; *second* position, most seldom.

"But as at the present day it is still the custom with many writers, with respect to the frequency of the different head-positions, to give these incorrect proportions (by many, indeed, from conviction, but on grounds which are far worse than an error excusable in itself), so also it is almost universally alleged,

that, in the so-called *third* and *fourth* positions, as the head presses further into the cavity of the pelvis, the rule is, that the back of the head turns into the hollow of the sacrum, and that the head comes to the outlet with the face turned forwards or upwards; that the progress of these labours is, as a rule, more difficult; that, in order that they may be completed without danger and prejudice by the powers of nature, more favourable (according to some, uncommon) circumstances, as regards the proportion between the head and the capacity of the pelvis, are required, than in the first position;* that nevertheless, at times, in some cases, the hind-head, instead of turning backwards, turns forwards, and the head is then expelled in the natural way. (Alas! as Baudelocque remarks, too seldom for the advantage of the mother and the child.) Some, who look upon these positions as faulty, and requiring throughout the assistance of art, paint, with a great expenditure of oratory, the difficulties which attend them, and the thence necessarily following prejudicial consequences for both mother and child.

"And all this agrees with our experience quite as little as does the opinion respecting the relative frequency of the different head-positions. According to what has been before alleged on the progress of labour in our *second* position—all the result of long-continued and true observations of nature—*the course which is commonly held to be the rule is the exception; and* EXACTLY THAT WHICH IS LOOKED UPON AS A DEVIATION FROM NATURE'S RULE, THAT IS THE RULE.

"What can be the reason that the frequent occurrence of the so-called *third* position, and of its regular passing over into the so-called *second*, should have been so long overlooked? We think we must look for the cause in a concurrence of several different circumstances.

"In the first place, there are no slight difficulties lying in the way of a recognition of the different head-positions in general, and especially of the sufficiently early diagnosis of the so-called third position. The greatest masters of the art, such as Lamotte, Puzos, Roederer, Berger, Saxtorph, Solayrès, and others, have not hesitated to acknowledge this; and the history of the science declares loudly and frequently, that accoucheurs of even the highest class have not conquered those difficulties. But we reckon among these difficulties, in addition to the circumstances given above, certain especial ones belonging to the so-called *third* position; particularly the easy mistake of the frontal suture, where it joins the left branch of the coronal, for the lambdoidal. This, as well as the fact that the left frontal bone is often thrust under or pressed inwards, and is thus made to feel like the occipital bone, has led even skilful practitioners to mistake the so-called *third* position for the first. The sagittal suture by itself—so long, namely, as only a portion of its tract between its two extremities can be reached by the finger—most certainly cannot decide anything, as in both positions it lies in the right oblique diameter of the pelvis. It is also insufficient for a diagnosis, to arrive with the tip of the finger at one of the upper corners of the presenting parietal bone. Both these corners may by the touch be easily mistaken the one for the other, and still more easily by those who have already observed many births, but are not acquainted with the frequency of the so-called third position, and the normal progress of the head in that position, than even by beginners. To make sure of the diagnosis, it is indispensably necessary to bring the tip of the finger over one or both fontanelles, in doing which, if one examines with the forefinger of the right hand, in proportion to the height of the head, the object, as far as regards the fontanelle, which lies forwards and to the left, can sometimes be attained only by means of the ulnar side of the last phalanx of that finger.

"Another circumstance which may make the diagnosis difficult in this position, is the delay in the rupture of the membranes. Thus, for example, one may easily be deceived, when, with a roomy pelvis, lively pains, and a tolerably quick progress of the labour, the membranes are long of bursting, and the water

* Nägele here refers to Solayrès and Baudelocque, from whom, he says, Froriep, Jörg, and Weidmann have copied. Busch and Moser, writing since Nägele, think the same.—R. U. W.

does not escape until the head has got rather low down. In this case, it may well happen that the head, which had been in the so-called *tthird* position while the membranes were still entire, is now, immediately after the escape of the waters, found in the transverse, or even in the left oblique diameter. Further, we must especially here reckon a too late examination; namely, at a time when the original position has already changed by the turn into another—examinations conducted too hastily, or at too long intervals between them. Further, the circumstance that in the so-called *third* position, one can with the tip of the finger make out only a too limited portion of the sagittal suture, in consequence of which the lobliquity of its direction is not sufficiently obvious, and the position may easily be mistaken for a transverse one—this, especially, where the occiput is unusually low down, may, by persons of little experience, as we have ourselves seen, even be mistaken for the so-called *second* position. But if one follows with the finger a greater portion of the suture, from the small fontanelle as far as the large one, then it may be perceived most distinctly that the direction of the suture is not merely from the right to the left, but also forwards.

" Ignorance of the manner in which, in the so-called *third* position, the head is moved through the pelvis, may also lead to error. We are convinced that, in many cases, where, in the second, and towards the beginning of the third stage, this position has been correctly made out—but, in the result, the occiput has not, as the school-rule requires, passed along the perineum, but has come forward under the pubes—the accoucheur has looked upon his first-formed opinion as incorrect. Naturally this would be the case, more particularly with those who had not, in the earlier stages, arrived at perfect certainty with regard to the phenomena observed, or who had not examined with sufficient care—not long enough at a time, or at too long intervals, so that they could not trust thoroughly to their own observations; or with accoucheurs, who may have left the exploration at the commencement of the labour to a nurse or midwife; or with such as look upon an early examination as a violation of the laws of humanity—an objection once actually made to me in conversation by one of our most celebrated teachers of midwifery. But that which most especially leads to perseverance in this error is, the description of the so-called *third* position given in most books, and taught in the lectures of celebrated teachers. Hence it arises that accoucheurs are much more inclined to distrust their own impressions, than to set aside what has been taught them with so much authority. In this manner errors are propagated from generation to generation, and the junior always thinks he has observed what the senior has said he has found.

" But lastly, there are still other circumstances which place difficulties in the way of a better understanding of this matter. Such as, insufficient skilfulness in examinations—obstinate perseverance in certain inveterate beloved theories—a rooted habit of looking on things so and so, and not otherwise; further, the circumstance that one may have, for a number of years, put forth a particular opinion, or may have published it in books, and may now be ashamed to confess that he has become wiser—when he has to confess that he owes his enlightenment to another, and not to himself—a fondness for contradiction, &c. &c. The influence of a long-cherished opinion is scarcely more surprising in anything than in midwifery, even with the best intentions. A man examines, and finds—precisely what he was beforehand sure he should find. There are circumstances which are still far more a hindrance to a correct appreciation of what is going on in nature, or to the rectification of an imperfect conception. It is the most difficult thing in the world to procure the admission of a truth which, as in the present case, can be arrived at only by means of unprejudiced and careful observations, from persons who have the conceit that they are already quite in the right—who, continually bearing in mind a particular idea of a normal progress of labour, are everywhere putting nature to school, and correcting her where she deviates at all from the road laid out for her—who, armed at all points, make their attack wherever they see nature stepping beyond the limits which they, in their vain conceit, consider *normal*. These people, in thus deceiving themselves, naturally bring themselves to the impossibility of understanding nature at all.

"When men acknowledged to be of the greatest experience—we will here merely mention Baudelocque—maintain that their so-called *second* position occurs so frequently, and their third, on the contrary, so seldom, we by no means wish to deny that they have really felt the head in that second position; but it is our firm persuasion that these so frequent cases of so-called *second* position had been originally what they would call cases of *third* position, which, in the progress of labour, had become converted into their *second* position, the original position having been overlooked, or the direction of the head made out too late. But let not any one be angry at this expression of our conviction, but rather reflect how difficult the diagnosis of head-positions has been acknowledged to be by the greatest masters. When a Lamotte says—'Quelqu'expérience qu'un chirurgien ait dans la pratique des accouchemens, il ne trouvera point d'occasion plus dangereuse, ni où il ne puisse plus facilement se tromper, que dans les diverses situations où l'enfant présente la tête;'—when that most acute and learned observer, Rödener, says, with reference to face-to-pubes cases:—'Nequit penitiùs cognosci antequam caput est natum;'—when Solayrès says—'Profiteri non dubitabimus casus adesse, in quibus de capitis positione certùm pronuntiare difficillimum sit obstetricanti, etiam in pertractatione exercitatissimâ;'—where a Smellie freely confesses he has been mistaken;—who in the world is there who has the right to maintain that he cannot err, or that it is a crime to say that others also may have been mistaken?*

"If, then, we consider the frequency of the so-called *third* position, and that labours in that position of the head, *cæteris paribus*, go on throughout without greater difficulty, and are terminated by the unassisted efforts of nature quite as fortunately, as those in which the head offers itself in the first position—it must be more conformable to nature, in an arrangement of cranial positions, to place these next in order after the first position, instead of the so-called second position—as Baudelocque has done, as well as the compilers of German compendiums, &c., following his example—this second position being, in point of fact, the most rare of all as an original position."

Thus far Nägele on the subject of the second most frequent position of the cranium in a natural labour. I have thought it right to give a translation of his words on this subject at length, rather than to attempt an abridgment, as I am anxious that his opinions should be fully understood by the readers of what will here follow as a commentary upon them. That these opinions so expressed have had their influence upon subsequent writers, though without completely convincing them, will be manifest from the following extracts.

In Busch and Moser's *Handbuch der Geburtskunde*, Bd. III., p. 323, art. *Kopfgeburt*, we have the following summary of an arrangement of cranial positions:—

"I. First kind of head-birth, which is by far the most frequent, and must be regarded as the most natural. Here, at the brim of the pelvis, the right parietal bone presents; the occiput and back of the child are directed towards the left, and somewhat forward; the sagittal suture lies somewhere near the first oblique diameter (the *right oblique—i. e.*, between the right sacro-iliac synchondrosis and the left acetabulum, called the right oblique diameter by Nägele and others) of the brim of the pelvis; the lesser fontanelle lies towards the left, and somewhat forward; the greater fontanelle towards the right, and somewhat backwards. Here the head does not lie with the sagittal suture quite in the oblique diameter, but rather approaching, more or less, to the transverse diameter.

* Is not Nägele himself guilty of the very presumption he here so unreservedly condemns in others?—R. U. W.

"II. The *second* kind of customary head-birth—the *second position of the head*—which occurs much less frequently than the first, and which, indeed, seldom appears as a *primary* position, because, as a rule, it merely follows, or proceeds from, the *third*. Here the left parietal bone presents; the sagittal suture runs along the second or left oblique diameter of the brim of the pelvis; the lesser fontanelle lies towards the right, and somewhat forward; the face and belly towards the left, and backwards.

"III. The *third* kind of head-birth—the *third position of the head*. After the first position, this is the most frequent, but, under favourable circumstances, does not terminate as such, but rather, in the course of the labour, goes over into the second. It can only be reckoned among *conditionally* regular births, for it cannot be terminated by the ordinary powers of nature, except under otherwise favourable circumstances. The left parietal bone presents here foremost; the sagittal suture runs nearly in the direction of the first or right oblique diameter of the pelvis; the great fontanelle lies towards the left, and somewhat forward; the lesser fontanelle towards the right, and somewhat backward; the face and belly of the child are towards the left, and forwards; the occiput and back of the child towards the right, and backwards."

It is unnecessary here, for the object of this paper, that I should give at length Busch and Moser's description of their *fourth* position. It is described as the least frequent of all, and as being precisely the converse of their third position, terminating usually in the *first* position, in like manner as their *third* does in their *second*.

But let me remark that, while Busch and Moser so far give in to the opinions of Nägele, as to make the "so-called *third* position" the second most frequent cranial position, almost always terminating as a converse of the first—in short, making both their third and fourth positions terminate normally, like cases of their second and first positions respectively—they do not admit, with him, that these presentations do not require exceptionally favourable circumstances to render possible this conversion. They are *influenced* by Nägele's theory, but they are only partially *convinced*.

And we find Dr. Ramsbotham still more hesitating on this point, in the foot-note which he devotes to the subject, in the last edition of his very elegant work on Obstetric Medicine,* and which gives a very clear *résumé* of the question at issue:—

"I have thought it better not materially to alter the text, as written by me in the year 1839, although, of late, a change has come over the minds of many members of the profession—in which, to a certain extent, I participate—regarding the comparative frequency of the different kinds of vertex presentation; and this chiefly in consequence of the publication by Nägele of his views on the subject. An essay on the mechanism of parturition—composed by that distinguished Professor for one of the German periodicals, afterwards republished in a separate form in 1822, and translated into English by Dr. Rigby in 1829—attracted very considerable attention, as well here as on the Continent, and has served, in a great measure, to shake the previously-conceived notions on this interesting question.

"It used to be the prevailing, indeed almost universal idea, and, consequently,

* The Principles and Practice of Obstetric Medicine and Surgery. By F. H. Ramsbotham, M.D. 4th edition. Foot-note at pp. 194—197.

the received doctrine, not only that the first four positions I have noted *—namely, with the face to either ilium,† or to one or other of the sacro-iliac symphyses, was by far the most frequent presentation; but that its direction towards either of the acetabula was of very rare occurrence.‡ It was supposed that the face turned into the hollow of the sacrum only when it was originally directed, either laterally to the ilium, or diagonally to one of the posterior pelvic joints; and that, when it looked towards either of the acetabula, the natural inclination was for it to turn under the arch of the pubes before the expulsion of the head, and for the *occiput* to pass over the sacrum, coccyx, and perineum. The forward position of the face, therefore, was looked upon as an irregularity, and one requiring extraordinary exertions for its expulsion, because the brow, being so much broader than the occiput, does not accommodate itself so well as the occiput to the form of the pubic arch. As a consequence, it was argued that the whole head is thrown further back within the pelvic cavity, presses more strongly upon the posterior structures of the pelvic outlet, causes the coccyx to be thrust more outwards, and more forcibly distends the perineum. It was acknowledged, indeed, that, under some extraordinary circumstances, the face, though originally presenting forwards, passed into the hollow of the sacrum before the head made its exit. But this fortunate change was regarded by English as well as by Continental writers, to occur, as Baudelocque § expresses it, 'unfortunately too seldom for the mother's sake.'‖

"Nägele, in the publication referred to, has declared his conviction, that the profession has been labouring under a grievous error, in supposing that the face, being directed diagonally forwards at the beginning of the labour, is an unusual or irregular situation; and in affirming that the head is expelled, under such circumstances, with the occiput posteriorly. He says, indeed, not only that the presentation of the face behind the *left* acetabulum is by far the most frequent position, next to that in which it is directed to the *right* sacro-iliac synchondrosis, but he is *thoroughly convinced*, when the face looks diagonally forward at the commencement of labour, that, not the occiput, but the face, is generally turned into the hollow of the sacrum; and that 'this change in position requires no peculiarly favourable circumstances, but that these species of labours can be completed by the natural powers, under the most usual proportions, in the same time, with the same expense of strength, and without greater difficulty than when the head takes the most common position.' He states also, that out of 96 cases, in which the face presented towards the left acetabulum—which he observed with peculiar care, and described in his note-book—in three cases only did the head clear the passage with the face directed anteriorly; and in all these three cases there were some peculiarities in the structure of the head or of the pelvis, to which he seems to attribute the forward inclination of the face.

"That the presentation of the face to either acetabulum, but more particularly to the left, is a far more common occurrence than was generally believed before Nägele wrote upon the subject, I am perfectly assured; and that, in these original presentations, the face most commonly turns into the hollow of the sacrum before expulsion, I am equally persuaded. But that this turn can be performed in as short a time, with as little expenditure of power, and as little pain to the patient, as if the face was originally directed towards either of the sacro-iliac

* Dr. Ramsbotham gives eight positions. See my table at the end of the second paragraph of this paper.

† "See Denman's Introduction to Midwifery, chap. ix., sect. vii.; also Davis, Operative Midwifery, p. 236."

‡ "Dr. Jos. Clarke, Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. ii. Burns' Prin. Midwif., 5th edit., p. 384. Merriman's Synopsis, 5th edit., p. 44. Blundell's Obstetricy, by Castle, p. 272, where he even says, it may be justifiable to bring down the feet in such cases. Baudelocque, chap. ii., sect. v., paragraph 699—and a host of other authors."

§ "Op. cit., parag. 701."

‖ "See, besides the English authorities just quoted, Siebold, Lehrbuch der Entbindungskunst, vol. i., p. 368; Froriep's Manual, and other German authors."

symphyses, I cannot bring myself to believe. It stands to reason, indeed, that, as the face must travel round from the acetabulum to the sacrum—or, in other words, must make a *three-quarter turn of the half-pelvis* before it can escape—both more time must be expended, more power must be employed, and more pain must be endured, than if the face turned from the sacro-iliac symphysis to the sacrum, or had only to sweep over *one-quarter space of the half-pelvis*, instead of three-quarters. I think Nägele has overrated both the frequency of this particular presentation of the head, as well as the facility with which its turn with the face into the hollow of the sacrum is effected.

" Nägele's position is, that the head is almost invariably placed with its long diameter in the direction of the *right* oblique diameter of the pelvis; that is, from the *right sacro-iliac symphysis* to the *left acetabulum*. And the younger Nägele, from observations made on 3491 cases of vertex presentation, says, that in twelve only of these did the head lie in the *left* oblique diameter, or in the direction from the left *sacro-iliac symphysis* to the *right acetabulum*; so that the proportion of the latter position is only one in every 291 cases. In eight of these the occiput was looking *forwards*, and in four *backwards*. He further states, that in 2262 cases the face was directed backwards to the *right sacro-iliac symphysis*, and in 1217 forwards to the *left acetabulum;* so that, in rather more than one-third of these labours, the face was originally directed diagonally forwards. Simpson* says, that in '99 out of every 100 cases of cranial presentation, the long diameter of the head is found placed, at the commencement of parturition, in the right oblique diameter of the brim, which in the living subject is the longest.' He states also, that the tables of the Maternity Hospital at Edinburgh show, that the face presents to the left acetabulum *once* in every *four* labours; while, in private practice, he has found it occur once in between every 3 or 4 cases. This proportion accords with the observations I have myself, of late years, made. Simpson also calculates, that when the face is directed diagonally forwards at the beginning of the process, it will turn into the hollow of the sacrum, before expulsion, in 29 cases out of 30. The reason assigned by him for this enormous proportion of cases where the head is found, at the beginning of labour, with its long diameter in the *right* oblique diameter of the pelvis, seems to be, because, 'in the left oblique diameter, its length is curtailed by the presence of the rectum.' This is rather too mechanical an explanation to be followed stringently,† for the position of the head is, no doubt, determined before the os uteri opens; and, consequently, before the head can be influenced by any impression made upon it by the space which the rectum occupies, either at the brim or in the pelvic cavity. If, as Simpson avers, the *right* oblique diameter is the longest which the pelvis possesses, the alleged frequency of the long diameter of the head being placed in this position may be referred to those unerring laws, by which Nature so admirably adapts the means she employs to the ends she has in view.

" I have before, at page 109, stated that, in the earlier part of my professional career, I was impressed with the belief, for reasons there given, that the position of the head, with the face opposite to either ilium—the long diameter of the head tallying with the direct transverse diameter of the pelvic brim—was very common; but that more extended observation had convinced me, that, in these cases, the original position had been with the face towards one of the acetabula—that it had commenced its rotation backwards—had been arrested in its transit—and that the head had become fixed in that position, without being able to effect its turn. And this I judge from the manner in which the chest of the child escaped after the head was born. For it is evident that, if the anterior part of the thorax and abdomen be expelled, pressed against the rami of either ischium and pubes, after the face had traversed the hollow of the sacrum and

* " Obstetric Memoirs, vol. i., p. 456."

† Nägele, whom Simpson manifestly imitates, does not admit this explanation. On the contrary, he says distinctly:—" Wir sind überzeugt, dass man dem Rectum dann die Rolle wieder abnehmen wird, die man ihm beim mechanismus partûs zu übertragen für passend erachtet hat."—Page 47.

perineum, the original position of the face must have been diagonally forwards, the great part of the body of the child not having followed the turn which the head had made in emerging. By attending, therefore, to the mode in which the trunk passes, we may inform ourselves of the position held *in utero*, and of the original position of the fœtal face. In the cases that I allude to, I found the face by far most frequently directed to the *left* ilium."

Now it must be abundantly manifest, from the quotations given above, that we are being taught some very different, and indeed opposite doctrines. Are these doctrines reconcileable? I think they are. For I do not like to believe, with Nägele, that such accurate observers as Baudelocque, Boivin, Lachapelle, Ramsbotham, &c. &c., can have been entirely mistaken; and I cannot accept Nägele's excuse for so utterly condemning them, when he says that, in a matter confessedly of such difficulty to be ascertained as the exact position of the head—a matter in which even a Smellie had acknowledged he had been mistaken—it can hardly be a sin to say that such and such writers have also deceived themselves. I would rather suggest that, where so many say one thing, while Nägele says the exact opposite, there is a possibility that all may be right, and all, even Nägele himself, slightly wrong.

After a careful and anxious study of the progress of labour in some hundreds of cases of cranial presentation during the last four or five years, I have felt myself compelled to arrive at certain conclusions on this subject, which I would here, with great diffidence, venture to put forth. And first, with regard to divisions, I would submit, that most of the writers who have indulged in classifications of cranial positions, have done so on wrong principles altogether. Their divisions are either so numerous and minute—so fanciful, I may say, that no accoucheur can possibly find and distinguish them in practice; or, like Nägele's, they are not comprehensive enough. I am inclined to think that an arrangement like the following will be found, not only to include all the varieties to be met with in nature, but also to be sufficiently intelligible to enable any one to identify and classify the cases which come before him.

The most frequent position of the cranium is the following, which, therefore, I will, with others, denominate the

First position of the cranium.—Right ear near symphysis pubis, occipital end of head descending, first in the axis of the brim, and finally coming round to the arch of the pubes by the *left* side.

The next most frequent position is the

Second position of the cranium.—Left ear near symphysis pubis, occipital end of head descending, and coming round to the arch of the pubes by the *right* side.

The next most frequent position is the

Third position of the cranium.—Left ear near symphysis pubis

frontal end of head descending in the axis of the brim, and finally coming round to the arch of the pubes by the *left* side.

The next and last is the

Fourth position of the cranium.—Right ear near symphysis pubis, frontal end of head descending, and finally coming round to the arch of the pubes by the *right* side.

Of 715 children, born in my practice since the 1st January, 1852, 682 presented the cranium. With 201 of these births I had not the opportunity of ascertaining the original position, for various reasons. Of the remaining 481—

306	presented	the cranium	in the first position.
151	"	"	second "
15	"	"	third "
9	"	"	fourth "
481			

In all these 481 cases, I had the opportunity of accurately observing the progress of the head into, and through, the pelvis.

The two first positions in this classification, which are by all acknowledged to be the two most frequently met with, are essentially presentations of the *vertex*, or hinder-head; and I would agree with Nägele so far as to maintain that, if we are to discuss *vertex* presentations only—presentations, that is, in which the sagittal suture alone is in question—there are, in reality, only two kinds of cranial positions met with in nature, and capable of being indisputably recognised. It is clearly in this particular that Nägele has the advantage of most of those to whose conclusions he so much demurs—for they, like him, speak of and discuss only *vertex* presentations. Nägele ignores altogether those forms of cranial presentation in which the *frontal* end of the head is the presenting part, and thus wilfully misunderstands and misrepresents the conclusions of the writers whom he condemns, most of whom clearly point out this distinction in their *descriptions* of the positions called *third* and *fourth* in my classification, as I shall presently show; so that what Nägele persists in calling the *third position* of authors is really not *their* third position at all, and he is fighting a giant of his own making. But while I agree with Nägele in the opinion, that only two positions of the *vertex* are met with in nature, I must be allowed to differ from him when he says, that in both these presentations the sagittal suture is always in the right oblique diameter of the pelvis; that is, between the right sacro-iliac synchondrosis and the left acetabulum. The position of the head in question is that in the axis of the brim. This position is maintained until the vertex reaches the point of resistance presented by the bones of the sacrum, and it must be remembered that the relative situations of the different parts of the head, not

only with respect to one another, but also with respect to the parts of the pelvis, can be ascertained only by an investigation conducted more or less in the axis of the outlet, these axes being pretty nearly at right angles to each other. This is a circumstance which has unquestionably led to great confusion in the descriptions of different writers, and explains why some of them insist so much on the centre of the parietal bone being the presenting part; simply because, in an examination conducted in the only way possible, the tip of the finger strikes on that part. It is certain, however, that, if we are to regard the situation of the head with reference to the brim—and Nägele, who, with others, contends for the centre of the parietal bone being the presenting part, expressly refers to the *entrance* of the pelvis—it is rather the centre of the sagittal suture which is the presenting part—*which is in the axis of the brim*, and, therefore, in the line of the expulsive efforts, for that is the essential point. But this is a matter of little consequence to the main arguments of this paper. I mention it merely because Nägele is very angry with those who dispute his dictum on this point,* and also because this is one little matter in which both parties may be right, but are apparently at variance, from not looking at the subject from the same point of view.

Now, Nägele says that the fontanelle, which is turned towards the left side, points somewhat forwards. This is a point of some importance, but I am inclined to think that, in his description of his second position, where he maintains that the anterior fontanelle is *always* felt turned forwards, towards the left acetabulum, he has deceived himself in the majority of his cases of this position by a fallacy, arising partly from the circumstance I have just alluded to; namely, taking the examination in the axis of the outlet, when the presenting part is in reality passing down in the axis of the brim, and partly from another circumstance, to which I shall presently come. When we feel in the axis of the outlet for the sagittal suture, the finger, as Nägele truly says, strikes on the centre of the parietal bone; and the presenting part of the child's head may be described as in our Plate, fig. 2, the head lying in what I will take leave to denominate the plane of the cavity; that is, in that portion of the pelvis which is midway between the brim and the outlet, as shown in fig. 3. In this position it will be seen, that the central portion of the sagittal suture at A, fig. 2, which is the vertex, is passing backwards to the floor of the pelvis at B; the outline, in this diagram, being a line drawn round the cavity of the pelvis, at the points marked

* Nägele goes so far as to maintain that he is the only writer who has pointed out the fact, that the centre of the parietal bone is the presenting part. See at pages 20 and 21, where he speaks of the situation of the head-swelling. But Madame Boivin is very distinct in her acknowledgment of this kind of obliquity, using the words, "*la bosse pariétale gauche plus inclinée en bas*," in her description of the first position, &c &c.—*Mémorial de l'Art des Accouchemens*, tome i., p. 217.

D A in fig. 3. The left branch of the lambdoidal suture, C, is pointing forwards to the symphysis pubis at D, where the ear may be felt; and what is more important, as due to the form here assumed by the sagittal suture—namely, that of a *curved* line, as felt in an examination conducted in the axis of the outlet, in which the finger is directed to the *side* of the head—the anterior fontanelle *appears* also to be directed forwards. Now—and here we come to the second probable fallacy by which Nägele has deceived himself—when the woman lies on her *left* side, which is the customary position, the accoucheur, using his right hand in making an examination, it will be understood that the finger passes much more readily downwards, and to the left side, than upwards towards the right side; so that in the second position, as shown in the diagram, it is pretty sure to touch the anterior fontanelle, and that portion of the sagittal suture leading to it, which, as shown in the diagram, will *seem* to be in the right oblique diameter. I have convinced myself of this repeatedly, by the simple expedient of placing my patient on her right side, and then, by using the left hand, the finger has passed more readily to the *posterior* fontanelle, which, in its turn, would appear to point most forward, the case thus assuming all the characters of an exact converse to one of the first position. In fact, it is scarcely fair to examine into the peculiarities of a case of second position, as compared with one of the first position, without thus reversing every condition, both with the patient and the examining hand. But this is not all. As the head descends further towards the floor of the pelvis, this apparent forward position of the anterior fontanelle frequently becomes more pronounced, through a rotation of the head on its *ear-axis*,* the posterior fontanelle and occiput descending more and more, and being *apparently* more and more backward; for, as I have endeavoured to show, the *floor* of the pelvis, as respects the *brim*, is the *posterior* part of it as respects the *outlet*, or *axis of examination*. And this is a highly favourable course for the head to take, for the presentation, by means of it, becomes more decidedly that of the vertex, and then of the occiput, as in Busch and Moser's description;† and thus, when once the head has arrived at the resistance offered to its further progress in the

* Thus Nägele is sadly mistaken, where he attributes to a *late* examination the circumstance that accoucheurs have so universally overlooked the peculiarity he so strenuously contends for as occurring in the second position, for this peculiarity is frequently a *secondary* process. I have met with many cases, in which I have first felt the anterior fontanelle at the opening of the os uteri, in or near the axis of the brim. This presentation is scarcely favourable; so, in the great majority of cases, the occiput will, as the head descends, dip into the pelvis, until the posterior fontanelle may be felt, and the position becomes a *vertex* one, the anterior fontanelle passing upwards, and apparently forwards, as shown in Plate II., figs. 3, 4, 5, 6.

† "Bei der gewöhnlichen Kopfgeburt, welche erst als Scheitel-dann als Hinterhauptslage auftritt." In other words:—"In an ordinary head-birth, which shows itself first as a *vertex*, and then as an *occipital* presentation."—*Handbuch der Geburtskunde*, Art. *Kopfgeburt*, p. 321.

CRANIAL PRESENTATIONS AND POSITIONS.

Fig. 1.

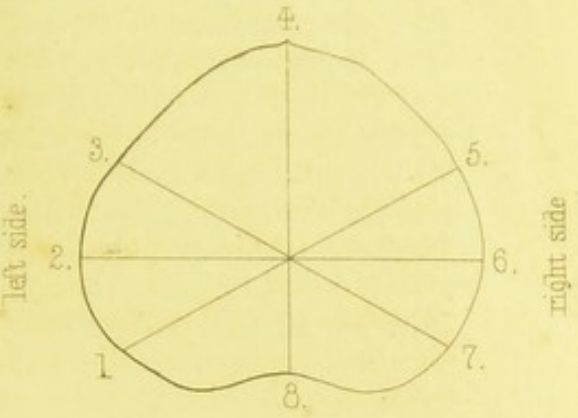


Diagram of Brim of Pelvis from above shewing the situation of the occiput in Ritgens, "eight Positions"

Fig. 2

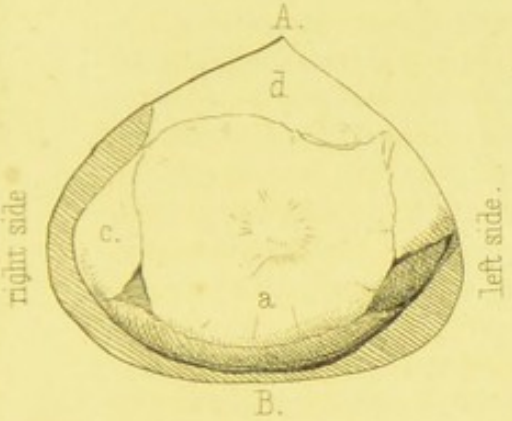
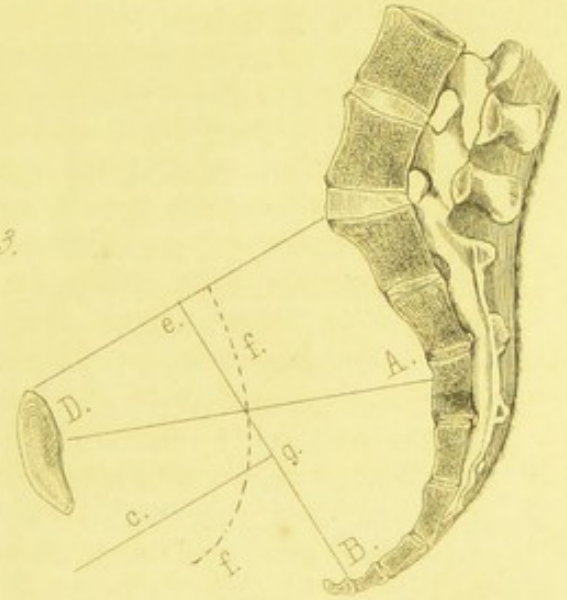


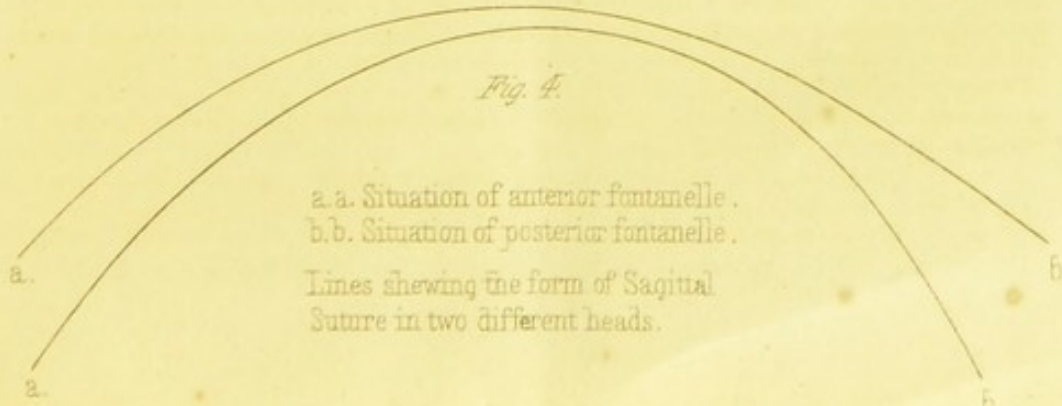
Diagram of plane of cavity from below, with the parts of the head touched in a digital examination in the 2nd. position. the parts so touched are those below the line D.A. in Fig. 3. the line drawn round the head is the line D.A. in Fig. 3. and both fontanelles seem to point somewhat forward.

Fig. 3.



Explanation of Profile of Pelvis.
D.A. Plane of the cavity c.g.b. line in axis. of brim c. line in axis of outlet. or examination f.f. explained in letterpress.

Fig. 4.



a. a. Situation of anterior fontanelle.
b. b. Situation of posterior fontanelle.

Lines shewing the form of Sagittal Suture in two different heads.

axis of the brim, by the sacrum and sacro-ischiatic ligaments, it begins to slide downwards and forwards, the face drops into the pelvis, by the side of the sacrum, and passes into its hollow, while the occipital end turns up under the arch of the pubes. This apparent forward, or really *upward* position, of the anterior fontanelle, may be perceived equally, also, when the head is in the first position, if the woman lie on her right side, and the accoucheur use his left hand, as in the second, when the converse proceeding is adopted.

The amount of curve in the apparent form of the sagittal suture, when the examining finger is conducted to the side of the presenting part, differs in different fœtal heads, and is much augmented sometimes by the pressure which the head undergoes in entering the pelvic cavity, chiefly in *primiparæ*. The lines drawn in Plate I., fig. 4, are from measurements taken of two different heads immediately after birth.

In the description of my divisions of cranial positions, I have mentioned that the *ear*, in all of them, may be felt at or near the symphysis pubis. I have a few remarks to offer here on the diagnostic value of the presence of the ear in this situation, as that branch of the subject has evidently been strangely misunderstood by obstetric authors.

It is asserted by some, and assumed by nearly all, that the ears lie exactly opposite to each other, so that when one ear is at the symphysis pubis, for example, the other is near the centre of the sacrum. Thus, Dr. Ramsbotham, in enumerating the eight positions in which he considers the fœtal head may offer itself in entering the pelvis, says—"The first is with the face inclining to the right ilium; the right ear being behind the symphysis pubis, the left ear towards the spinal column, and the occiput inclined towards the left ilium;"* and so on. Now, having frequently felt the ear exactly at the symphysis, when the occipital fontanelle was as clearly at the acetabulum, I commenced the plan of measuring a few heads immediately after birth, and found satisfactory proof, that in *vertex* presentations, when an ear is at the symphysis pubis, the head is already in the most favourable *oblique* diameter of the pelvis, instead of being, as Dr. Ramsbotham and others suppose, in the transverse diameter. Thus, in one head, measuring from tip to tip of the ears, round the outline of the presenting part of the head—a line just including both fontanelles—I found the line over the anterior fontanelle to be $7\frac{1}{2}$ inches from ear to ear, while that which included the posterior fontanelle was only 5 inches. In another, I found the measurements were $8\frac{1}{2}$ inches and $6\frac{1}{2}$ inches respectively. In a third, which was slightly elongated by the labour, $7\frac{1}{2}$ and $4\frac{1}{2}$. In a fourth, there was a still greater difference; viz., anterior, 8 inches; posterior,

* Ramsbotham's Obstetric Medicine, 4th edition, page 108.

4½; and so on. In fact, the difference is very considerable, and quite sufficient, in all cases, to settle the question. And indeed, as the head descends, it will be found that the sagittal suture is gradually assuming greater and greater obliquity, while the ear still remains at the pubes, where it may frequently be felt until almost the very last. In this investigation, let it be remembered that the lambdoidal suture points to the ear. If the finger be passed along that suture, close behind the symphysis pubis, it presently lights upon the back part of the lobe of the ear. Now, the lambdoidal suture is usually felt at or near the symphysis pubis, during the whole progress of the head into the cavity of the pelvis; the sagittal suture, during the last stage of this descent, becoming more and more oblique, until the face has got low enough to enter the hollow of the sacrum, when the sagittal suture may be felt in the conjugate diameter of the pelvis, the anterior fontanelle being felt on the raphe of the perineum, and the tuberosity of the occipital bone being plainly to be felt at the arch of the pubes.

In the application of the long forceps, moreover, it will almost invariably be found, after the extraction of the child, that while one blade, having passed over or near an ear, will have indented the mastoid process of the temporal bone of one side, the other blade will have left a mark on the *brow* (just above the eye) of the opposite side. In cases of first position, it will be the left mastoid process and the right brow. In cases of second position, it will be the right mastoid process and the left brow. Now the blades have been applied, one on each side of the pelvis, and in a line upwards from the presenting vertex. They necessarily grasp opposite portions of the head, and one of them has passed near an ear, to indent the mastoid process of that side. If the ears occupied exactly opposite sides of the presenting part in a vertex presentation, would not both blades pass over or near the ears, if one of them did so? And do we not see clearly from this illustration, that when the right ear is at the pubes—as in a case of first position, for example—the left ear, instead of being at the sacrum, as we are taught, is at the left ilium or thereabouts, or on the side towards which the occiput is lying?

The conclusions to be drawn, therefore, from the position of the ears are briefly these:—

When either ear is at the symphysis pubis, and both fontanelles can be felt—when, in short, the *vertex* is the presenting part, the sagittal suture *must* be in one of the most favourable oblique diameters of the pelvis; that is, the occiput must lie more forward than the frontal end of the head—must be lying either on the left or the right side of the pubes—at the left or right acetabulum, according as it may be the right ear or the left which is felt at the symphysis. In the latter case, moreover—viz., when the *left* ear is felt at the symphysis, and both fontanelles can be felt, the

sagittal suture *must* be in the second or left oblique diameter of the pelvis, and the case must be one of Baudelocque's *second* position of the vertex, as he and Boivin describe it—the exact converse of their first, wherever the anterior fontanelle may seem to be.

Further, these measurements of the head prove that they who have decided on an occasional *transverse* position of the head, because they have now and then felt an ear at the symphysis, have deceived themselves, and also that they have been equally deceived in thinking that the presence of the ear at the pubes proves the head to be in a transition state between the "so-called third position"—to use Nägele's oft-repeated expression—and the second.*

It may be objected that Nägele, in his description of these births, says nothing about the ears at all. No more he does *directly*;† but *indirectly*, what does he say? He is giving some account of Smellie's opinions, and at page 83, line 14, he goes on to say:—

"That cases of our *second* position had not escaped Smellie's spirit of investigation is plain from the *Collections of Observations* left by him. As a general rule, he holds that births in this position are more difficult if the head is not smaller, or the pelvis wider, than common. He, nevertheless, describes a case of this kind of *second* position, where, with an unusually large child, the birth was completed by the unaided efforts of nature. Another accoucheur had already made vain attempts to deliver. Smellie being called in, contented himself with waiting, as the pains were good. With the finger he followed the movements of the head, felt it make a turn, and so the birth was completed."

Now, Smellie says of this case:—"Upon examination, I found the head in the same position as in the preceding case, or rather

* The following foot-note in Ramsbotham's Obstetric Medicine, 4th edition, page 109, affords one proof, among many which might be adduced, of the mistaken notions conceived by writers on this subject:—"For many years after I began practice, owing to peculiar circumstances, I had a great deal more to do with operative than with natural cases of labour; and when called upon to deliver with the forceps, I found, in so many instances, the face looking directly to one or other ilium—most frequently the left, with the left ear behind the pubes, that I considered that position of the head, in reference to the pelvic cavity, by far the most frequent of any. Subsequent observation and experience, however, have convinced me that I was in error. It is true that, at the time when the instruments were applied, the long diameter of the head was situated in the direct transverse diameter of the pelvis, with the face exactly opposite to the iliac fossa; but I am now persuaded that, in most of these cases, the face was originally placed behind the obturator foramen of that side—that is, diagonally forwards; that nature had attempted to turn it backwards into the hollow of the sacrum; that this change had only been partially effected, the head being arrested *in transitu*. This will account for my having described the two first of my eight varieties of vertex presentations as common positions, while many practical men, as Baudelocque, omit them altogether. Nevertheless, I am persuaded that the head does so present sometimes at the outset of labour, influenced, perhaps, by some peculiar conformation of the pelvic brim."

† At page 12, Nägele says, speaking of the first position—"The higher the head stands—the more its greatest diameter approaches the transverse diameter of the pelvis—the more transverse is its position; on which account the right ear may mostly, without any difficulty, be felt behind the os pubis." And I think this is all he says about the ears.

higher in the pelvis." But of that preceding case he says—"*I felt one of the ears at the os pubis*, the lambdoidal crossing the end of the sagittal suture at the lower part of the right os ischium, and the fontanelle on the opposite side, at the upper part of the left."*

Smellie's two cases prove nothing at all for Nägele. He felt *both* fontanelles: therefore, the *vertex* presented. He felt an ear (the left) at the pubes: therefore, the head was in the *left* oblique diameter, with the occiput most forward. Whether it had ever been in the other diameter, as Nägele would assume, we have, and can have, no proof at all.

We may surely, therefore, dismiss altogether the consideration of transverse positions of the vertex, so far as proof of their occurrence is supposed to be derived from the presence of an ear at the pubes.

If the description of the first position given by writers were correct, the ear, in that position, could never be felt at the symphysis in *any* stage of the labour, and yet it may always, or almost always, be found there, as any one may easily convince himself; and if Nägele's description of his *second* position were correct, the ear would *always* be *considerably* on the *wrong* side of the symphysis in the early stage of that position; and yet I have frequently felt it exactly at the symphysis throughout the whole passage of the head into the pelvis, in cases where the occiput has come to the arch of the pubes from the right side.

I have said that I cannot agree with Nägele, in the opinion that the sagittal suture is always in the right oblique diameter of the pelvis. It is so, undoubtedly, in the first position, when the right ear is at the symphysis, the most frequent variety of that position; and it is also frequently so placed in cases of the second position, for sometimes the anterior fontanelle is really, and not seemingly only, in the front of the pelvis, and close to the left side of the symphysis. In these cases, the left ear may be felt far away on the right side of the pubes, near the right acetabulum. But I am quite convinced that these cases, though tolerably frequent, are exceptional ones; and I am equally convinced that they occasion no peculiar difficulty in the progress of the labour, if *both* fontanelles can be felt. For the *vertex*, being thus the presenting part, it will arrive first at the floor of the pelvis; and as it must then slide forwards, along the inclined plane of the coccyx and sacro-ischiatic ligaments, it will presently arrive at the outlet; and the face having by this time entered the pelvis, it (the face) *must* pass backwards into the hollow of the sacrum. That part of the head which has, until this moment, been actually above the brim of the pelvis, will, as the occiput slides forward, and away from the hollow of the sacrum, necessarily follow it; the more

* Smellie, Coll. xvi., No. 1, cases 1 and 2.

convex part of it, which, in the present instance, will be the forehead and face, naturally dropping or twisting into that hollow.

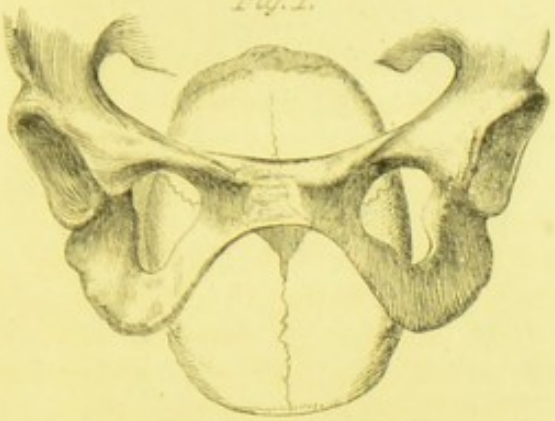
But while I admit the occasional occurrence of these truly occipito-posterior positions in the second position of the head, I must also maintain that they occasionally occur also in the first position. Many years ago, I was frequently struck with finding the anterior fontanelle lying close to the pubes, and the sagittal suture passing from it almost directly backwards; the occiput, nevertheless, coming with facility to the arch, and the labour thus terminating naturally. Not being able to find any satisfactory explanation of this circumstance in any of the works to which I had access—but, on the contrary, a firmly-expressed opinion that such cases could only rarely, and under very exceptional circumstances, terminate naturally and favourably—I was at first inclined to distrust the evidence of my senses, and to think that I had been mistaken somehow. For a long time I groped in the dark, becoming more and more interested, however, as these cases came more and more frequently before me, until the fortunate acquisition of Nägele's work, *Die Lehre vom Mechanismus der Geburt* (which I was induced to procure through reading, in Dr. Ramsbotham's third edition, the foot-note quoted above), threw a flood of light on the subject, although I could not but feel he had been much too sweeping in his conclusions. But I had felt the anterior fontanelle on the *right* side of the pubes, perhaps as frequently as on the left. If, with preconceived notions against the possibility of either, I had judged rightly in one set of cases, why not in both? According to my experience, therefore, of these cases, the anterior fontanelle may be felt near the symphysis in cases of the first position—which Nägele appears to deny—as well as in cases of the second position, but not occurring invariably in these latter, as Nägele maintains; the posterior fontanelle in the former, as well as in the latter set of cases, lying obliquely backwards, and being frequently in contact with the sacrum or coccyx. But, as I have said, I am quite convinced that Boivin, and the French as well as English writers, are right in deciding that the majority of cases of second position are the exact converse of the more frequent variety of the first—that, namely, in which the right ear is felt at the pubes throughout the whole course of the descent of the head into the pelvis, for I have in most of these felt the left ear in the same situation during the corresponding process. In these cases, therefore, the sagittal suture, as respects the brim, *must have been in the left oblique diameter*.

I must here be allowed a few words on the subject of the supposed difficulty arising from the circumstance that the occipital end of the head is directed obliquely backwards, rather than obliquely forwards, in entering the cavity of the pelvis. I see no difficulty whatever in the matter, but rather the contrary. If we examine fig. 3, Plate I., representing the cavity of the pelvis, it

will appear plainly enough that the head is not passing through a cylindrical tube. I am really ashamed to make this very trite and well-worn observation, but I cannot make my argument here complete without repeating it. The central point of the presenting part of the head, which we may suppose had first offered itself at the brim, at the point *e*, does not make its way to the outlet along the dotted curved line marked F F, but rather proceeds in a straight line, *e g* B, in the axis of the brim, until it arrives at B. It can go no further in that direction, but begins to slide forwards. Now this point B, which to the finger of the accoucheur may seem a very backward part of the pelvis, is, as I have elsewhere said, the centre of the floor of the cavity, in the direct line of the expulsive efforts of the uterus. And I am prepared to maintain that that part of the head which first reaches this point, is the part which will surely arrive first at the arch of the pubes. Now, in what are commonly called occipito-posterior positions—most of which, I have endeavoured to show, are only seemingly such, with reference to the axis of examination—we have the *vertex*, and especially that portion of the sagittal suture which is nearest the posterior fontanelle, arriving on the coccyx at B, the lowest part in the axis of the brim. It can go no further in that direction. It slides a little forward, the head beginning to describe a curve forward round the ear, which is still at the pubes, and perhaps, in this process, rises up again a little. The *vertex*, thus, is the first part which clears the bones. It then necessarily passes under the arch, and if there be no narrowness at the brim to prevent the face and broadest part of the head entering the pelvis, the face, which has been hitherto looking upwards, rather than to the side of the pelvis, will, as the occiput slides forwards, slip backwards into the hollow of the sacrum, and the anterior fontanelle will presently be felt at about the point marked B, while the tuberosity of the occipital bone will be found under the arch. It is evident, when we consider the form of the head, that if it—the head—can only enter the pelvis with facility, it is much easier for the face to turn backwards, to allow the vertex to pass forwards and upwards under the arch, than for the vertex to pass outwards, without that twist taking place. I once met with a case in illustration, in which, being a genuine case of occipito-posterior position, the face did not turn into the hollow of the sacrum, after the occiput had reached the coccyx or perineum. I delivered with the forceps, the head being extracted, as shown in figs. 1 and 2, Plate II. On measuring the head after birth, I found that the face must have been still above the brim, and, consequently, unable to pass by the side of, and to clear, the promontory of the sacrum, so as to get into the hollow, when the vertex was distending the perineum at the outlet. Perhaps, also, the grasp of the forceps, during extraction, prevented the turn from taking place.

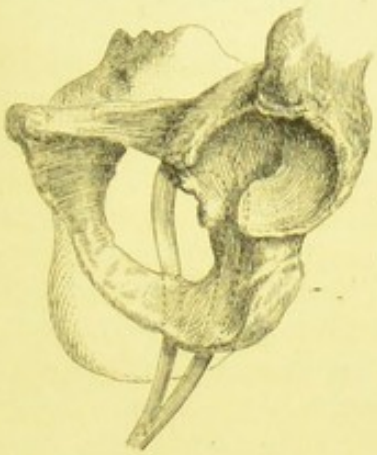
see page 311.

Fig. 1.



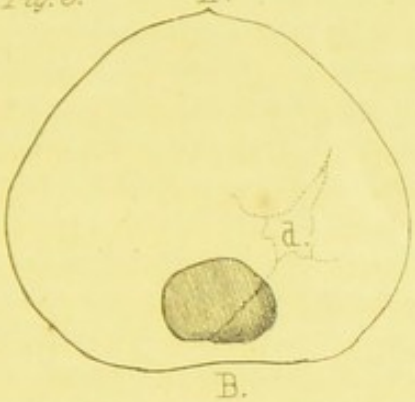
Front view of Pelvis.

Fig. 2.



Side view of Pelvis.

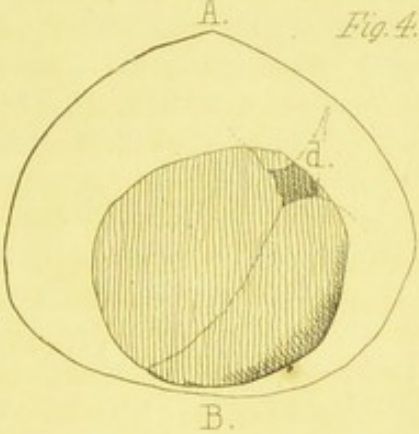
Fig. 3.



h. m.
5.46.
A.M.

A symphysis Pubis. B. situation of second bone of coccyx in centre of floor of Pelvis. d. anterior fontanelle felt just within os uteri as it begins to open.

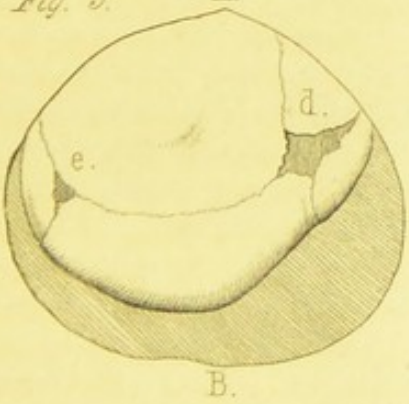
Fig. 4.



h.m
6 15.
A.M.

as the os uteri opens the anterior fontanelle advances nearer the Pubes

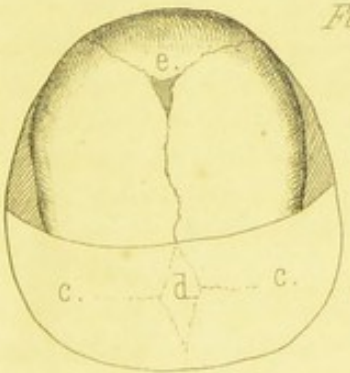
Fig. 5.



h. m.
6.35.
A.M.

e. posterior fontanelle now first felt, d. anterior fontanelle going back.

Fig. 6.



h. m.
6.40.
A.M.

Head at outlet, arch of Pubes c. c. perineum, d. anterior fontanelle on raphe of perineum, e. posterior fontanelle.

Diagrams 3. 4. 5. 6. Illustrate the progress of labour in the bregmato pubic variety of the second position. as in the case mentioned at foot note at Page 305

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The difficulty in the birth of the head, in this way, is apparent. It was necessary, in fact, that a curved body should pass through a curved tube, with its convexity opposed to the convexity of the interior of the tube. And the effect of this difficulty was seen in the indentation of the head at the anterior fontanelle, where that part was pressed against the convexity of the pubes.

The most simple explanation appears to me to be this, that when once the whole head has passed into the pelvis, with the occipital end of it lowest, as it does in the two first positions, a curved body will be in a curved tube. Under these circumstances, the large convexity of the curved body will soon settle itself into and occupy the large concavity of the curved tube; and that whatever may have been the situations of the fontanelles in the commencement. Let us take a case of feet presentation as an illustration. As soon as the knees are born, whether the toes are turned backwards or forwards, we find, as the breech comes to occupy the pelvis, its convexity settles into the hollow of the sacrum, the fœtus *sits*, as it were, on the perineum, and we begin to fear that the body is coming down, with the face turned to the pubes. But no; when the breech has cleared the perineum, the belly of the child, which is the large convexity of the curved body now in the pelvis, turns of itself into the hollow of the sacrum, while the back hollows itself to fit the convexity of the pubic bones—the convexity of the interior of the curved tube; and thus the body is expelled with the face of the child already turned backwards.

Now, Dr. Murphy, in one of his Lettsomian lectures, considers the "occipito-anterior" positions the most favourable, because the head has to glide only a short distance along the curve in order to reach the arch. I do not agree with him in that opinion, for I think I have seen cases which disprove it (see Case 1861, Appendix B.): at any rate, I have met with cases which have suggested a different opinion in spite of preconceived notions. I incline to think that the further the vertex can be pushed with facility in the axis of the brim, the better—for two reasons:—first, because it has the benefit of more powerful and better directed efforts, namely, in the direct line of the force applied; and secondly (which is perhaps only a part of the first reason), because the head being thus lower when it is enabled to turn, the final expulsion is quicker and easier. In occipito-anterior positions, *i.e.*, in cases where the occiput approaches the pubes, while the head is higher in the pelvis, I think I have found the process slower and more painful, the uterine efforts being directed to a part of the head, which is not wanted below the pubes, and which is now *behind*—in the axis of the brim. It is the *vertex*, towards which the uterine efforts are most beneficially directed; and it is a mistake to suppose that, because the occiput seems to be backward, it is, therefore, wrongly placed: it is then *lowest* in the

axis of the brim, and, consequently, nearest and most ready for the outlet.

It appears to me, further, that accoucheurs, in so perseveringly looking upon a forward position of the *anterior fontanelle* as unfavourable, or as being likely, or almost certain, to terminate in a face-to-pubes labour, have overlooked the simple fact, that the anterior fontanelle does not bear the same relation to the forehead that the posterior fontanelle does to the back of the head, the anterior fontanelle being midway *between* the forehead and the occiput, while the posterior fontanelle is behind the back part of the head. If the posterior fontanelle be well down in the pelvis, the occiput is well down; but, because the anterior fontanelle is on this side or on that, backward or forward, it need not of necessity follow that the *forehead* will come too soon into the pelvis, or will turn forward when it does come into it. The fontanelles are unfortunately *named*. The large fontanelle is rather the *upper* fontanelle, while the posterior is really the *posterior*. I would suggest that those varieties of *vertex* presentation, in which the *anterior fontanelle* is felt near the pubic bones in their first stage, should be distinguished as *fontanello-pubic*, or *bregmato-pubic*, or perhaps *bregmato-anterior*, while those positions which really terminate with the face to the pubes may be denominated *fronto-anterior*. In this way, perhaps, the occasional presence of the anterior fontanelle near the pubes, or at one of the acetabula, may cease to be looked upon as a bugbear. In proposing here the use of the word "bregma," I am assuming that it means exclusively the *anterior* fontanelle, the fontanelle *par excellence*; for whatever medical writers may take to be the meaning of the word, I think the lexicons* will bear me out in thus applying the term, and, therefore, I use it as being convenient in the manufacture of a compound word.

Much is said by different writers on the difficulty experienced by the head in turning with the occiput to the arch of the pubes, in proportion to the space to be traversed in this turn. There is never any difficulty in the mere turn, whether the space to be traversed be one quarter or three quarters of the half pelvis. The turn will, in either case, take place with equal readiness, if the head can easily get so far into the pelvis, that the face can pass under the promontory of the sacrum, and the occiput can clear the bones. If there be a delay, it will not depend on the difficulty in making the turn, but rather on a difficulty at the brim of the pelvis—the base of the curved conical body, which is entering the pelvis, being too large for the space there.

* "βρέγμα, the upper part of the head, from βρέχω, because that part is the longest in hardening."—*Liddell and Scott.* "βρεχμος and βρέχμα. Sinciput. Eustathius scribit hanc partem ità vocari quæ in infantibus non solùm tenera, sed et valdè humida, ut videri quodammodo possit βεβρέχθαι, madefacta esse."—*Scapula.* "βρεγμα, pro eodem."—*Scapula.*

There are, therefore, only two positions of the *vertex*, speaking practically, and Nägele is quite right so far; but he is clearly wrong in maintaining or assuming, which he certainly does, that there are only two positions of the *cranium* met with in practice,* and he is equally wrong and unfair in asserting that authors altogether mistake the subject, when they describe their "third" and "fourth" positions. These writers do, indeed, *speak* of various positions of the "*vertex*." There they are wrong; but in their *descriptions* they are correct, as I shall proceed to show, now that I have come to the—

THIRD AND FOURTH POSITIONS OF THE CRANIUM.—While the first and second positions of the cranium may be characterised as presentations of the *vertex*, these two positions must be described as being more strictly presentations of the anterior fontanelle, or, perhaps, rather of the top of the forehead. They are perverse positions; the uterine efforts forcing the head into the pelvis, with its longest diameter across it, and being directed rather to the forehead than to the hinder head, as in the two first positions of the cranium. In these positions, the sagittal suture is but little concerned, and the posterior fontanelle can scarcely be felt; but, as in positions one and two, the *ear* may be felt at the symphysis pubis, while the head is entering the pelvis.† In the third position, it will be the left ear which will be found at the pubes, and the forehead will be found near the left acetabulum, or perhaps the left ilium; for, in presentations of the anterior fontanelle, the ears are more nearly opposite each other than when the vertex proper enters the pelvis, as may be proved by admeasurement.‡ I have elsewhere, in defining my four positions, said that the third and fourth positions are characterised as well by the peculiarities just referred to, as by the disagreeable one, that the forehead comes round to the arch of the pubes, instead of the occiput. I do not mean to say, that in all cases of presentation of the anterior fontanelle, this perverse termination takes place; for, as the head under such circumstances enters the pelvis with great difficulty (the process, in point of fact, being like pushing an egg through a round hole, with its side first instead of its end), nature gets rid of the difficulty

* These are his words:—"Mit dem Schädel stellt sich die Frucht gewöhnlich auf zweierlei Weise am Beckeneingange zur Geburt." That is to say, there are but two ways in which the *cranium* offers itself at the brim of the pelvis; and then follows an elaborate description of two exclusively *vertex* positions.—*Page* 10, *et seq.*

† Perhaps the almost universal presence of an ear at the symphysis pubis, while the head is *in* the pelvis, in all the four positions, may be explained by the fact, that that part of the head is very hard and unyielding (the petrous portion of the temporal bone), and, therefore, more readily finds a lodgment in the *angle* formed where the two *ossa pubis* meet, the other parts of the skull yielding and bending in, where they encounter less convenient parts of the cavity of the pelvis.

‡ If a tape be passed round a newly-born fœtal head, round the forehead a little above the root of the nose, and round the back of the head just *above* the posterior fontanelle it will be found that it is as far round to the ears one way as the other.

by making sometimes one end, sometimes the other end, of the head descend. That she should most frequently select the occiput—the most favourable end—is, perhaps, explained by the fact, that the vertebral column is attached nearer that end than the other. But, unfortunately, it often happens that the very perversity which originally placed the anterior fontanelle, instead of the centre of the sagittal suture, in the axis of the brim, finishes by directing the uterine efforts to the forehead instead of the occiput. In accordance with the arrangement suggested in this paper, I should classify among cases of first or second position of vertex, all those cases which have the more fortunate termination alluded to; and indeed I have already alluded to them in discussing those positions. (See page 20, and foot-note.)

Well, then, we have the head attempting to pass into the pelvis with its longest diameter across it. That an ear is usually at the symphysis during the first stage of these *face-to-pubes* cases, is very certain. I have felt it in that situation many times: the first time was more than twenty years ago, before I had begun to think of this subject at all. In was in a very tedious, hard case of *face-to-pubes,* and it was on account of this tediousness that I felt for the ear, and I well remember my surprise when the head was at length expelled with the face to the pubes; for I had been taught that the ear ought to have been against one of the acetabula.* It is, therefore, not because the forehead is originally placed more *forward* that it finally passes under the arch, but because that end of the head, being in the axis of the uterine efforts, first reaches the inclined plane of the coccyx and floor of the pelvis, and, like the occiput in a natural labour, slides forward to the outlet, to be followed into the hollow of the sacrum by the more convex portion of that part of the head which has hitherto been more or less above the brim of the pelvis, namely, the occiput—(for up to this time we have scarcely, as I have said, been able to feel the posterior fontanelle at all)—in the same manner as when the occiput has thus slid down the incline, it is followed by the face. (See page 26.) Therefore, the difficulty in the passage of the head arises, not from the fact that the forehead lies originally most forward, as generally supposed, but because the head is attempting the passage with its length instead of its breadth. The final expulsion is undoubtedly rendered more difficult by the face being against the pubes. It is then a bad fit altogether.

It is observable that Nägele, in his extreme anxiety to be ori-

* In describing the third position, which is his sixth, Dr. Ramsbotham says (page 109):—"The face is looking towards the left groin; the occiput to the right sacro-iliac synchondrosis; the right ear to the left sacro-iliac synchondrosis, and the left ear to the right groin." Now, with such a position, if the face went on turning itself towards the pubes, the left ear would be continually turning away from the groin more and more to the side; and in fact, if this and similar descriptions were correct, the ear could never be felt at the pubes in any stage of a labour terminating with the face or forehead at the pubes.

ginal, all but ignores these cases. He refers to them certainly, in language which I feel constrained to quote at length, but he contradicts himself by his own statistics, as I shall presently show:—

"On some deviations from the regular progress of labour in the customary positions; and on some uncommon positions.

"The above-described manner in which the fœtus in cranial presentations passes through the pelvis, must, because it is the one which is by far the most frequently observed by nature, be looked upon as the normal process; accordingly there are only *two customary cranial positions* (*Schädellagen*); all others described in instruction-books and hand-books, &c., must, as they occur very seldom, indeed, be regarded as *uncommon cranial positions* (*ungewohuliche Schädellagen*), and of these we will now speak:—

"First, then, of some deviations from the rule in the common cranial positions.

"Sometimes, but only seldom, and under extraordinary circumstances, which will become apparent to the careful observer, the progress of labour departs from the rule, without, however, any prejudicial influence on the termination of the labour. Thus, for example, we see that in the *second* cranial position the head in some very rare instances does not make its customary turn during the progress of the labour, but comes to the outlet with the face directed upwards, and more or less forwards. According to observations made with the view of ascertaining the real truth of the matter (the result of which we feel under the absolute necessity of not passing over in this paper, inasmuch as it differs from the almost universally received opinions on the subject), the progress of the labour is briefly as follows:—

"Here, also, the head in sinking down into the pelvis, and in occupying the same, does not turn in the manner described in the majority of the books; that is to say, the hind-head does not turn into the hollow of the sacrum, but the anterior fontanelle remains, when the head is already near its final expulsion; when, in fact, a portion of it is already visible between the labia, still at the left oval foramen, and the for the most part deeper-standing posterior fontanelle at the right sacro-iliac synchondrosis. Immediately before the expulsion, one may feel the large fontanelle, entirely free from all swelling of the integuments, at the inner edge of the descending ramus of the left pubic bone. When here the head is on the point of expulsion, it is for the most part the upper and anterior part of the left parietal bone, together with a portion of the upper part of the left frontal bone, which may be felt at the symphysis pubis, or against the finger of the accoucheur, when it is passed up perpendicularly against the symphysis. At the expulsion, the anterior part of the left frontal bone presses itself with its flat convexity against the more concave pubic arch, and there may be observed at this point a red mark, caused by the pressure. The face is found, after the head is born, to be turned towards the inner and upper side of the left thigh of the mother. If the head remains here a longer time in the cavity of the pelvis before it comes to the outlet, it then experiences for a longer period the impression of the os externum, which is firmly and closely applied to it, and in this way the principal situation of the head-swelling which the child brings with it into the world, is the superior and anterior part of the left parietal bone, and at times also a portion of the left *os frontis*. This position of the cranium is constantly maintained throughout the entire passage of the head into the pelvis, as well as at its expulsion. But during the process of the head's passage out of the pelvis, its transverse diameter (between the two parietal protuberances) never coincides with the transverse diameter of the inferior aperture; the head passes through obliquely in its whole course. Then the shoulders present themselves, likewise, in an oblique direction at the outlet of the pelvis, the left behind the descending ramus of the right os pubis; the right to the left sacro-ischiatic ligament; and after the former shoulder has escaped, the latter follows, and thus the child is born.

"The above-described unusual progress of the labour in cases of the *second* position of the cranium, is more especially perceptible when it occurs with primiparæ.

"Out of 1244 closely-observed and well-marked cases of *second* position, in 17 cases the head did not make the usual turn, but came to the outlet with the face turned upwards, and more or less forwards. But in all these cases there were peculiar circumstances present, which explained this deviation from the normal proceedings, and which we must not here omit to mention. In some instances, the outlet of the pelvis was unusually wide, or the bones of the child's skull were unusually soft and yielding in places, like parchment almost, or tinsel, imperfectly developed, furnished with false sutures, the fontanelles very large, &c. &c.; at other times, where the pelvis was of the usual proportions, the children were small and premature, as with twins for example. Moreover, we met with this deviation more frequently with multiparæ than with primiparæ, especially when with the former the soft parts were unusually dilatable; or where old unhealed lacerations of the perineum were present; when the labour passed through its last stages with unusual rapidity, &c. &c.

"In all the remaining cases, the normal turning of the head took place, and we noticed the same undisturbed progress of the labour, and the same fortunate results, as well with primiparæ as with women who had had several children before; with young women as well as with women advanced in years; in cases where the liquor amnii was redundant, and where it was deficient; with pendulous abdomen as well as without; in rapid as well as in slow labours; in cases where the navel-string was round the neck, as well as where it was not; with imperfectly developed and with well-developed heads; with the woman lying on her back as well as on her side, &c. &c.

"Under the same and similar circumstances as the exceptional ones alluded to above: when, for example, the pains have followed one another with unusual rapidity; when the expulsive efforts have been extraordinarily great, either throughout, or in separate stages of the labour; when the pelvis has been too wide in every part, or of unequal width in this or that direction; here wider, there narrower than usual, &c., we occasionally meet with other deviations; then, indeed, it may happen that the head in the *first* position as well as in the *second* may assume the straight position (*i.e.*, with the sagittal suture exactly in the conjugate diameter of the brim); or may assume some other position differing from the exact normal one which we have described; that the shoulders pass through the pelvis with their greatest breadth in its transverse diameter; under such like circumstances we do not find, after the birth, any traces whatever of the head-swelling. But in general terms, we may observe that, under the different circumstances of increased facility which we have hinted at, nature dispenses with the usual turnings and manœuvres, simply because they are not needed."

Now, does this description of Nägele's accord with the experience of others? It certainly does not with mine. I say it emphatically, and I appeal to the experience of any accoucheur who may have attended, say, 400 or 500 cases of labour, whether, in the first place, cases of "face-to-pubes," that is to say, cases where the occiput does not come round to the arch, do not occur much more frequently than in a proportion of 17 times only, out of a total of 4042 births? and secondly, whether such cases are easier and quicker than when the labour terminates in the normal way? I merely ask these two questions here—I will presently say a few words on the peculiarities of description of these births, for which M. Nägele claims the credit of so much originality of observation. For my own part, out of a total of only 2585 births, including 30

twin cases, which have fallen under my immediate observation in the course of my practice, I have found the face has turned forward to the pubes 79 times, and most certainly in nearly all of them the greater difficulty of the labour has been well marked—in many, indeed, excessively so.*

And, moreover, the elaborate description quoted above of the progress and termination of the labour, when the face instead of the occiput comes round to the arch, is altogether wrong. M. Nägele says of his 17 cases that they were all accurately observed by him, and well marked (*genau beobachteten und aufgezeichneten*); and he says further, that in all of them certain exceptional conditions were present—all these exceptional conditions conducing to a greater facility in the progress of the labour; and in another passage he says of the *same and similar circumstances* (*unter deuselben und ähnlichen Umständen*), after the labour there is no trace of the head-swelling (*keine Spur von Anschwellung der Kopfbedeckungen*), and yet he describes most minutely the kind of head-swelling that is found after these labours. Is not this a contradiction fatal to his argument throughout?

Again, he maintains that in the cases in which the frontal end of the head comes round, it is not the forehead, but only the anterior fontanelle which is found at the arch of the pubes. In fact, all his cases would resemble my case, described at page 27, in which I delivered with the forceps while the fontanelle was at the pubes; with this difference, that in that case the peculiarity seemed to be caused rather by an unusual size of the fœtal head, than, as in Nägele's cases, by an unusual smallness or softness of it.

M. Nägele unreservedly condemns all previous writers on this subject, all *Treatises and Manuals* are wrong (*Lehr-und-Handbücher*). As far as my own observations would lead me to judge of them—observations made carefully—perhaps as carefully as M. Nägele's—both before and after I had had the advantage of reading his treatise—the *descriptions* of such writers as Boivin, Ramsbotham, &c., are pretty nearly correct, and that of M. Nägele altogether wrong.

Madame Boivin says of the most frequent form of these perverse positions:—

"Position fronto-cotyloïdienne gauche. Le front du fœtus est derrière la cavité cotyloïde gauche; . . . l'occiput est situé au devant de la symphyse sacro-iliaque droite."†

The *forehead* is placed behind the left cotyloid cavity, &c., not

* Madame Boivin says in general terms of these cases, and most other writers are of the same opinion:—"Dans cette position oblique du sommet, comme dans la quatrième position, il faut s'armer de patience, et engager la femme à prendre son parti sur la longueur du travail. Nous l'avons vu se prolonger trois, quatre, et cinq heures, au-delà du temps ordinaire," &c.

† Mémorial de l'Art des Accouchemens. Tome I., p. 309.

merely the anterior fontanelle; and this difference is most important: it contains the explanation of the whole point in dispute. With the anterior fontanelle in that situation, the position would be that of a presentation of the *vertex*, a different affair altogether, as, I flatter myself, I have already shown. Now, in a great number of these cases I have felt the root of the *nose* at the symphysis pubis in the last stage, and the orbits on each side of it, as in the second and third of the diagrams in Plate III., which show the distinctive points of the fœtal head, which may be felt in a good case of the kind.

M. Nägele says these cases are merely deviations from the normal *progress* of the labour in his second position. I would, with deference, venture to maintain that they are faulty positions originally, and that the difficulty in the passage of the head through the pelvis arises as much from this original faulty position—as I have already hinted in the commencement of my description of the third and fourth positions,—as from the final awkward position of the head with the nose, instead of the occiput, at the symphysis pubis. M. Nägele's description of his only two positions of the "*cranium*," clearly implies positions of the vertex only.

It would seem, indeed, from M. Nägele's own words, to be quoted hereafter, that not only had he scarcely ever seen a case of fourth position, terminating as such, but also that he had never seen a *hard* case of third position, terminating as such; that, in fact, he had never met with a case at all in which the forehead (the nose and eyes to be felt at the pubes before the expulsion of the head) had come to the pubes. All this is so incredible, that I must be allowed to doubt the accuracy of his observations altogether. He *must* have frequently met with such cases.

M. Nägele is, therefore, not only wrong in his facts, but he wilfully misrepresents what other writers have said, for the purpose of establishing an entirely novel theory of his own. He and those other writers are not speaking of the same thing, when they refer, the one to the "so-called third position"—naming it the *second*, the others to the "third position." Nägele is speaking merely of the *bregmato-cotyloid varieties* of the second position of the vertex, while other writers are speaking of true fronto-cotyloid positions.

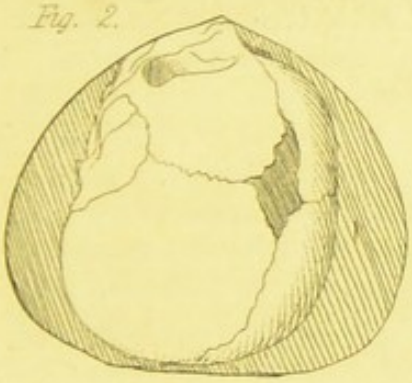
I have said above that Nägele contradicts himself by his statistics. Thus, he says distinctly that his observations having been made on 3701 cases of cranial position carefully observed (*sorgfältig beobachteten*), the head presented 2457 times in his first position, and 1244 times in his second position. As these two numbers make up the total of the 3701 cases of cranial position observed, where are we to find the *uncommon* cases to which he elsewhere alludes, in language which I shall quote presently, and especially of the seven cases of fourth position which he there

Progress of labour in 3rd. Position.

Fig. 1.

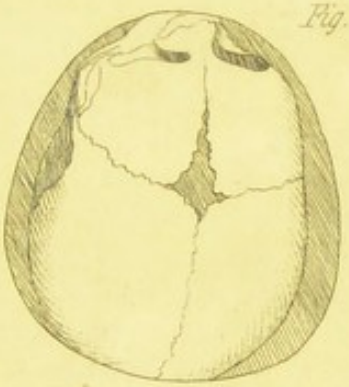
Head entering Pelvis in third position, all the frontal bone and part of the cheek may be touched.

Fig. 2.



Forehead coming round to arch of Pubes in the third position.

Fig. 3.



Head at outlet of Pelvis in the third Position.

Fig. 4.

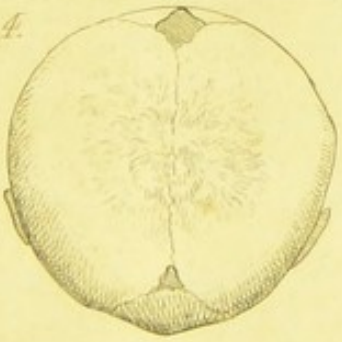


Diagram of vertex shewing the position of the ears in a vertex presentation.

N. J. HOLMES DEL. N. J. HOLMES & Cº IMP.

WILLIAM MACKENZIE, GLASGOW, EDINBURGH & LONDON.

says he had met with? According to the statistics and numbers given by him, he had seen none but cases of his first and second position; all these, with the seventeen exceptions to which I have alluded, having followed the processes described by him as being the normal ones. Surely all this is very strange and incredible.

Although Boivin, Ramsbotham, and others, in treating of these face-to-pubes cases, name them positions of the "vertex,"* yet, inasmuch as they describe the *forehead* as being in the pelvis during the first stage, their *descriptions*, and, I may add, most of their plates and diagrams, entirely confirm my view of the real nature of these cases, namely, that they are *not vertex* presentations at all. Burns says:—"The forehead instead of the vertex may be turned to the acetabulum. In this case, the presentation is felt in the first stage, high up, smooth and flatter than usual. In a little longer, we discover the anterior fontanelle and the situation of the sutures." And further on he says, "Even when the head had descended so low as to have the nose on a line with the arch of the pubes, I have," &c. &c.; and further on, "Some have advised that we should keep up the forehead during a pain, *to make the vertex descend.*"—(*Principles of Midwifery.* 4th edit., p. 325.)

Surely here Burns is not describing a vertex presentation. And Denman says:—"*Face inclined towards the pubes.* . . . . . This position is most readily known by our being able to feel the *greater fontanelle* in a common examination; though it is also proved by other circumstances relating to the features of the face, or various parts of the head, which may readily be discriminated." (*Introduction to Practice of Midwifery.* Sixth edition, p. 229.) Can this be a *vertex* presentation, where any part of the face may be felt? See one of my cases, No. 2029, quoted further on, in which I felt part of the cheek.

I am willing to concede this much to Nägele, that sometimes, after the face has fairly come round to the pubes, so that the nose may have been felt there, the face during the final expulsion may so turn up while the occiput is slipping off the perineum, that just at that moment the anterior fontanelle may be felt at the symphysis. I have observed this more than once, and Boivin alludes to a similar phenomenon in these words: . . . . . "lorsque le sommet et la face se dégagent de derrière les pubes, après la sortie de l'occiput;" also, "lorsque c'est l'occiput qui sort le premier de derrière le périnée."—(P. 236.)

I appeal to the presence of a *head-swelling* in these cases, on the side of the *forehead* exclusively, as a proof that that part has been pressing into the pelvis, in place of the parietal bone, on

* "*Modes in which the vertex presents*," is the heading of a paragraph giving eight positions.—(*Ramsbotham, Fourth Edition*, p. 108.) "Vertex presentation, with the face behind either groin."—(*Op. cit.*, p. 193.)

"PRESENTATION DU SOMMET. *Position fronto-cotyloidienne gauche.*"—(*Boivin*, p. 227, &c. &c.)

which, about the vertex, the head-swelling is always found—in vertex presentations proper.

Before concluding the subject of these face-to-pubes cases, I must be allowed to say a few words on the management of them, for it is often expedient to rectify the position of the head. In doing this, I will merely quote from my register my notes of two cases in which I thus interfered :—

"No. 2160.—*Face to Pubes—Third position of Cranium—Artificial rectification. Dec.* 28, 1853.—Could feel nothing but anterior fontanelle, which was nearly closed, and turned towards left side, and the sutures were scarcely perceptible. The anterior fontanelle, feeling like the posterior, came down, and presently I felt the nose at the symphysis. Thinking the pains did not press the head down while in this position, I turned the face to the left side again; and then, when I could feel an ear at the pubes, I pressed behind it till the occiput came to the arch. Labour over with two more pains. *Observe*, in rectifying the position of the head, after the nose has been felt at the symphysis, it is not sufficient to merely bring the ear to the symphysis, as the frontal end of the head will still be lowest, and the head will merely be brought back to the vicious position which had resulted in the turn of the face to the pubes, and if so left, will again get wrong, or perhaps get impacted, the head being with its whole length in the transverse diameter of the outlet. It is necessary to bring the ear to the side; and at the same time it is expedient to raise up the anterior fontanelle, that the *vertex* may descend; for it must be borne in mind that *that* is the material point to be effected."—*Note in Midwifery Register.*

Very soon after meeting with the case just quoted, I met with a case of fourth position, which admirably illustrated and proved the applicability of the caution appended to my note :—

"No. 2172, *Jan.* 27, 1854.—*Face to Pubes—Fourth position of Cranium—Artificial rectification.*—On first examining, I found the head in the fourth position, a considerable portion of the frontal bones down, the anterior fontanelle towards the right side, and the posterior fontanelle out of reach altogether, the right coronal suture pointing to symphysis pubis. After the next pain, I found the *frontal* suture at the symphysis, the anterior fontanelle being central, or nearly so, and the right coronal suture far away to the left side of the symphysis. Turned the anterior fontanelle backwards, and waited for another pain. The forehead came forwards again. Turned it backwards again, at the same time raising it up until I felt the posterior fontanelle, the right *lambdoidal* suture pointing to the symphysis. With two more pains the labour was over, with the occiput under the arch. (See observations in note to No. 2160.)"—*Note in Register.*

Is it at all advisable to interfere in these cases, before the nose is to be felt at the symphysis? I quote the following from my note-book in answer :—

"*No.* 2029, *Feb.* 12, 1853.—*Right Ear at Pubes—Artificial rectification.*—Felt anterior fontanelle near coccyx, and right ear at pubes. Felt part of the cheek on right side of symphysis. Head had escaped from os uteri. Pains had been very strong for some time, with the liquor amnii evacuated. Thinking that, because the forehead had got down into the pelvis, the occiput would not be able to find its way to the arch, and that the forehead would turn there instead, I pressed the ear to the right side, and the occiput, coming down, passed under the arch. The labour was completed immediately after. As the revolution of the head was on the anterior fontanelle, that part was felt in exactly the same position, with reference to the coccyx, after the rectification as before."

The posterior fontanelle could not be felt in the first stage. It was clearly a case of fourth position, and I have no doubt would have terminated as such, if I had not interfered. It may be a rule, that if the anterior fontanelle be felt presenting, and an ear be felt at the pubes, with but little disposition on the part of the head to make further progress, and if, moreover, the *cheek* can be felt, it is best to interfere.

One more case in illustration, and I will leave the subject o. the third and fourth positions; it shall be a case of *third* position, terminating as such:—

"*No.* 2030.—*Feb.* 13, 1853.—Feeling anterior fontanelle low down, and slightly to the left of the coccyx, I felt round the right side for the posterior fontanelle, but could not find it. I then passed the finger to the symphysis, thinking to find the ear, when it struck on the left eye (close to the symphysis, but slightly to the right of it), and on the root of the nose (close to the left side of it). The os uteri was fully dilated, the head on the perineum, and the woman had been only two or three hours in labour. I therefore did not attempt rectification, and in three or four pains the child was born, the frontal suture having first passed rather nearer the central line of the pelvis."

I have notes of many other similar cases, in all of which I distinctly satisfied myself that the forehead, and not merely the anterior fontanelle came to the pubes, and that they were never in any stage *vertex* positions.

The chief points which I am anxious to suggest are briefly, and by way of summary, the following:—

1. A more correct appreciation of the diagnostic value of the presence of the ear at the symphysis pubis; the ear in the great majority of cranial presentations lying in that situation during the whole progress of the head into the pelvis.

2. That in *vertex* positions, the presence of the ear at the pubes proves that the head is already in a favourable oblique occipito-anterior position, becoming more and more so as the os occipitis comes more and more within contact, although the ear may not have left the symphysis.

3. When the occiput is fairly under the arch of the pubes in the last stage, the long diameter of the head will be found to be accurately in the long diameter of the outlet; the two lambdoidal sutures being evenly one on each side of the symphysis, and the anterior fontanelle exactly on the raphe of the perineum, as described by all writers except Nägele, and those who follow him.

4. That in this last position the ears are at each acetabulum, rather than at each ilium, as taught in books.

5. That the first and second most frequent positions of the vertex are, in the majority of cases, the converse of each other, as taught by nearly all writers, except Nägele.

6. That in his grand discovery of the universality of *bregmato-cotyloid* positions in the second position, he has deceived himself, by not reversing all the conditions, both of the patient in her position, and of the examining hand of the accoucheur.

7. That Nägele, in maintaining that his predecessors are all wrong in this matter, has deliberately confounded mere bregmato-cotyloid with *fronto*-cotyloid positions, the latter being always intended by writers, though they may have loosely denominated them presentations or positions of the *vertex*.

8. And that, therefore, Nägele is right in maintaining that the normal progress of the labour in bregmato-cotyloid positions, as in all true *vertex* ones, is for the occiput to make its way to the arch; and that quite as easily, *cæteris paribus*, as when the occiput lies originally most forward.

9. That there are only *two* positions of the *vertex;* that is, only two ways in which, in *vertex* presentations, the head enters the pelvis, and makes its way to the outlet.

10. That in all, or nearly all, presentations of the *vertex*, the occiput will surely come to the arch of the pubes by a natural and necessary process; and that whether the vertex presentation be bregmato-anterior or bregmato-posterior originally.

11. That the cases which terminate with the face or forehead at the pubes, are originally positions in which the uterine efforts are so perversely directed, that the forehead gets down into the pelvis during the first stage.

12. That, in that first stage, the ear is usually at the symphysis, as it is also in vertex presentations.

13. That in these perverse cases, which are usually *bregma* presentations, the ears will really occupy opposite parts of the pelvis, the head lying at first with its long diameter in a transverse position across the pelvis.

14. So that some of them may terminate with the occiput at the arch, after a very hard labour.

15. But the original perverseness in the direction of the uterine efforts, which has placed the head in this unfavourable position, continuing, the anterior or frontal end of the head will frequently pass first to the floor of the pelvis, and then come forward to the arch of the pubes.

16. That Nägele, on his own showing, had never seen a genuine case of true *fronto*-anterior position, incredible though it may seem; at any rate, such a case as is described by nearly all writers, and as is met with continually in practice. He decidedly ignores all such cases.

17. That Nägele is quite as wrong in maintaining that all first positions are originally *occipito-cotyloid*, as that all second positions are originally *bregmato-cotyloid;* bregmato-cotyloid positions, in the former class of cases, being common enough, and having been overlooked through the method of examination.

18. But that most of the bregmato-cotyloid positions met with are merely instances of a kind of *deceptio tactûs*.

19. For it is only necessary to place the patient on her other side, and to use the other hand in examining, in order to be con-

vinced that the first and second positions of the vertex are the converse of each other in *every respect.*

20. And that, although there may be quite sufficient in the patient's position to account for this *deceptio*, we may be justified in taking into consideration, also, the deceptive impression conveyed to the finger, when it is passed *blindfold* from one point to another of a globular surface, along a line ordinarily looked upon as a straight one, lying over that *globular* surface.

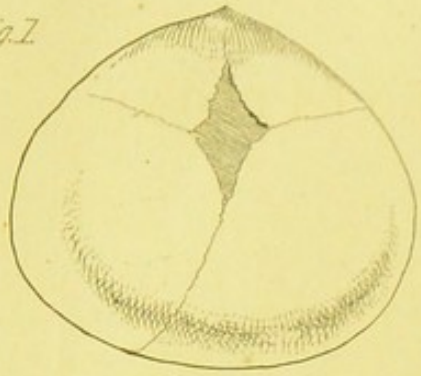
21. That it is no wonder that disputes and discrepancies should have arisen among authors, when we find one set speaking of presentations of the " vertex," and meaning presentations of *any part of the whole cranium;* while another set, like Nägele, speak of " *cranial* positions," meaning positions of the *vertex* exclusively.

22. And finally, that the dispute between Nägele, and those whom he so utterly condemns as guilty of *ignorance* (*Unkunde der Art und Weise*, &c.), is something like the quarrel between the two knights about the shield which was gold on one side, and silver on the other.

PART II.

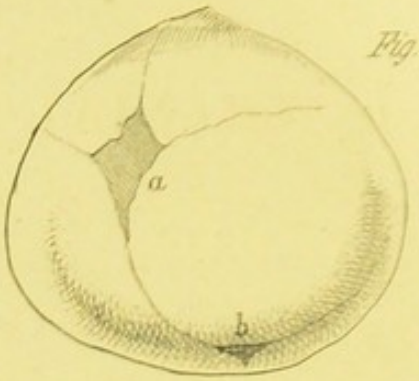
UNCLASSIFIED AND ABNORMAL POSITIONS.

Fig. 1.



Case. Nº 2134. described in the text at Page 397.

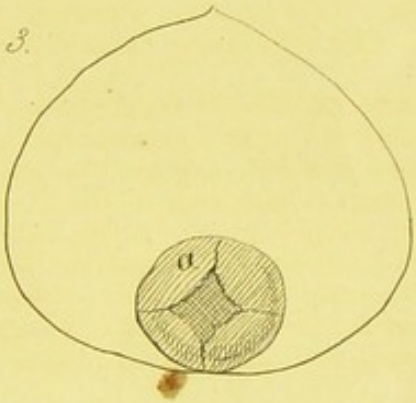
Fig. 2.



a. anterior fontanelle.
b. posterior fontanelle now first felt.

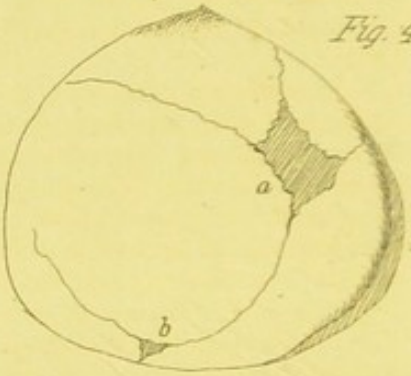
Case 4. Nº 2194. Appendix B.

Fig. 3.



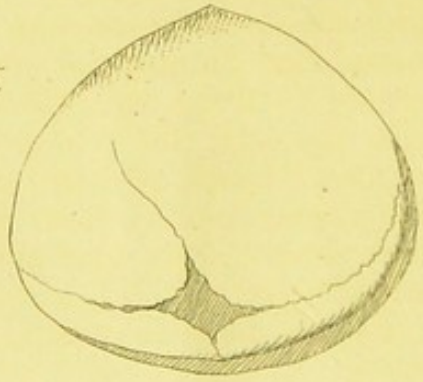
a. anterior fontanelle felt at the os uteri. as it begins to open. Page 402.

Fig. 4.



a. anterior fontanelle
b. posterior fontanelle
now first felt.

Fig. 5.



Page 408.

Parts of the Head touched in the first stage of the case of 4th position. Case 5. Nº 2036 Appendix B.

CRANIAL PRESENTATIONS

AND

CRANIAL POSITIONS.

On the subject of *uncommon* positions, Nägele observes, page 46:—

"As *uncommon* cranial positions, we regard those which, in manuals and treatises, are described as *second* and *fourth* positions.

"With reference to the supposed so frequent occurrence of the so-called *second* position, we have already expressed our opinion. As a primitive position it is the rarest of all, so rare that it scarcely occurs once even among thousands of births.

"Exceedingly rare, also, is the so-called fourth position, in which the head offers itself with the right parietal bone foremost, the great fontanelle turned to the right, and somewhat forward. We have met with this position only seven times among 3677 births.* Here, as a rule, the same kind of turn takes place as in our second position; that is to say, the posterior fontanelle turns from its original backward and left-side position, quite to the left, and then forward and to the left, and the head comes to the outlet as in our first position. Under such circumstances as we have hinted at in a former paragraph, it may here also happen now and then, that the head may be finally expelled with the face still turned forward or upward."

Does M. Nägele here speak from mere theory, or from his own personal experience? It is, at any rate, worthy of remark, that the total number of cases of fourth position, on which he had the opportunity of making his observations, was seven only. Now, he says in another place, that the unusual termination of the *face to the pubes* occurred only 17 times, with 1244 cases of his second position, all of which presented the *converse* phenomena of the seven cases of "so-called" fourth position here referred to. He does not say how many times, out of these seven cases, the *unusual* termination took place. The question naturally suggests itself: Had he seen a sufficient number of these cases to justify him in laying down the law about them as he has done?

Nägele continues:—

"When accoucheurs of great celebrity have maintained that, according to their experience, the kind of so-called spontaneous rectification of the head, in

* I suppose Nägele would classify these seven cases among his cases of first position. At any rate, he accounts for all his observed cases as being either "first" or "second," leaving none for any other position at all.—R. U. W.

which the occiput, originally directed towards the right sacro-iliac synchondrosis, turns itself first to the right side of the pelvis, and then forward and to the right side, is much more rare than where the occiput, originally directed backwards and to the left side, turns forward and to the left side, we are inclined to see, in such assertions, nothing but a glaring self-deception, being entirely convinced that the plausible theory of the influence of the rectum, which makes this turn easy in the so-called fourth position, while it makes it difficult in the third, is altogether as false as is the very existence of the phenomenon or difficulty, to explain which it has been thought of.* In studying these things seriously, one really can scarcely refrain from expressing a wish that the compilers of manuals, compendiums, and what not, instead of filling whole paragraphs, pages, and leaves, with things which entirely contradict what really occurs in nature, would leave their writing-desks, and, casting prejudice aside, would observe how these things really go on in nature—so many opportunities of thus observing being at hand—and thus come at the truth. We are convinced that then they would deny that influence on the progress of the labour which they had been so ready to ascribe to the rectum.

"Lastly, with regard to *transverse* positions of the head, which quite recently it has been again attempted to introduce into the list of customary positions—as when the head, in pressing down into the cavity of the pelvis, lies in the transverse diameter, or from side to side—we consider this circumstance to be due to some irregularity in the form of the pelvis. That at times, but only under very exceptional and unusual circumstances, the head passes brim, cavity and outlet, throughout in the transverse diameter, we have had the opportunity of observing; but we do not on that account consider ourselves justified, by any means, in reckoning transverse positions as regular or customary ones. We look upon them decidedly as irregular and exceptional."

Without being willing to ascribe to the rectum all the influence which Madame Boivin, and others, would appear to claim for it, I may, nevertheless, be permitted to observe here, *par parenthèse*, that Nägele is assuredly in error, in maintaining that a full rectum has no influence whatever on the progress of the labour. I am convinced that the passage of the head into the pelvis is frequently *retarded* by that circumstance, as also by a full bladder, sometimes merely from the patient's unwillingness to allow to the pains their usual expulsive effect; but that the rectum, either full or empty, has any influence in determining, altering, or modifying the *position* of the fœtal head, I do not believe. If the pains force the head into the pelvis at all, it will turn and twist itself about, so as to adapt itself to the *bony* pelvis, whatever the condition of the rectum may be.

* The explanation thus severely commented on by Nägele is thus given by Madame Boivin:—"La cause qui prolonge la durée du travail, dans le cas de position occipito-cotyloidienne droite, vient encore ajouter à la difficulté que présente celle-ci. Non seulement dans le cas présent, le front ne peut rouler aussi facilement que l'occiput sur le plan incliné antérieur du bassin, mais la réplétion du rectum peut s'opposer encore à l'accès de l'occiput dans la courbure du sacrum, cependant cet obstacle de la part du rectum peut déterminer l'occiput à se rapprocher de la paroi antérieure du bassin; et si l'on a remarqué que cette conversion de la tête a plus souvent lieu dans ce cas" (viz., in the *fourth* position), "que lorsque l'occiput est à droite et en arrière" (the *third* position), "ne conviendrait-il pas mieux de laisser le rectum dans son état de plenitude, que de l'évacuer, comme on l'a conseillé? Sans doute que, si l'occiput ne se déterminait point à avancer d'aucun côté, il faudrait injecter le rectum et le vider; mais alors, au lieu de se porter en avant, où il a tant de chemin à faire, et plus de difficulté à vaincre, il se porterait dans la courbure du sacrum, dont il se trouve plus près que de l'arcade des pubis."—*Mémorial de l'Art des Accouchemens*, tom. i., page 232.

And surely M. Nägele is much too sweeping in the passage above quoted, in his enumeration of unusual positions, as well as, in another place, of unusual deviations from the normal progress of the labour. I hope I have already proved that cases of the *second* and *fourth* positions are really met with in nature so frequently, as to justify their appearance in a scientific classification of cranial positions; and I have certainly in practice met with a much greater variety of *unusual* presentations than Nägele allows may occur. Without further preface, I will merely transcribe my notes of some of them:—

CASES OF OCCIPUT TO PUBIS — POSITION OCCIPITO-PUBIENNE. (BOIVIN.)

"*No.* 2035.—*March* 10, 1853.—Os nearly dilated. On first examination, I felt the posterior fontanelle at the symphysis, perhaps slightly to the right side of it, the sagittal suture being directed almost evenly backwards. When I next examined, the posterior fontanelle had passed more to the right side, and the head was pressing into the pelvis in the second position."—*Note in Register.*

The head may *present* with the occiput turned to the pubes, but it will not enter the pelvis in that way, except under very peculiar circumstances. Cranial *presentations* and cranial *positions* are two different things, and I should be disposed to recognise as *positions* those only in which the head is capable of passing down into the pelvis. The head may *present* in many different ways. Well, then, occipito-pubic *presentations*, such as the one I have described, may now and then occur, but very rarely; as *positions*, I doubt whether they can occur. The case just quoted, I registered as one of *second* position, as it clearly resolved itself into my definition of that position. The following case, which I met with several years ago, occurred with a woman who had a very wide pelvis, and who, when her child presented in almost any other way, had very easy labours. She was, in fact, the subject of cases 581 and 686, quoted further on (pages 48, 49), as examples of deviation from the normal progress of the labour, in both which cases, although the face came round to the pubes, the labour was remarkably easy:—

"*No.* 890.—*Jan.* 16, 1844.—The posterior fontanelle was felt at the pubes, while the head was in the superior strait. As it was long arrested there, I applied the vectis, and delivered."—*Note in Register.*

I believe the head passed through the pelvis without any change of position, but as the vectis was used, the remarks I have made with regard to the necessary progress of the labour in these cases are not here applicable. In the following case, the unusual position was susceptible of explanation:—

"*No.* 2471.—*March* 28, 1856.—Feeling for the ear, which I found somewhat on the right side of the symphysis, I felt a hand lying over the ear. The posterior fontanelle was at the pubes, slightly, perhaps, on the left side of the sym-

physis. The hand slipped up as the head descended. Wide pelvis; very easy and quick labour. . . . The presence of the hand on the right side of the head made a difference to the way in which the head came down into the pelvis. The occiput was at the pubes all the way, the diameter of the head, including the hand, being the longest from side to side."—*Note in Register.*

This case I registered as one of first position. The woman was the subject of case 2134, described in next page. I have the following note of a somewhat similar case:—

"*No.* 726.—*May* 21, 1842.—The posterior fontanelle was turned to the pubes n the superior strait, and while passing into the pelvis. This position was caused by the arm having got down by the side of the head, making the diameter of the head the greatest from side to side. As soon as the head had got fairly within the pelvis, finding it was delayed, I pushed up the hand, and the labour was completed almost immediately after."—*Note in Register.*

As I was not at the time making this subject a special study, I did not notice on which side of the head the hand was lying.

"*No.* 2051.—*April* 14, 1853.—Os dilated. Head very high. Membranes entire; ruptured them. Head dropped on brim, with the posterior fontanelle very slightly to the left of the symphysis pubis, the sagittal suture passing almost directly backwards. After a few pains, the occiput passed more to the left side, the sagittal suture assuming more obliquity, and the right lambdoidal suture being felt at the symphysis. The labour was, as I thought, rendered more severe than it would have been, if the occiput had been more in the line of the expulsive efforts. It was a small child. Thus, perhaps, occipito-pubic cases may occur, but the head will not pass through the pelvis in that position." —*Note in Register.*

"*No.* 1364.—*June* 14, 1848.—The head presented in the superior strait, with the posterior fontanelle at the pubes. This circumstance, added to an unusual size of the head, rendered its passage through the pelvis very laborious. I endeavoured in vain to rectify this position. It finally rectified itself, as the pains became more severe, and the occiput passed to the side. After the fœtus was expelled, I found the funis was wrapped four times round the neck. Query —Did this tying of the neck hold the head in its unfavourable position?"—*Note in Register.*

"*No.* 2573.—*Oct.* 27, 1856.—There seemed no sufficient reason, either in the size of the fœtal head, or in that of the maternal pelvis, to explain why the labour should have been so hard as it was in the last stage. But as I plainly felt the back of the neck, and the funis round it, while the head was still high in the pelvis, the tuber occipitis being *behind*, and not *under*, the symphysis pubis, I am inclined to think that the difficulty arose from the case being *occipito-pubic*, the face not being able readily to get into the pelvis, on account of its lying against the promontory of the sacrum. I felt this position of the head while searching for an ear at the pubis, being anxious to ascertain the exact position. The posterior fontanelle was quite low, the whole of the occiput being in contact; and there was a considerable vacancy between the perineum and that portion of the head which was approaching it, the broadest part of the head being in fact above the sacral promontory. I had previously made out the posterior fontanelle somewhat to the left side of the pelvis. It was my impression from feeling, after a time, the anterior fontanelle somewhat towards the left side of the pelvis, that the head was rectifying itself, by the occiput passing to the right side. However, I finally settled the question, by applying the vectis over the right ear, delivering thus with great facility."—*Note in Register.*

I cannot find notes of any other occipito-pubic cases, unless the following very remarkable one may be regarded as belonging to that class:—

"*No.* 2107.—*Sept.* 9, 1853.—I am quite clear that in this case, I, for a full hour, felt the head in the first position, the posterior fontanelle directed, as usual, to the left side. When the os uteri was nearly fully dilated, the head began to roll about, and I plainly felt the posterior fontanelle pass to the symphysis pubis, the head being still very high in the pelvis—too high to descend in such a position. I assisted it back again to the left side. But during a pain, and while I had my finger applied to it, the posterior fontanelle rolled again to the symphysis, and thence to the *right* side! when I felt the *left* lambdoidal suture pointing to the symphysis, with the *left* parietal protuberance presenting. In this position, the head passed into the pelvis, cleared the os uteri, and was expelled in the usual way. Before the posterior fontanelle passed to the symphysis, I had felt the *right* parietal protuberance as the presenting part.—N.B. I felt both fontanelles in both positions, and the head being a well-ossified one, with nothing unusual about the fontanelles, I could not be deceived, the anterior being very wide, and the posterior nearly closed. A very wide pelvis."—*Note in Register.*

In accordance with my own arrangement, I registered this case as one of *second* position. It was, perhaps, as much a case of unusual deviation from the normal progress of labour as one of unusual position; as was, perhaps, the following, which may be regarded also as a doubtful example of *fronto*-pubic position:—

"*No.* 2134.—*Oct.* 14, 1853.—*Strange case!* I first felt anterior fontanelle to left side of pubis, the left branch of the coronal suture running to symphysis. Quite satisfied it was the anterior fontanelle, as I felt the four radiating sutures over and over again, and the fontanelle was large. As the os dilated, it approached nearer the symphysis, until I felt it distinctly in the position represented in Plate IV., fig. 1. Now the head was very loose, and rolled about, the pelvis wide, and the pains, though effective in dilating the os uteri, very slack, weak, and infrequent. To my surprise, having omitted taking a pain, I found, when I examined again, that the fontanelle had passed to the right side of the pubes, as shown in Plate IV., fig. 2; and the posterior fontanelle became perceptible to the touch—*more easily felt now with the right hand*, than when it was lying on the right side, as just before. The anterior fontanelle then gradually came round more to the side, and the labour proceeded as bregmato-anterior cases of *first* position usually do, the occiput coming to the arch by the left side. The posterior fontanelle proved to be well ossified, and not at all likely to be mistaken for the anterior, even if I had not fairly traced the latter from the left side to the symphysis, and *thence* to the right side. Besides, how much more unlikely, even than what I have described, would it have been, if the posterior fontanelle had first advanced close to the symphysis, and then gone quite back?"—*Note in Register.*

This case, therefore, I registered as one of *first position, bregmato-cotyloid variety.*

I need not say anything here on the subject of *transverse* positions of the cranium, having already (*ante*, pages 23, 24) suggested an explanation of the supposed occasional occurrence of such positions.

Presentations of the *ear* are not alluded to by Nägele. They are occasionally met with, and are surely varieties of *cranial* position. They are very rare. I have myself only met with two

cases, in one of which a shoulder was presenting with the ear. In both these cases, it was that ear which ought to have been at the pubes which had got down too low, so as to be felt where the parietal protuberance is usually found. It is hardly scientifically correct to denominate such cases examples of *ear-presentation*, as the ear does not lie in the axis of the brim, or of the expulsive efforts. As the head descends further in these cases, the ear slips up to its normal position behind the pubes, a process which *may* be artificially assisted, but which usually takes place spontaneously, when the really presenting part slides along the inclined plane of the coccyx. This took place in my cases. But having only met with those two cases, I scarcely consider myself competent to give any opinion on "*ear-presentations.*"

As an unusual variety of cranial presentation, I may instance the following case:—

"*No.* 1254.—*July* 17, 1847.—*Hand, with shoulder and occiput.* I could feel one hand, the back of the head, and a shoulder. There was great redundancy of liquor amnii. As soon as the membranes were ruptured, the child descended, and being small and premature, was readily expelled. I pushed up the hand, which altered the presentation a little for the better. The fœtus was the subject of ascites. Note the coincidence of fœtal ascites with redundant liquor amnii." —*Note in Register.*

Thus we have seen, that few as are the examples to be met with of cranial presentations which differ from the description given of the four customary cranial positions, even those few are most of them either reducible to, or, in the progress of the labour, spontaneously resolve themselves into, one or other of those four, except under such very exceptional conditions as are described in cases, Nos. 726, 890, 1364, 2471.

With regard to deviations from the normal progress of the labour in the four customary positions, if we are to regard, as I do, the turning of the face to the pubes as the normal and almost necessary result in the third and fourth positions, these deviations are very few and unimportant. I give the following as examples:—

"*No.* 121.—*Feb.* 12, 1836.—From the extreme wideness of the pelvis, the head, in descending, did not make the usual turn, but was expelled with the face still directed towards the right sacro-iliac synchondrosis."—*Note in Register.*

This was a case of first position, in which the head passed right through the pelvis, without any change of position.

"*No.* 817.—*March* 14, 1843.—The head was expelled with the face at the left foramen obturat. Pelvis wide. Labour quick and easy."—*Note in Register.*

This was an analogous case of third position.

"*No.* 581.—*Jan.* 11, 1841.—The face was turned to the right acetabulum during the passage of the head through the pelvis, and suddenly twisted round to the pubes, while the head was sweeping the perineum, not making the turn so soon as it is commonly made."—*Note in Register.*

And this of fourth position.

"*No.* 686.—*Jan.* 6, 1842.—(The subject of the previous case.) The face twisted round to the pubes during the last pain, as in her former labour. Very easy labour. There was only one pain after the head cleared the os uteri."—*Note in Register.*

These two cases scarcely deserve mention at all. In neither of them was there any absolute deviation. It was only in the circumstance of the final turn not taking place until the very act of final expulsion, that there was anything unusual. The first of these two cases was clearly a case of fourth position, as I have said. I was not making a special study of cranial positions at the time, and it was by accident only that I made a note of the side from which the face came round. In the other I omitted this, and, therefore, cannot say whether it was third or fourth position.

In the following case there was a very important and unusual deviation:—

"*No.* 71.—*August* 10, 1835.—Face to pubes. After the face had rested some little time, with the nose at the symphysis pubis, the face itself came down, until the chin passed under the pubes, after which the labour was very speedily and easily terminated, as in an easy case of *face presentation.*"—*Note in Register.**

I say nothing, in this paper, on the subject of face-presentations proper. They are positions of the head, but not of the *cranium.*

After the expulsion of the head, the most frequent course, in the passage of the trunk through the pelvis, is for that shoulder to turn to the arch of the pubes which corresponds with the side of the head which, in the first stage, has been turned to the pubes. But this is not invariably the case, though we are taught so in books. Out of the total of 481 cases of cranial presentation, on the observation of which I have founded the conclusions and views expressed in this paper, I found the shoulders reversed no less than 46 times. (See the table in the Appendix.) So that if we have failed to make out the position of the head, during its passage through the pelvis, we cannot rely on the information to be derived from the passage of the shoulders.

I have omitted in the proper place one trifling remark, with respect to the ear at the pubes. It is this:—In vertex positions, in searching for the ear, the finger may be passed along the

* I had previously met with a case, which, in some respects, may be quoted as a parallel one to this:—"*No.* 55.—*May* 30, 1835.—After severe pains for several hours, feeling the orbits at the pubis, I pulled them down, and converted the case into one of face presentation. The labour was completed easily a few seconds after."—I have often thought I was foolishly bold, being so young in practice as I was at the time. Certainly I should not now venture on such a plan. I should rather push the face back into the hollow of the sacrum. My father, who was a very cautious practitioner, when I boasted to him of the feat I had performed, told me never to do so again, and I never did.

lambdoidal suture. The ear will be found at the end of it, but as the part of the ear thus felt will be more or less the back of it, some little care will be needed before one can decide which is the ear one is touching; for the front part of the ear is upwards, and the lobe of the ear will be felt to flap on both sides. In presentations of the anterior fontanelle, on the contrary, as the finger lights on the *top* of the ear, the flapping lobe is readily distinguished, the finger sliding from the face over the ear, without turning up any flap at all.

In conclusion, I must be allowed to say, that the opinions and views suggested in this paper have all been formed after unprejudiced observations of facts, of which I have preserved careful notes, written mostly before leaving the bed-room of my patients. I will defy any man to look back on his experience, and, from mere recollection of a confused number of cases, to decide on the very nice questions to elucidate which I have made a special study of the facts observed. I subjoin, in an Appendix, my notes of some of the cases on which I have founded my opinions.

Alford, Lincolnshire, *Sept.* 1, 1856.

Appendix A.

I give the following table, for the purpose of showing more distinctly the proportions in which the different positions were distributed through the series mentioned page 18, *ante*:—

TABLE OF CRANIAL POSITIONS IN THE AUTHOR'S PRACTICE, BETWEEN JANUARY 1, 1852, AND AUGUST 31, 1856.

Page.	Cranial Positions.					Other positions than cranial.	Total births.	Shoulders reversed.	Face to pubes, rectified artificially.	Fontanello-anterior positions terminating naturally.	
	1st.	2nd.	3rd.	4th.	Not ascertained.					As 1st position.	As 2d position.
1	1	1	..	..	..	..	2	1	..	..	..
2	13	2	..	1	4	..	20	2	1	2	2
3	8	3	2	..	8	1	22	..	1	1	2
4	13	3	..	..	4	..	20	..	..	3	3
5	9	4	1	..	4	2	20	2	..	1	2
6	13	1	..	..	6	..	20	1	..	2	1
7	11	6	..	..	3	1	21	3	..	1	2
8	9	5	..	1	3	2	20	2	..	2	3
9	7	6	..	..	7	1	21	2	..	..	3
10	5	8	3	1	3	..	20	1	3	..	4
11	10	4	..	1	5	..	20	1	..	1	2
12	3	6	..	..	7	4	20	..	..	..	2
13	6	4	..	..	7	5	22	1	..	..	..
14	9	4	1	1	5	1	21	..	1	..	1
15	8	5	..	..	6	1	20	..	..	2	2
16	11	3	..	..	6	..	20	4	..	1	1
17	10	3	1	1	3	2	20	3	2	1	..
18	11	6	..	..	3	..	20	..	..	..	1
19	6	6	..	..	8	..	20	..	..	2	..
20	14	2	..	..	3	1	20	4	..	1	..
21	7	5	..	..	8	1	21	2	..	..	1
22	8	4	..	..	8	..	20	3	..	..	1
23	11	6	..	..	1	2	20	2	..	..	2
24	13	2	..	..	5	..	20	1	..	2	1
25	9	3	..	..	8	..	20	..	..	..	1
26	8	2	1	..	7	3	21	2	1	..	1
27	5	2	1	..	13	..	21	1	..	1	..
28	7	3	..	1	8	1	20	1	1	..	2
29	6	5	1	..	8	..	20	1	..	..	1
30	6	2	..	1	10	1	20	..	..	..	1
31	6	6	2	..	5	1	20	1	2	..	1
32	10	5	1	..	3	2	21	2	..	..	1
33	9	3	..	1	7	..	20	2	1	..	..
34	9	8	..	..	3	..	20	..	..	1	..
35	8	5	1	..	6	..	20	1	..	1	..
36	7	8	..	..	6	1	22	..	..	1	2
Totals,	306	151	15	9	201	33*	715	46	13	26	46

I have taken the separate totals in each page of my register, each page containing 20 labours. The first page given contains but two labours, as I commenced this system of registration at the

* Feet or knees, 15; breech, 7; hand or arm, 4; face, 3; feet with cranium, 1; feet with face, 1; shoulder with ear, 1; shoulder with occiput, 1 = 33.

bottom of a page. It will be understood, that when the number given exceeds 20, there occurred one or more cases of twins. The column headed "Not ascertained," contains the total number of cases in which I had not the opportunity of satisfying myself of more than the fact that the child had presented the cranium.

Appendix B.—Notes of Cases in Illustration.

1. *Case of First Position.—Bregmato-pubic Variety.*

"*No.* 1935.—*July* 5, 1852.—Os dilated; membranes entire. Ruptured them. Posterior fontanelle felt at left side, the sagittal suture sweeping round near the back of the pelvis—about one inch of it, on the left side, being directed slightly forwards; the remainder, by far the greater portion of it, being directed far more forward, towards the right acetabulum—where the anterior fontanelle could be felt, that fontanelle being much nearer the pubes than the posterior. As the vertex descended on the inclined plane, the occiput gradually came round. Second child. Labour quick and easy."

2. *Another.—Case of Deceptio Tactûs.—Ear felt at Pubes.*

"*No.* 1980.—*Oct.* 9, 1852.—I felt the anterior fontanelle readily to the right side of the pubes. Posterior fontanelle felt with difficulty, though the examination was made with the right hand, the woman on her left side. The sagittal suture was directed backwards from the anterior fontanelle, and passing the finger along it, I could only feel the posterior fontanelle by passing it right underneath and behind, as it were. However, I felt the right ear near the pubes. Very easy, quick, *primiparous* labour."

3. *Case of Second Position.—Bregmato-pubic Variety.*

"*No.* 1834.—*Nov.* 17, 1851.—On first examining, I felt the anterior fontanelle through the membranes. After rupturing them, I felt it again distinctly turned towards the left acetabulum, the posterior fontanelle being directed obliquely backwards. The head felt quite ready to descend. After the woman got into bed, I found the anterior fontanelle had gone back, and was turned towards the left sacro-iliac synchondrosis. Now, in the first examination, the anterior fontanelle was near the middle of the os uteri, which was dilated to a diameter of about 3 inches. In the next, after the rupture of the membranes, it had approached nearer to the side, or rather front, of the pelvis, the *vertex* being disposed to descend; and it was evidently owing to this disposition on the part of the vertex to descend, the anterior fontanelle slipping up, that the rectification took place. I begin to think that, acknowledging that spontaneous rectification depends on the amount of obliquity of the head—*i. e.*, on the degree in which the vertex descends, and the anterior fontanelle passes upwards—that obliquity is owing to a favourable direction in the expulsive force of the uterus, the line of that force being directed to the vertex. I should be disposed to put the case thus:—That whether the lateral obliquity places the head with the anterior fontanelle in front of, or behind, a line drawn evenly from side to side of the pelvis, it is immaterial; that the face will not in the former case, any more than in the latter, turn to the pubes, unless the line of the expulsive force of the uterus be directed to the forehead, rather than to the vertex."

This note was written before I had read Nägele's work, or was at all aware of his opinions. My subsequent experience has entirely confirmed the views I have here expressed.

4. *Another.*

"*No.* 2194.—*March* 10, 1854.—Felt only anterior fontanelle at first in axis of brim, as shown in fig. 3, Plate IV. Os dilatable. Could not tell to which side the occiput was lying, but the head pressed down, until the os was fully dilated, when I found that the anterior fontanelle was approaching the left side—Plate IV., fig. 4—and, of course, seemingly somewhat more forward. I now began to feel the posterior fontanelle as in the diagram. The labour shortly after terminated in the usual way, with the occiput under the arch."*

5. *Good Case of Fourth Position.*

"*No.* 2036, *March* 13, 1853.—Os uteri nearly dilated; waters evacuated. Felt the anterior fontanelle backwards, near coccyx. Felt no other fontanelle. (Plate IV., fig. 5.) Next pain, felt the forehead coming round to the pubes by the right side. After two more pains, I felt the root of the nose close to the right side of the symphysis, and the right eye on the left side of it. Head expelled, with two more pains, ten minutes after first examination. Shoulders expelled, with face to right side—not reversed, therefore. At the first examination, the anterior fontanelle was as nearly as possible in the central line of the pelvis, a position in which the forehead is very likely to pass to the arch. Now, in such a case as this, the head revolves on the anterior fontanelle, which, having arrived on the coccyx, as the forehead passes under the arch, may be felt all the time near raphe of perineum."

6. *Case of Second Position, with circumstances suggestive of the conclusion, that the First and Second Positions are the Converse of each other.*

"*No.* 2023.—*Jan.* 31, 1853.—Examination on knees, with right hand. Felt the sagittal suture in right oblique diameter—*i. e.*, what I could feel of it—with the os uteri dilated to the size of a crown-piece. Woman went to bed, and, lying on her right side, I used the left hand, and could then find no difference, *mutatis mutandis*, between this and an ordinary case of first position. The posterior fontanelle was felt to the right side, to which, in this position of the patient, the finger most readily passed; and the anterior fontanelle seemed neither more backward nor forward than it does in ordinary cases of first position, when the woman lies on her left side, and the right hand is used. It seemed, in every respect, the *converse* of a case of first position."

7. *Unfavourable Case of First Position.*

"*No.* 1861.—*Jan.* 19, 1852.—Posterior fontanelle felt very high up, near left groin. Anterior fontanelle low down, and disposed to descend. As the labour went on, the posterior fontanelle passed up out of reach, and the anterior fontanelle, descending further, turned first to the right side, and then gradually to the right groin. Pains strong and forcing. Hitherto I did not interfere, being anxious to watch the effect produced by the expulsive efforts being directed, in a case of *first position* (*occipito-cotyloid gauche*), to the *forehead*, instead of to the *vertex*. But finding now that the position had really changed to an unfavourable one, and that the head was descending with increased difficulty, I attempted to turn the anterior fontanelle back again, but it would not move. In fact, the head was impacted, and could neither be restored to its first position, nor would the forehead pass under the pubes. After an hour had thus passed, without any further progress being made, I applied the vectis, and delivered. The head was finally expelled by this means, with the face still turned to the right side, and, perhaps, inclined slightly backwards. I felt for the shoulders, and found them

* See foot-note at p. 305; also p. 314, on presentations of the anterior fontanelle.

passing through the brim, with the chest of the child turned forward: a position of the body which might have contributed to the tendency of the face to turn forward."

So that it is not always favourable for the posterior fontanelle to be turned forward, unless the vertex be in the line of the expulsive efforts. (Page 312, *ante.*)

8. *First Position.—Bregmato-cotyloid, with full Rectum.*

N.B.—This case appropriately follows the last given. There was a favourable result, although the position was *theoretically more* unfavourable. Query—Does it confirm Madame Boivin's theory of the effect of a full rectum? At any rate, it proves that a full rectum does not *place* the sagittal suture, of necessity, in the right oblique diameter originally.

"*No.* 1862.—*Jan.* 20, 1852.—Anterior fontanelle felt on right side of pubis, but so high up, that I could only just reach it with the finger. The posterior descended, and came round by the left groin. *Rectum very full.* Labour quick. Head came round gradually. This was a case in which the exact position in the first stage could only be made out by a very careful examination. The head was very large, the sagittal suture very long, and the anterior fontanelle very high up, forward."

It is clear that the favourable result in this case, when compared with the unfavourable one in No. 1861, arose from the fact, that the anterior fontanelle rose up, and the *vertex* descended, while in No. 1861 the reverse process took place. It is of no consequence whether the anterior fontanelle is placed forward or backward, provided the *vertex* come down readily.

9. *Deceptio Tactûs.—First Position—Apparent Bregmato-pubic.*

"*No.* 1912.—*May* 15, 1852.—At 9½ a.m. os dilated diameter of two inches; sagittal suture across it in axis of brim; posterior fontanelle pointing slightly forward to left groin; anterior fontanelle more forward, pointing more decidedly to right groin. As os uteri dilated, right parietal protuberance approached to symphysis, and passed slightly to right side of it. In this position, the head slipped through the os uteri at 11¼ a.m. Labour speedily completed. N.B.—Examination with left hand; patient on her right side."

10. *Easy Case of Second Position.—Apparent Bregmato-cotyloid.*

"*No.* 1880.—*March* 7, 1852.—*Primipara.* At 4.50 a.m., os uteri—thin, dilatable—dilated size of half-crown. When the pain went off, by sliding the finger between the head and the os uteri, I felt the anterior fontanelle high up, directed towards the left groin. The pains came very quick. At 5, os dilating rapidly. I could feel the anterior fontanelle during the pain, through the remainder of the uterine cervix, turned more to the left *side* of the pelvis, the line of the sagittal suture passing evenly from side to side, and the large fontanelle close to the side of the pelvis. The vertex having descended, the posterior fontanelle was now plainly felt on the right side. At 5.15, the os was fully dilated, the anterior fontanelle had gone up out of reach, and the posterior had come round to the right groin. At 5.30 the child was born."

The mark of a favourable progress is for the anterior fontanelle to pass upwards, and out of reach—the best proof that the vertex is in the line of the expulsive efforts.

11. *Difficulty of Labour does not depend on Difficulty of Turn.—Vectis Case.*

"*No.* 1873.—*Feb.* 12, 1852.—*Primipara.* Anterior fontanelle high up on left side. The posterior fontanelle descended, and gradually came round by right side; but the head being large, it descended slowly, and in the same proportion came round slowly. When the occiput had come to the right ramus of the pubes, the further progress of the labour was for a long time arrested, although the pains were very strong and forcing. I therefore applied the vectis, introducing it by the perineum, and, sliding it to the right side, I fixed it on the right cheek, and delivered with two pains.—N.B. The facility of spontaneous rectification of the head, in occipito-posterior positions, manifestly depends on the facility with which the head *descends*. In this case, the descent of the head would have been quite as slow, if the position had been left occipito-cotyloid. I would, therefore, instead of saying that facility of descent depends on facility of turning, say, that facility or quickness of turning depends on facility of descent; and, consequently, the circumstance that such a turn must be made does not of itself add to the difficulty of the labour, whatever the space to be traversed in the turn. The head had already made its turn, and passed into '*position occipito-cotyloidienne droite*,' when its further descent was arrested. A very large child, weight 8½ lbs.; the mother a very little woman."

12. *Vectis in Fourth Position.*

"*No.* 2096.—*August* 25, 1853.—The anterior fontanelle was most easily felt. I could only feel the posterior by passing the finger very high up on the left side. As the head did not seem at all disposed to descend, after full dilatation of the os uteri, although the pains were very strong, and as the occiput did not come within reach, I feared a protracted case, so I thought it best to deliver with the vectis. I passed the instrument first by way of the perineum, and thence round to the right side, to which it passed readily; but fearing that I might be pulling the anterior end of the head lower down, I slided the vectis further on, and nearer the pubes, until I thought I must have passed over the forehead (which was at the right ilium), and reached the right side of the head. I there fixed it, and then, while I made traction, I tried to give the face an inclination backwards. Feeling towards the pubes, to ascertain what progress I was making, I felt an eye appearing under the arch. The face had turned to the pubes, and I am not quite sure that I did not, while sliding the vectis forward, pull the face round with it. At any rate, this case may suggest a caution, that in using the vectis, when the uterine efforts are plainly directed to the anterior part of the head, that instrument ought to be passed up first by way of the pubes, and then slided backwards, until it can be fixed. By so doing, one may assist the *occiput* in coming round. A little more powerful traction brought away the head, and I found the mark of the blade on the *left* cheek."

13. *Good Case of Second Position, not Bregmato-cotyloid.*

No. 1891.—*March* 22, 1852.—Arrived at half-past 11 p.m. I found nice pains, with os uteri very dilatable, dilated to diameter of between 2 and 3 inches. Membranes entire. Head high up; position distinctly *right occipito-cotyloid*. There could be no mistake, for I felt this position in the first examination, with the left ear slightly on the left side of the symphysis pubis. The head was quite as high up as in any of the cases of the bregmato-pubic variety of second position I had ever met with; and, in fact, as in most of those cases the turn

does not take place until the head is much lower down than it was in this case, or until the os uteri has slipped up above the head, I am pretty sure that this was the *original* position. The pelvis was wide, the labour very easy; nevertheless it lasted fully three-quarters of an hour after I had made the first examination. I used the left hand, the woman lying on the right side. I am pretty sure I have met with these cases before, but did not notice them, not thinking there was anything unusual about them; but I now find that Nägele looks on this presentation of the head as the rarest of all. Nos. 1836 and 1854, which I have noted as examples of this presentation, I do not insist upon, as in both the labour was considerably advanced. I remarked them at the time, because I was surprised at the reversal of the shoulders, which took place with them."

14. *Case suggesting that First and Second Positions are the Converse of each other.—Model Case of First Position.*

"*No.* 1892.—*March* 23, 1852.—Second labour. 6¼ p.m., first examination. Os dilated to size of a half-crown, thick, but dilatable, tilted backward as usual. Through it felt the posterior fontanelle, the right branch of the lambdoidal suture pointing to symphysis pubis; the sagittal suture pointing obliquely backwards, nearly as far as the vertex. Thus it seemed a case of *left occipito-cotyloid*, with the posterior fontanelle low down in the pelvis, the vertex lying tilted back towards the hollow of the sacrum. Now, sliding the finger along the sagittal suture, away from the posterior fontanelle, it passed first obliquely backwards; but passing round the curved line of the suture at the vertex, it now began to pass upwards and forwards, until it reached the anterior fontanelle, which lay more in the anterior semicircle of the pelvis than the small fontanelle did, and was apparently directed to the right acetabulum. As the pains gradually opened the os uteri, and the vertex came lower down, it went still further backward at first, the anterior fontanelle, at the same time, seeming to approach still nearer the pubes, to about the situation of the obturator foramen. But as the labour made further progress, the vertex coming in contact with the inclined plane formed by the sacrum and its ligaments, began to slide forwards in the direction of the outlet; and thus, as the centre of the curved line of the sagittal suture descended forward, its two extremities seemed to glide backwards, and the two fontanelles, both on about the same level, were now apparently turned to the *sides* of the pelvis. The head cleared the os uteri in this position, and then the occiput passed rapidly under the arch of the pubes, and the labour was completed at 7.45.

"Now, how far does a case like this afford a key to the dispute between the German and French writers? Up to a certain stage, it was apparently a case in which the anterior fontanelle was lying too forward. It is quite clear that, if the vertex, or presenting part, be pushed backwards towards the sacrum, as it must always be in the commencement of its passage through the pelvis (*i. e.*, in the line of the axis of the brim), one fontanelle must seem to point to one acetabulum, and the other to the other. If there be any difference in their actual proximity to either acetabulum, that must depend on whether the exact centre of the curved line of the sagittal suture be the presenting part, or some portion of that suture nearer either fontanelle. And I should almost fancy that the so-called rotation of the head, in these seeming cases of fronto-anterior * position, the passage backwards of the anterior fontanelle is effected simply by the head, in descending through the pelvis, passing into a more perpendicular axis."

15. *Case of Second Position.*

"*No.* 1974.—*Oct.* 2, 1852.—Examination first with patient on her knees, using the right hand. Os uteri well dilated. Felt anterior fontanelle at left

* Bregmato-anterior.

acetabulum; posterior fontanelle to right side of coccyx. When the head slipped out of the os uteri, there was no change of position, but the posterior fontanelle kept gradually sliding forward on the inclined plane of the sacrum, coccyx, and sacro-ischiatic ligaments, and approached very near to commissure of labia, keeping to right side of it. Anterior fontanelle still far away to the left, and gradually getting more out of reach upwards; at the same time, more of occiput became tangible. Patient went to bed, lying on her right side. I now used the left hand. Examining now, I found the left branch of the lambdoidal suture had passed to the left side of the symphysis, the sagittal suture being more in the centre, the anterior fontanelle lying just on the left side of the coccyx. I could pass the breadth of two fingers between the head and the coccyx, while the head was in this position. It then very gradually descended on the perineum, and nearly as gradually passed into the straight position (the *gerade Richtung*, which Nägele denies). For at least an hour, the case being primiparous, I found the sagittal suture in the conjugate diameter, and lying on the raphe of the perineum, the two branches of the lambdoidal suture being at equal distances from the symphysis."—*Note in Register.*

16. *Another Good Case of Second Position, with note of Position of Ear.*

"*No.* 2020.—*Jan.* 25, 1853.—Although the anterior fontanelle appeared to be directed *somewhat forward* during the dilatation of the os uteri—the posterior fontanelle being nearest the coccyx—yet I distinctly felt the left ear at the symphysis pubis at the same time. Primiparous labour, quick and easy. The advance of the posterior part of the head under the arch appeared to be effected, first, by the anterior fontanelle sliding somewhat more upwards and forwards, the posterior fontanelle thus being pushed lower in the axis of the brim, and becoming more tangible, until it pressed on the parts about the coccyx; and then, by the posterior fontanelle sliding forward towards the pubes, the lambdoidal suture sliding along in contact with the symphysis."—*Note in Register.*

17. *Another.*

"*No.* 2470.—*March* 23, 1856.—Clearly, in this case, the sagittal suture was in the left oblique diameter from the commencement. The head was so high in the pelvis when I first examined, that I could only just reach it with the finger. I felt then the anterior fontanelle at the left sacro-iliac synchondrosis, and as the head descended into the pelvis, I felt the left ear at the symphysis."—*Note in Register.*

18. *Bregmato-pubic Variety of Second Position, with note of Position of Ear.*

"*No.* 2546.—*August* 16, 1856.—Felt the left ear at some distance on the right side of the symphysis. The occiput came to the arch by the right side."—*Note in Register.*

19. *Bregmato-pubic Variety of Second Position, requiring Artificial Rectification.*

"*No.* 2571.—*Oct.* 19, 1856.—The anterior fontanelle, nearly closed, was at first felt near left cotyloid foramen. It then, as the head descended, passed forward to symphysis pubis, and there remained, until the vertex came upon the coccyx. As the labour process seemed at this stage to be harder and harder, I thought the case was going to resemble the case quoted at page 26, *ante;* so, with some difficulty, I pressed against the side of the head, until the anterior fontanelle was again felt at the cotyloid foramen. The labour was soon after

satisfactorily completed as a normal case of second position. *Primipara;* head very large, and much ossified."—*Note in Register.*

It is obvious that, where the anterior fontanelle passes quite to the symphysis, the difficulty will depend on the circumstance that the vertex cannot determine by which side it is to come round. In such a case, therefore, artificial interference may be useful.

20. *Case of Third Position—Artificial Rectification.*

"*No.* 2441.—*Dec.* 23, 1855.—Anterior fontanelle low down in pelvis, and towards the left side. Lifted it up, but face came to pubes, anterior fontanelle keeping low down, and on perineum. Feeling the nose at the symphysis, I turned the face back, so that the occiput came to the arch by the right side."—*Note in Register.*

21. *Good Case of Third Position, with note of Position of Ear.*

"*No.* 2370.—*May* 19, 1855.—Anterior fontanelle alone to be felt towards left side. Left ear felt at symphysis. Head not disposed to descend when the membranes were ruptured, after full dilatation of the os uteri. Turned the ear away to the left side several times, but it persisted in returning to it, and finally passed to the right side of it, the head descending with considerable difficulty, with strong and frequent pains. Head finally expelled, with the face to the pubes, about an hour after the rupture of the membranes by the natural efforts. I had felt the nose at the pubes, but as the occiput swept the perineum, the face appeared to slip up above the pubes, so that the anterior fontanelle was felt there at the final expulsion.* The head-swelling was well marked on the left brow."—*Note in Register.*

22. *Case of Presentation of Anterior Fontanelle, in which the Face did not come to the Pubes.*†

"*No.* 2393.—*July* 21, 1855.—In this case, the anterior fontanelle presented, and it was some time before I could at all feel the posterior; but the forehead did not get down, and the occiput came to the pubes by the left side; but the labour was for some time impeded."—*Note in Register.*

23. *Case of Fourth Position, with note of Position of Head-Swelling.*

"*No.* 2465.—*Nov.* 13, 1855.—Felt the forehead come round to the arch of the pubes by the right side. Hard labour. Well-marked head-swelling on *girht frontal bone.*"—*Note in Register.*

24. *Good Case of Fourth Position, with note of Position of Ear.*

"*No.* 1977.—*Oct.* 6, 1852.—On first examination, I felt the sagittal suture round the side and the back of the cavity. Posterior fontanelle to left side, and apparently most forward. Anterior fontanelle at right side, and easiest felt, being only just at right side of coceyx. As the anterior fontanelle descended more, I felt the right coronal suture pointing towards the symphysis pubis, *close*

* Vide observation in third paragraph in page 35, *ante.*

† See page 30.

to which I felt the ear. The anterior fontanelle ~~ear~~ now began to descend forward on the inclined plane, and as it did so, the sagittal suture, with the posterior fontanelle, gradually went more backwards. When the head was pressing on the perineum, the anterior fontanelle was near the commissure; the suture dividing the os frontis was felt close to the right side of the symphysis, and I could feel about two inches of it, the sagittal suture being directed backwards towards the left side of the coccyx. Head thus expelled. Labour quick and easy; no necessity to correct the position. Shoulders expelled with the back to the sacrum." —*Note in Register.*

25. *Good Case of Reversed Shoulder.*

"*No.* 1993.—*Nov.* 16, 1852.—Felt right lambdoidal suture pointing to symphysis. Anterior fontanelle out of reach. The shoulders were expelled, with the occiput on the right side; and the buttocks were expelled, with the occiput at the left side again. In proof that I had not deceived myself, I found the puffiness of the scalp well marked on the right parietal bone."—*Note in Register.*

26. *Another Case of Reversed Shoulders.*

"*No.* 1858.—*Jan.* 9, 1852.—Position *left* occipito-cotyloid. Shoulders expelled, with occiput to *right* side. Breech expelled, with occiput to *left* side."

27. *Observation on the Position of the Head in the last Stage of Positions* 1, 2, 3, *and* 4.

It has always been the received doctrine, that, in the last stage of the labour in all the four positions (the tuber occipitis lying behind the pubes in the first and second, and the nose in the third and fourth), the long diameter of the fœtal head lies in the antero-posterior or conjugate diameter of the pelvis; and that this doctrine is true, I am convinced from repeated observations.* But Nägele denies this, asserting that, in both the first positions, the head is entirely expelled with the lesser fontanelle still lying near one of the obturator foramina, and in what we should call the third and fourth positions, with the anterior fontanelle in the same situation. The cases in which I have observed that Nägele is mistaken in this matter are very numerous. I have in this Appendix given my notes of a case of second position, in which I have incidentally recorded an observation of the kind.† I am inclined to think, however, that Nägele may have drawn his conclusion from the observation of some exceptional cases, such as the following:—

In a case—No. 2574, Oct. 29, 1856—in which the head was very large, measuring from root of nose to tuber occipitis, 9½ inches, and round the base of the cone formed by its moulded prolongation, 13 inches—I applied the vectis, after the occiput had arrived under the arch of the pubes. I applied it over that part of the head which was lying next the right ilium, the head

* See p. 22, lines 14–18, and p. 37, paragraph 3, of *summary.*

† Case 15, No. 1974.

having been in the first position. The blade caught on the *right eyebrow*, and as the head was brought out in the axis of the outlet, the vectis went back, with the face towards the perineum, the head thus, before final expulsion, assuming more of the straight direction—the *gerade Richtung* of Nägele. Now, although the occiput was *under* the arch, yet I think that the face had not got down into the hollow of the sacrum, past the side of the promontory, but was still entering the pelvis by way of the right sacro-iliac synchondrosis, when the vectis was applied, so that an eye was at the *side* of the pelvis. The head was so large, that the pelvic capacity would require that, while the *apex* of the cone was under the arch, the *base* of it would be still above the brim. Hence the difficulty of the labour in what would seem to be the last stage, and hence also the circumstance, that the long diameter of the head was not *exactly* in the conjugate diameter of the outlet during the whole of that last stage.

I have hundreds of similar notes. I produce these by way of affording some proof that I have formed my conclusions on the facts of observed cases.

ALFORD, LINCOLNSHIRE, *Nov.* 17, 1856.

ERRATA.

In Plate II., *for* page 311, *read* page 26, and *for* page 305, *read* page 20.
In Plate IV., *for* page 397, *read* page 47, *for* page 402, *read* page 53, and *for* page 403, *read* page 53.
In the text, at page 54, line 6, *for* (page 312 *ante*), *read* (page 27 *ante*).
In the footnote, at page 53, *for* page 305, *read* page 20, and *for* page 314, *read* page 29.

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