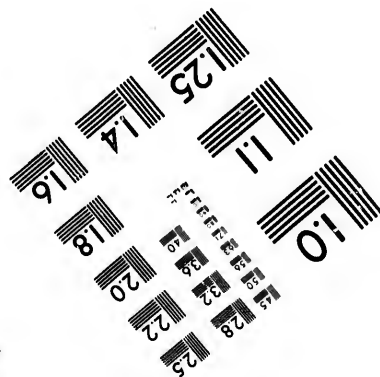
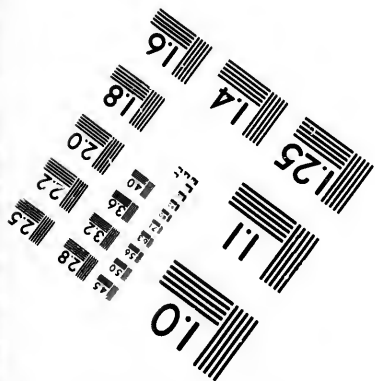
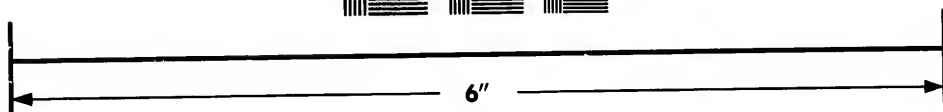
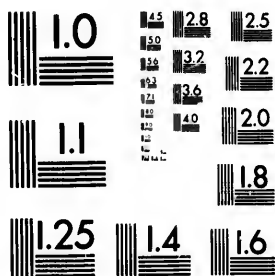


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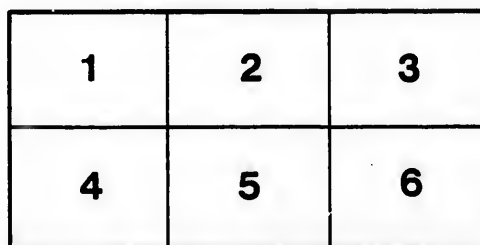
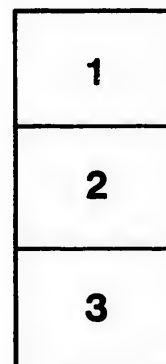
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A CRITICISM OF RECENT VIEWS REGARDING
LATERAL DEVIATION AND ROTATION OF
THE UTERUS.

BY J. C. WEBSTER, M.D., F.R.C.P. Ed., F.R.S.E.

*Reprinted from the EDINBURGH MEDICAL JOURNAL. Edinburgh and
London, Young J. Pentland, September, 1897.*



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A CRITICISM OF RECENT VIEWS REGARDING LATERAL DEVIATION AND ROTATION OF THE UTERUS.

By J. C. WEBSTER, M.D., F.R.C.P.Ed., F.R.S.E.,
*Demonstrator of Gynecology, McGill University; Assistant
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IN a recent paper, published in this Journal, entitled "On Deflection and Rotation of the Pregnant and Puerperal Uterus," the author, Dr. Milne Murray, did me the honour of referring to a paper¹ of mine, written several years ago, entitled "On the Occurrence and Significance of Rotation of the Uterus." I very greatly regret the saddening effect which, Dr. Murray says, resulted from its perusal, and especially lament that it was not accompanied by any intellectual enlightenment.

My study of Dr. Murray's paper has affected me in quite a different manner. I arose from its perusal in no state of depression, but enormously stimulated in my mental processes. I said with the poet, "O that my tongue could utter the thoughts that arise in me!" but, alas for me! the Edinburgh Obstetrical Society, that famous tilting-ground, was far away, and my voice failed me for want of listening ears. My poor pen alone is left to me, but I trust that, in spite of its shortcomings, I may be enabled therewith to furnish an analysis of his paper, which will demonstrate the specious fallacies of his arguments.

In the first part of his paper, Dr. Murray discusses the question of lateral deviation or deflection of the uterus, and states that in pregnancy the organ inclines to the right side in 70 to 80 per cent. of all cases, and in 20 to 30 per cent. of cases inclines to the left or lies mesially. This tendency, he states, is also found in the puerperium. He then considers the various explanations of this preponderant tendency to right deviation, *e.g.* the influence of pressure of the rectum on the left side of the pelvis, of the place of insertion of the placenta, of the liver, etc., and concludes that none of them are satisfactory. It is surprising to me that Dr. Murray has made no reference to the position of the uterus in the non-pregnant condition in healthy states, where no inflammatory remnants are present. If a pregnant or puerperal uterus be found deflected to one or other side, how are we to know that this position is in any way associated with pregnancy, and that the same deviation did not exist in the same case before pregnancy occurred? Of what value, then, I ask, are Pajot and Dubois', Murray's or anybody else's one-sided statistics of this nature?

So it would be advisable that those who find the uterus deviated to one side or the other in pregnancy or in the puerperium

¹ *Trans. Edin. Obst. Soc.*, vol. xviii.

should be certain as to the condition in the non-pregnant state, before they think of attributing the position to the influence of pregnancy, or speculate as to how it might be induced.

Is Dr. Murray not aware that in the healthy nullipara, the uterus, in a large number of cases, does not lie exactly mesially, but is deviated to one or other side? Let me refer to the most recent important anatomical work by an acknowledged master, W. Nagel.¹ This author has carefully studied the works of Aran, His, von K lliker, Symington, Waldeyer, and others, who have worked at the subject of the normal position of the uterus, and his conclusion is, "Dabei liegt seine L ngsachse selten genau in der Mittellinie des K rpers, h ufig ist eine seitliche Abweichung besonders nach rechts (aber auch nach links) zu bemerken."

The obstetrical world, therefore, while grateful to Pajot, Dubois, Murray, and others for the information that the pregnant uterus is very often deflected to the right, and less often mesially placed or deflected to the left, say to them, "We might have told you so. What else would you expect if the same conditions are found in the non-pregnant state?"

The causes of these variations are not known. As regards the theories put forward, I incline to that one which regards the influence of the rectum as of chief importance. Dr. Murray, in considering this influence as it has been put forward to explain the deviation of the pregnant uterus, states that, while it seems plausible enough as explaining the 80 per cent. of deviations to the right, "breaks down entirely when we come to consider the 20 per cent. of cases in which the uterus is inclined to the left." "If," says he, "the uterus is to be regarded as the cause in one set of cases, it would require to be shifted over to the right side in order to account for the others."

Dr. Murray is, I understand, a critic of the sectional method of studying anatomy. Is he also disdainful of the results of dissection? He must be, for he does not seem to have noticed that the rectum does not always normally lie mainly in the left, but often in the right half of the pelvis. Indeed, in the opinion of many anatomists, in the majority of cases the first part of the rectum is directed from the sigmoid flexure across to the right side of the pelvis, whence it gradually passes towards the anus. Nagel refers to the widespread ignorance of this fact among gynecologists. Referring to the direction of the gut, he uses the words: "Steigt von linkes gegen das Becken, biegt sich sodann, manchmal bereits in H he des Promontoriums, in die rechte Seite und n hert sich nun von rechts her der Mittellinie, um durch den Beckenboden zu treten. Diese Lage ist die h ufigste, seltener verl ngert sich der letzte Bogen ueber die Mittellinie hinaus nach links; nur in diesem Falle kann man von einer Linkslagerung des Darmes sprechen." It is possible that with this evidence

¹ "Die Weibliche Geschlechtsorgane," Jena, 1896.

Dr. Murray may find comfort in his uneasiness concerning the 20 per cent. of cases in which he states the uterus is deviated to the left side.

In the next part of his paper Dr. Murray criticises certain views regarding rotation of the uterus. He has been haunted by the restless ghost of an old belief, which he refers to as having been ruthlessly destroyed by work of mine some years ago in Edinburgh. My peace, I am glad to say, has in no way been disturbed by this spirit-visitor, whereas I might well have expected to be the first to suffer from its reproaches. In order to give my esteemed friend peace, I will endeavour to slay this bogie which has disturbed him, in the hope that, hereafter, perpetual peace of mind may remain with him.

In my paper on rotation I discussed the various views current regarding this phenomenon in the nullipara, in pregnancy, in labour, and in the puerperium. As regards the nulliparous state, my conclusions were as follows: "I do not mean to say that true rotation never exists; it has been undoubtedly observed, but, as far as trustworthy records go, we cannot speak accurately with reference to the frequency of its occurrence, though the presumption is in favour of its being found in only a small percentage of cases." No observations of my own or of other workers, made in recent years, have led me to alter this view in any way. By whomsoever investigations are made in regard to this subject, I would again insist upon attention being paid to the following points, namely:—

1. It is in all cases difficult, and in many impossible, by the bimanual examination to distinguish a slight degree of rotation, or to be sure that the rotation felt is not caused by the artificial disturbance of parts.

2. Care must be taken to distinguish between true or inherent rotation, and that due to accidental conditions, *e.g.* temporary changes in intra-abdominal pressure, altered degrees of fulness in bladder or rectum, and peritonitic or cellulitic cicatrisation.

3. Ordinary post-mortem dissection cannot be trusted for the determination of the true position. Frozen sections are necessary for the exact estimation of topographical relationships.

As regards the uterus in pregnancy, I pointed out the unreliable nature of the evidence on which the statement had been based, that the organ underwent a rotation as it grew upwards, and I gave it as my opinion that there was *no proof* that the rotation characterised the growth of the gravid uterus. At the present time I am aware of no well-ascertained facts which have been published, sufficient to alter my scepticism regarding these old-time beliefs. I do not deny that the uterus may occasionally be found rotated in pregnancy. This condition may certainly be found just as in the nulliparous state. But that it is the rule no proof is as yet forthcoming. I believe that the statements as to

its frequency are due to a number of fallacies, not considered by those who have made the statistics. They are as follows:—

Certain observers have based their views upon conditions found in the abdomen during the Porro or Caesarean operation. Dr. Murray has triumphantly brought forward a case of this kind, operated on by Dr. Halliday Croom and himself, in which the pregnant uterus was rotated so that the left ovary lay near the abdominal incision. I fail to understand why a man of logical mind, and an obstetrician, should bring forward such evidence. Surely it is not necessary to remind Dr. Murray that these cases are entirely abnormal, and that, owing to the impossibility of the uterus sinking into the pelvis, an abnormal condition of intra-abdominal pressure is produced, so that the uterus may be turned to the front or to one or other side, varying according to the condition and resistance of the abdominal walls, of the abdominal viscera, and to the nature and degree of the pelvic deformity.

Errors have also arisen in the clinical examination of normal cases, in the endeavour to make out rotation of the pregnant uterus. I have stated and again reiterate the belief, that it is only rarely possible to estimate rotation by the examining hands. Dr. Murray, however, disputes this view. I hold that it is impossible to define the outlines of the soft uterine bag, or to make out the landmarks necessary to the exact determination of rotation. No doubt, in some cases, conditions described as rotation have been really only the moulding of the uterus on the foetus by the examining hand, or against surrounding structures. Again, rotation has been described in conditions due entirely to accidental causes, *e.g.* pressure of loaded bowel or distended bladder, or displacement resulting from old inflammatory troubles.

An important fallacy consists in deciding upon rotation of the uterus, according to the palpation of the ovaries through the abdominal wall.

I certainly believe that in a marked degree of rotation of the uterus, in a woman with thin and lax abdominal walls, it is possible to palpate the ovary which lies in front. But I hold that, in all cases where the walls are tense or of moderate thickness, it is impossible to be certain in regard to feeling the organ, which is so easily moulded against the soft uterus. I believe, moreover, very strongly that, in the great majority of cases of advanced pregnancy, one cannot at all satisfy one's self as to the position of the ovaries.

An important error may, however, be made in determining rotation, even if the ovaries be felt. I have in my former work pointed out that anatomical evidence goes to show that, in pregnancy, the ovary is capable of being moved about through a considerable range by variations in intra-abdominal pressure, especially by variations in the distension and movements of the bowel. Their position, in the great majority of cases, is no true

indication of the rotation of the uterus on its long axis, because they do not take up definite positions, corresponding to every degree of rotation of which the uterus is capable. Only in a very marked rotation, where one ovary may be felt near the middle line of the abdomen, can it be stated that a necessary correspondence exists.

But Dr. Murray is not content with destructive criticism. He would establish the truth, and his materials of construction are—analogy and speculation. An analysis of this part of his paper will prove of interest, if not to the obstetrician, at least to the logician. His initial remark as regards the extraordinary nature of the uterus, its power of work and endurance, is one with which all may be in genial agreement. What, however, is to be said as regards his following sentence: "But it would be even a more extraordinary organ than any of us are prepared to admit, if it did expand during the progress of pregnancy without rotating to some degree in the course of its growth?" Now, I appeal to all open-minded readers to decide if such a bold fancy need be indulged in, even if we credit the uterus as being the most wonderful organ in the body. One might indulge in any number of speculations on this score, *e.g.* one might expect this powerful organ to empty itself in an hour or two, instead of working away for seven or eight hours.

Dr. Murray's next statement is as follows: "If the uterus expands absolutely symmetrically, it is the only hollow viscus in the world which does—the bladder, the stomach, the intestines, the heart, all rotate during distension, and derotate when relaxed, and I think we may safely assume that the uterus will do likewise." Here is reasoning by analogy with a vengeance. I cannot understand how any but a fantastically ingenious mind could stray into such far-fetched comparisons; as if one could in any way compare the slowly developing uterus, increasing owing to intrinsic changes in its wall, to the sudden mechanical distension of the various viscera mentioned! *En passant*, I challenge Dr. Murray for proof that rotation occurs in the bladder owing to its distension. I know that it may be moulded by neighbouring structures, and that it may often expand more in one half of the pelvis than in the other, because it is often normally somewhat asymmetrically placed, and I know that when greatly distended it has an ovoid shape; but it is news to me that it actually undergoes a rotation. I would have thought this scarcely possible, owing to the strength of the attachments of the visceral pelvic fascia to it. As regards the rotation of the ventricular portion of the heart during diastole, I have always understood it to be the mere undoing of the slight rotation which occurs during the active contraction of the ventricles during systole. The so-called rotation of the stomach and intestines is mainly due to the restraining influence of their one-sided ligamentous or mesenteric attachments.

Dr. Murray's next step is an endeavour to establish a relation-ship between rotation and lateral deviation of the uterus. He believes that the latter is the direct result of the former. He says that "the distortion of the mass of the early pregnant uterus, which is the immediate result of the rotation, results in throwing the uterus to one or other side of the mesial plane of the body, and so determining the deflection to the right or to the left." In the light of our present knowledge, I consider that this statement exhibits only a grave logical fault, namely, a double *petitio principii*. I have already in my paper referred to the question of lateral deviation, pointing out that this condition exists normally in the non-pregnant state in a large number of cases, and that, therefore, it is not surprising to find it in the pregnant uterus.

Dr. Murray, taking for granted that rotation and lateral deviation are regularly and normally produced in the uterus during pregnancy, at length proceeds to unfold the mystery of their production. It is to the construction of the muscular wall of the organ, he says, that we must look for their explanation. An analysis of his line of argument shows that that is a composition of assumption and conjecture. He assumes, in the first place, Helié's description of the musculature of the uterus as consisting of an outer coat largely longitudinal, an inner layer which forms sphincters around the Fallopian tubes and os internum, and a middle coat of very complex arrangement of interlacing fibres. Speaking of these in relation to the gradual expansion of the uterus and increase in intra-uterine pressure, he states: "That it is inconceivable that the fibres (of the middle coat) are so symmetrically arranged as that the strain of the internal pressure will be symmetrically distributed. . . . Unless we assume that this symmetrical distribution of strain is possible, it must follow that as increase of internal pressure arises it will produce an alteration of contour, and a change in the distribution of the mass of the organ about a vertical axis." Now I claim that the first part of this statement is a pure assumption, and the second a *non sequitur*.

Every one who has examined the uterine wall is struck with the fairly symmetrical thickness of the musculature, in the great majority of cases. One-half of the organ is as like the other half as one-half of the brain is like the other. But even if there should be differences in the thickness or complexity of the middle layer of the musculature, why, in the name of physics or physiology, should it necessarily rotate the uterus about its vertical axis? I should imagine, if I desired to speculate on the distension of sacs of unequal strength or thickness under increasing internal fluid pressure, that at the weak spots there would be a thinning, an extra-protrusion, or a rupture. Has Dr. Murray ever noticed little boys distending rubber bags? If he will trouble himself

to do this he may chance to notice one or other of these phenomena.

But Dr. Murray need not speculate as to asymmetry. Let him give heed to the anatomical conditions, and he will discover that a very marked asymmetry is developed *pari passu* with pregnancy, but not *qua* the lateral halves of the pelvis. The difference exists between the upper and lower portions of the uterine body. Might I point out to Dr. Murray the unquestionable differentiation of the corpus uteri, as it increases in size during pregnancy, into an upper uterine segment and a lower, the latter being considerably thinner than the former? Will Dr. Murray enlighten us as to how this distinction can in any way bring about a rotation of the organ?

The following, then, is Dr. Murray's masterly syllogism:—

1. It is inconceivable (*remember, only inconceivable*) that the uterine wall can be so symmetrically developed as to receive the strain of the internal pressure equally.

2. Consequently, increasing internal pressure produces an alteration of contour—distortion, and a rotation of the uterus around its vertical axis.

But the most amusing part of Dr. Murray's paper is that in which he employs the vicious deductive method to explain his assumptions: "If so and so were so and so, then such and such might be the case." He is evidently timorous, however, for he recognises the perilous nature of the ground on which he treads. He admits that "it is practically impossible to analyse the influence of the various groups of fibres" in the middle muscular wall. He then supposes that they must be arranged in such a manner as to act as he thinks they would act.

In the last part of his paper, Dr. Murray attempts to establish a relationship between occipito-posterior positions and left deviation of the puerperal uterus. He states that out of twenty-six cases observed by him, the uterus after delivery was nearer the left than the right side of the pelvis, and concludes that there must be some well-defined causal association. If I were to follow Dr. Murray's lead, and give an expression to what I consider the inconceivable, I should say that I fail to comprehend how the position of the fœtus *in utero* can in any way influence the rotation or deviation of the post-partum uterus.

Had Dr. Murray known the relationships of the uterus *before pregnancy* in his cases, the comparison with the puerperal conditions might have furnished some useful information. As it is, his statistics are only instructive, in so far as they point the moral that it is dangerous to form conclusions from insufficient data. In view of the facts presented by me in the beginning of my paper, as to the frequency of lateral deviation of the uterus in the normal nulliparous state, I fail to see that it is at all remarkable that either the pregnant or puerperal uterus should, in a

large number of cases, also lie nearer one side of the pelvis than the other.

I trust that Dr. Murray will acknowledge the justice of my criticisms.

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