THESIS.


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INTRODUCTORY.

I attended an ordinary case of Midwifery some sixteen months ago. I was astonished at the facility with which the uterus could be approached, by palpation from a high abdominal level. I found that the thin tissues in the region of the umbilicus, formed a strategic point of vantage in such external manipulations as the ritual of labour commonly demands. Especially was this so in the management of the third stage. In a score of years of practice, I had a few times, in a general way, observed the advantage of this measure. In a general way, but on the particular occasion alluded to, so nakedly were the facts borne in upon me, that I am led to contend for at least two new positions. Briefly stated, these are, that a Maternal Inter-Rctal Space exists, that is the Cardinal position, and that this Maternal Inter-Rctal Space forms the natural 'seat of election' for uterine palpation during labour.

The object of this Thesis is to search the question: Is there in the Structure
structure of the anterior abdominal wall of a pregnant
or parturient woman, any especially attenuated area
through which the uterus may be reached? Is
such an area constant, or what variations does
it present? Where, in the abdominal parietes,
can the uterus best be approached, especially in
the middle of the third stage? How, anatomically
and physiologically, is the anterior abdominal
wall prepared for the expansion of the pregnant
uterus? Normally, in pregnancy, what becomes
of the abdominal recti? Do they descend
equally forwards, or do they divide to form
an inter-rectal space? Should they separate,
how do they do so, and to what extent?
If they separate, what is the nature, what the
characteristics of the space found between them?
Is a knowledge of this space, if found, of any
practical obstetric value?

Such and cognate questions form my
subject, and I shall pursue the inquiry
anatomically, physiologically, and especially
clinically. At the outset, I take courage from
the third primary law of thought — that of Excluded
Middle. For either, as I wish to show, an
inter-rectal space, such as I refer to, exists, or
assuredly does not exist. Again a knowledge of
it, if it exists, must either be of value in
obstetric ritual, or assuredly valueless. To the
former
former of these alternatives I shall chiefly address myself, assured, that, can I but establish the existence of the space, the corollaries bound to flow from it may well be left to prove or disprove themselves.

As to the space itself, I have the honour to present it as my own discovery, though others may also have discovered it. Neither books, teachers, nor practitioners, have told me of it. The discovery, and now the description of the space, and its divisions, therefore are to me the shower of over twenty years continuous obstetric work. Trained in the Edinburgh school, nearly uniman of these had passed before I had the least knowledge of it. The extraordinary properties of the linea alba, and the role of the abdominal arch, were alike unknown to me. The actual space unfolded itself to me slowly. What first led me to it, was the observation of the remarkable ease with which the parietal ulcers could be felt and controlled through the attenuated peri-umbilical skin. This started a train of thought from which no escape was possible. Deepening interest urged me so acutely on, that during the last sixteen months, I made further observations, and, finally, measurements.

And to what end all this labour? I find the Inter-Retal space laid bare as a constant phenomenon in parturient woman.
Quite possibly, its occurrence is described in works I know not of. But, from cover to cover of Playfair, from cover to cover of Galabin, there is no mention of it. True, Playfair writes of "the undue laxity of the abdominal parietes, which is especially found in women who have borne many children. Sometimes that is so excessive, that the fundus lies over the pubes and even projects downwards towards the patient's knees." Galabin also says "A more important and common deviation is antversion of the uterus depending upon undue laxity in the abdominal walls, found chiefly in women who have had many previous pregnancies." But neither of these could be held to be a description of the Pudic Rectal Space. True, too, Munro Kerr, in his "Operative Midwifery," refers to the "widely separated Recti in pendulous belly." But he mentions this only as a passing allusion to a special state, without any positive assertion of a normal or constant space. True, pray the anatomist, comes very near to it, when he writes of the possibility of the linea alba "becoming of considerable breadth after great distension of the abdomen from pregnancy or ascites." But he does not describe a definite Pudic Rectal space, with distinct shape, size, and boundaries, as anatomists so aptly do in respect to other quadrilaterals, rhomboids.
rhomboids etc. in the body. We have the triangles of the neck, of the elbow, subclavian, submaxillary, of Scarpa, and of Hesselbach, we have auricular and pleural spaces, and, overlying the stomach, Cunningham describes an important area known to clinicians as the semi-lunar space of Traube. But we look in vain for a description of an intra-rectal space. Perhaps it is that the anatomist may not often deal with the advanced pregnant or parturient state. If we turn to Surgical Anatomy, singularly enough we find posteriorly at the base of the spine, the Rhomboid of McEvedy, but again, the larger Rhomboid, formed between the Rect' anteriously, appears to have escaped description.

The subject is therefore cloaked with momentous interest. For, if the occurrence of the intra-rectal space be but once established, who shall say what deductions may not flow from it? Take the light thrown, for instance, on uterine suspension. In the muscular loop formed by the lower boundary of the space, have we not a cardinai factor in the suspension of the gravid womb? Again, in the management of the second and third stages, have we not in the space an abdominal window, nowhere else found, and though which we can all but see?
But, it may be objected, that these authors were fully cognizant of it, but simply omitted to mention what was already obvious to all. I cannot conceive this likely. Gray and Cunningham, to say nothing of the obstetric writers, would not lightly pass over a known space, particularly in the anterior abdominal well, without description. More likely I think is it, that its very obviousness has proved the mask which has served to obscure it.

Chambers, the novelist, pictures John Burleston, deeply absorbed in "Essays on the Obvious." Carlyle says, were the sun to rise once in a number of years, we should all be astounded to witness it. But, because it rises daily, a still greater marvel, none pays heed. It is the extraordinary that attracts attention. It is the obvious which escapes investigation. Yet the commonplace is often greater than the miraculous. The simple growth of a green leaf probably requires more adaptation of means to ends, than the earthquake. Not in the suspension of Nature's laws do we, although we seek, find the true miracle, but in the operation of these laws.
ANATOMY.
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Bauer, the German critic and philosopher, has shown that progression proceeds by means of antagonism. Natural consequences of thought demands proof. Edward Whiston, Bishop of Wincle in his "Annealing," states the same thing, "The preeminence is against action: the onus probandi is on those who would move." And Browning, "Truth remains true, the faults in the prove." And Germany's greatest thinker, "In time, at first, appears a great intent."

Before I can establish an intra-Retal space hypothesis, I must show an anatomical basis for it. Now Hutton had a faulty gift of reasoning from anatomical facts to the routine of daily practice. Suppose we reverse his method, and derive from the routine of practice back to the so-called "dry facts" of anatomy. We have in the abdomen one of the most remarkable of all organs, the expandible uterus. It is capable of enormous enlargement. Therefore there must be some related anatomical provision for this in the abdominal wall. Without such provision, uterine expansion would be impossible. Not suggestive is it, that the abdomen is the sole cavity in the human economy, capable of the work, that is to say, of containing, while protecting, a second organism of the size of a full-term child. The skull, the limbs, the semi-rigid thorax, and the pelvis, are all alike incapable
inaccessible of the back. Nor, even in the abdomen, can we look to the bony structures posteriorly and expect them to yield. By a process of exclusion then, the anterior wall forms the veritable procession of the Theatre of labour. Behind these walls, and none other, the drama of human life begins.

We have as lateral muscles, the obliques externus, obliques internus, and transversus—his anterior muscles, the pyramidalis abdominis, and the rectus abdominis. Lengthy details of these are found in the anatomical works, and I propose to limit my enquiry to where they concern the Inter-Retal space.

Even as to surface form, they days of the Linia Alba, "The inner border of the Rectus corresponds to the Linia alba, marked on the surface of the body by a groove, the abdominal furrow, which extends from the infrachinial fossa to, or to a little below, the umbilicus, where it gradually becomes lost. I have observed this clinically in a girl of nine years, whose least abdominal movement showed the play of this furrow in the central line. This abdominal furrow already fore-shadows the Inter-Retal space, and says concluding clause, "Where it gradually becomes lost, fore-shadows its limitation inferiorly. Stites also, on surface anatomy in Cunningham's Text-book, says "In a short muscular subject..."
"The supra-umbilical portion of the linea alba can be readily made out.

The sharp-like configuration of the recti is well known. Their separation from each other, by the linea alba, is also well known. Now pressure, — central pressure posteriorly, — as from an expanding uterus, would appear better to push them equally forwards, or to separate them in their entire length, provided they were equally separable through out that length. A prerequisite of such separation, of course, would be that the linea alba should be capable of dilatation.

The clinical observations show that a separation of the recti, and not a mere forward dilatation of the muscles, takes place. The clinical observations further show, that, normally, this separation does not extend down to the pubis. We must look then to the anatomical configuration to explain this. What do we find? I think these facts. First, the recti are much more closely associated with each other inferiorly than at any other portion of their course. The anatomists agree on this point. Gray says of the rectus, "It is much broader, but thinner, above than below, and arises by two tendons, the external or larger being attached to the crest of the os pubis, the internal, smaller portion interlacing with its fellow of the opposite side, and..."
and being connected with the ligament covering the front of the symphysis pubis. We have thus fake authority for an actual interlacing of portion of the origin of one of the recti with its fellow of the opposite side. Again, Stiles, in Cunningham's Text Book, says of the linea alba, "that it is considerably wider above than below the umbilicus, where the two edges of the recti lie in close apposition." The close apposition of the recti, infrequently, then, has not escaped the anatomist. Second, it is a noteworthy circumstance, that the disposition of the aponeuroses of the lateral muscles abducts at the junction of the upper three-fourths, and the lower fourth, of the rectus on either side. Above this point, (the semi-lunar fold of Douglas), the lateral aponeuroses divide equally in front of, and behind the recti, to form the rectal sheaths; whereas below this point, Gray says, "the aponeuroses of all three muscles pass in front of the rectus, without any separation." Whether this change alteration of the disposition of the aponeuroses, occurring as it does near to the point of limitation of separation, accounts wholly or in part for that limitation, I am scarcely prepared to say, but I think the fact at least is worthy of mention. Thirdly, if we view the abdominal wall from within, we find
in addition to the bladder, which, especially if
defended, itself offers some obstruction to
inferior rectal separation; no fewer than five
bands or cords, running upwards towards the
umbilicus. These are, the central plica urachii,
with, on either side, the plica hypogastrica, and
plica epigastria. It scarcely seems incredible
that, in some way, these pliæ may assist
in strengthening this particular portion of the
abdominal wall.  Fourthly, we have already
spoken of close apposition of the rectal borders
inferiorly, but there is warrant for more than
apposition. In the
annexed figure (taken
from Luschka) we
have evidence of
ligamentous union
between the two
muscles. Of this
Gray says: "Behind
the Recti on the
tower posterior
part of the linea alba is a triangular band
of fibrous tissue called admixtum linea
albae (admixtum, "prop on which a vine
grows"). It passes up 4 or 5 cm. to
strengthen the white line, its apex being above
and its base below. It arises from the crest.
of the pubic bones, and arches over the upper edge of the symphysis pubis. This should not be mistaken for the urachus which lies behind it, separated by the transversalis fascia; both are outside the peritoneum. Here, then, we have physiologic basis truly, for what, I shall shortly show, actually occurs clinically. For here we find a ligament, whose central stem running upwards between the two beds, sends branches among their fibres, thus materially assisting to maintain the muscles in apposition.

Need we go further as to the anatomical basis for the limitation of the Reta rectal space inferiorly? Satisfied that the Reta are thus limited as regards their separation inferiorly, are there any anatomical factors which would prevent their separation above this point? In the upper part, we have to deal with the linea alba. Now, of this structure, Gray says, "It is narrow below, corresponding to the narrow interval existing between the Reta, but broader above, as these muscles diverge from one another in their ascent, becoming of considerable breadth after great diastasis of the abdomen from pregnancy or ascites." We have thus the anatomical authority of Gray, that, in pregnancy, the linea alba is capable of assuming considerable breadth, hence the physical basis of an Reta rectal space is complete.
In Cunningham's Text Book, we also note the following: (1) "The blood supply of the linea alba is scanty." (2) "That above the umbilicus, the fascia transversalis and linea alba are adherent, so that the two form practically one membrane." (3) "That the extra-peritoneal fat is more abundant beneath the linea alba, than to either side of it." (4) "That the fold of Douglas is situated one third of the distance from the umbilicus to the pubis." (5) "That the fleshy fibres of the transversalis muscles extend upwards for a considerable distance behind the upper part of the recti."

I think I have shown from the classical works of Gray and Cunningham, that there exists anatomical warrant for an Inter-Rectal Space. Do our living anatomists agree? I recently wrote my old fellow-graduate and friend, Professor T.H. Milroy, professor of Physiology, Belfast, and placed my views of the Inter-Rectal space before him. I have before me his reply, dated from Belfast Dec 20th, 1911. He writes, "Regarding the 'inter-rectal' space that you refer to, I have spoken to the anatomists here—Cunningham—Crumble and others, and they seem to think that such a separation as you suggest can readily take place. Some think (a Dublin anatomist especially) that the separation is not limited to the area above the umbilicus, but
but that the splitting may take place right down to the pubis. They suggested that you should work it out, taking measurements at different times, and then give these exact measurements to some anatomists, and ask for an explanation. This course is precisely that which I had already anticipated in the clinical portion of this thesis. It is however most helpful to learn, in the prosecution of my endeavour, both that these authorities should suggest the method taken, and agree that such a separation can readily take place. Whatever my own views may be, — and they are all for the sure existence of an Intera-rectal space, — here are living anatomists, of renown, in agreement.

Finally, I took opportunity to write another distinguished fellow-graduate, and leading Australian anatomist, — Professor R. J. A. Berry, Professor of Anatomy, University of Melbourne, and placed my view of the Intera-rectal space fully before him. His reply, under date May 7, 1912, just received from Melbourne, states:— "There is, of course, nothing inherently impossible in your theory. In fact, rather the reverse. The two recti, being quite separate throughout the whole of their extent, I should naturally expect to find — certainly in many cases — the condition
"condition to which you refer. The reason why Anatomists have missed the point is perfectly obvious and that is that pregnant bodies for dissection never come our way.

As to whether your observation is a new one or not, I cannot tell you. Text-books are but a poor guide in the matter. To ascertain the originality or otherwise of your observation it would be necessary to search Anatomical and Obstetrical Literature very carefully. If you are ever in Melbourne my Literature card index will be at your disposal."
PHYSIOLOGY.
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The functions of the Recti are many. Together they are flexors of the spine and pelvis; and are powerful agents in vomiting, defecation, micturition, parturition, and laboured inspiration. It is rather with their relation to reproduction, to the recto-rectal space, and to urinary suspension, that I am concerned.

The Recti are much in evidence from beginning to end of pregnancy. The Venus of Canova, or of Milo, would lose in aesthetic charm if deprived of the furrows produced by the lumbococcygeus. Again, it is of interest, that, just as in the act of generation, there are governing cerebral and lumbar centres (Brunton); so also, probably in close relation, we find cerebral and lumbar centres for parturition (Brunton). Both have the reproduction of the species as their common objective, and probably the Recti assist in both these functions. Rannay gives the termination of the cord as at the lower border of the first lumbar vertebra. Yehiel, however, asserts that in woman it reaches the lower level of the second lumbar vertebra. In distinction from the male, woman has a special parturition, in addition to a special genital centre.

In the mid-months of pregnancy, the Recti with their fleshy substance, probably assist to
protect the growing uterus from injury. But a time comes, when, in my opinion, they do much more than this, and here I approach one of the most important continuities of my theme. I allude to uterine suspension. We read of various uterine ligaments, but, it appears to me, that in advanced pregnancy conditions, the chief suspensory apparatus, that formed by the Recti themselves, has been somewhat overlooked. The broad and other ligaments assist in holding the uterus laterally and inferiorly, but the suspension of the mass of the uterine globe, appears to devolve upon the cords formed by the separated Recti. How does this separation take place? The dilating pressure of the expanding uterus may be slight at first, but it is evident, that, after a start is made, somewhat like the fetal head, it becomes more and more wedge-like. This mechanical force is one of the most powerful in Nature, and, being interposed between the Recti, is competent to separate them where they are separable. We have dealt, in the anatomical section, with the close approximation and ligamentous union of the inferior portions of the Recti. The pressure here therefore is resisted, but takes place higher up, where the Recti are not in such close apposition, where the same ligamentous union does not obtain, where the linea alba is more free to expand, and
where the protuberant mass of the uterus, drawn by the
labia uteri to the hypogastric position, disposes itself.
In these circumstances we would expect the Recto
to separate at the hypogastric level. This is exactly what
takes place in nature, as I shall shortly show
in the Clinical Cases. Were further proof still required
it is supplied by the circumstance, already alluded
to, that the fibrous fibres of both Transversals extend
inwards for a considerable distance behind the upper
part of the Recto. The action of these would tend
to assist in pulling the Recto apart in their
upper portions, thus cooperating with the separation
effected by the advancing uterine.

Relative to the size of the body, the womb in the
later months of pregnancy, is an exceedingly large and
heavy structure. Says Holy Writ, "shall bodily lead
Those that are with young." Had an engineer been consulted
how best to dispose so heavy a viscus within the
abdomen, not improbable he would have
suggested some sort of helical spring
placed beneath to minimize shock. The
engineering of Nature, however, far transcends
that of man. In virtue of the mechanism detailed
above, she seizes the body of the womb, not by
an unyielding ligament, but by the remarkably
soft, resilient, strap-like loop, formed by
the separated Recto, thus swinging a goodly
portion
portion of the great weight, upwards to the front of the chest wall.

A

B

Diagramatic Schemes, illustrating
wherein suspension by separated
Roots.

C

Diagramatic Scheme, showing
sickle-like shape of Sickle
Rectus. No other muscle in
the body, has three tendinous
Lines Transverse like the
Rectus. No other muscle in the body, normally running
straight from origin to insertion, takes this strange
sickle-like shape in physiological action.

So much for mechanical pressure, and muscular
disposition. Wonderful as these are, there is more.
We come to the very master-stroke when we
look into the innervation of the superficial and
depth structures, and observe how these are
correlated. Cunningham, in his great work on
the Nervous System, opens by saying, it "connects"
the various parts of the body with each other, and co-ordinates them into one harmonious whole. I will therefore now essay to show the physiological correlation between the essential and auxiliary forces between the deeper and superficial parts.

The uterus is chiefly innervated by branches coming from the pelvic plexuses. These are formed from the hypogastric plexus, which in turn descends from the aortic plexus. Branches communicate with the ovarian plexus. One branch proceeds direct from the hypogastric plexus to the posterior part of the uterine body. Nerve fibres the sensory associations with the third and fourth Sacral in the lower part of the cervical canal, while in the upper, at the internal os, the relation is to the eleventh and Twelfth Thoracic nerves.

We have also special centres for the abdominal muscles. Excitatory influences may proceed from the sensory nerves of the Recti, (afferent muscular nerves) and through these centres, on the effenter. Stretching of the muscles would be such an influence.

If we regard the spinal cord as a series of superimposed segments, we have the key to much.
What takes place.

Coming now more immediately to the ventro-lateral muscles, (Recti, etc), we find them innervated by the lower six Thoracic Nerves, also by two branches from the First Lumbar, viz. The Sphincterordinary, and the Sphincterintestinal. We find that all the lower Thoracic nerves send both white and gray rami communicantes to the Sympathetic.

Scheme of the distribution of a Typical Spinal Nerve.
(Cummingham)

These Spinal nerves, coursing as they do round the body wall, are all intimately connected with the gangliated cord of the Sympathetic, on either side of the Spine. And, not only the Thoracic nerves, but the Lumbar and Sacral, are likewise similarly connected. These connections deepen their significance, and bring the ventro-lateral muscles into the closest
closed relation with the deep organs. Little wonder
that Hilton, in saying he had never seen a case of
acute peritonitis, where the abdominal parietes were
not drawn backwards upon the contents of the
abdomen, — asthma forms alone excepted, in which
nervous influence had disappeared, — little wonder
that his explanation was, that the same nerves
displying the abdominal muscles, supply the
parietal peritoneum and the skin over these muscles,
also the deep organs, bringing all into "harmonious associations".

Scheme of the Constitution and Connections of the
Sympathetic Cord of the Sympathetic. (Cunningham.)
We find an almost endless list of plexuses, in the epidural spaces, all connected with each other, and radiated with the great ganglionic cords of the sympathetic. We find that the plexus of the sympathetic also give off both gray and white communicating branches to the spinal nerves. Suppose we pause and ask, To what end? Says Maylard: "we can hardly believe, nor indeed have we any right to believe, that this extraordinary amount of interlacing of nerve fibres, so profusely scattered in all parts, is without some vital significance in the general economy; nor is it possible to suppose that the minute fibres which come from more distant regions, connecting some with one plexus, some with another, have not equally an important function to subserve. There can be nothing accidental in these apparently insignificant, because so small factors. No influence of any moment can possibly take place at one spot without its effects being felt to a greater or less degree in all other places."

Hilton was first to show the close clinical connection between deep-seated disease and superficial pain, along the peripheral distribution of these nerves which were connected with such disease. He worked largely from the surgical, though occasionally also
also, from the medical side. Runney, in his "Applied Anatomy of the Nervous System", elaborated his work, in both surgical and medical fields; and, in dealing with the lower thoracic nerves, distinctly showed the wider correlation of the innervation of the deeper and superficial parts.

Head, Ross, Thorburn, and McKeen, have carried on the work into the medical field, and have harmonised anatomical with clinical work, in indicating the vital relation between splanchnic and somatic nerve supply. Already Head has divided the surface of the abdomen, - indeed the entire surfaces of thorax, abdomen, and limbs, into 'segmental cutaneous areas'. He has gone further, and has tabulated the 'maximum spots of tenderness' of the different segments. Maylart also, in his work on 'Abdominal Pain', shows that many diseases are thus traceable, simply by noting the superficial painful spots in the areas of the affected segments.

But these observers appear to have rested content that their truths should apply to surgery and medicine. Has the study of Obstetrics neither lost nor part in them? What is true of the former branches, should apply also to the latter. I think it quite admissible, therefore, to carry the spirit of their discoveries a stage still further, - into the obstetric sphere.
I think I have adduced sufficient evidence to show the close correlation of the splanchnic and somatic nerves. In the face of this correlation, can it be doubted that both the Recti, and other ventro-lateral muscles, are in other than constant and most immediate nerve union with the uterine underlying them? We have already considered the mechanical and muscular effects. We know that, as regards uterine suspension, and apart from nervous influence, conditions of elasticity play a leading part in regard to muscle. Thus "the height of elevation" of any muscle, increases proportionately with the length of the muscle fibres (Rosei, 280). In long muscles, like the Recti, this law alone would operate in producing elasticity of the Intra-Abdominal loop. Such strap-like muscles might themselves, apart from innervation, be expected to co-adapt their surfaces with that of the uterus. But, it is only when we add to these views, as we are entitled to do, the living influence of the above-described correlated nerve supply, — it is then, alone, that the fitness of the intimacy between Recti and uterine appears.

A word or two on the four points which anatomically for the inferior limitation of the space.
The first and last are manifest. The second, (tests of Douglas), and third, (vestigial structures, etc.) may be open to doubt, but I imagine them to be connected with the limitation of the uplifting. Hilton speaks of "The Law of Parimony" in Nature. Perhaps, near this point, she may have wished to make a fibrous band between the recti, so as to limit the separation, and allow urethral suspension; but, instead of doing so, utilized the existing local structures, (perineum, plices, etc.) modifying them so as to assist as ligaments.

Singularity noteworthy in any case is it, that there are no Linear Transversae in the long reach below the level of the umbilicus; while, counting both sides, between the umbilicus and the Xyphoid appendix, there are no fewer than six of these ligamentous structures. Is it unreasonable to suppose they were placed in the upper portion preparatory for the strange deviation made by the upper part of these muscles in pregnancy? The slight retraction caused, would tend to maintain the utero more firmly than in the case of an all-smooth loop. It would almost seem as if nature hesitated here, whether to form a muscular or ligamentous tissue, and decided by compromising between both.

Morphologically,
Morphologically, the recti are derived from the mesoderm. From this we get the myotome, nephro-
tome, and lateral plate. In man, the ventral ends of the myotomes do not descend far in
the somato pleure; but Cunningham considers,
"cells budded off from the myotomes descend to
a lower level, and that they take part in the
formation of the ventro-lateral muscles". It is
worthwhile that while the intercostal muscles
are derived from individual myotomes, the recti
et al. are formed rather from the fusion of adjoining
myotomes. At least two views are held re-
garding the morphology of the Sympathetic System.
One considers it to be the remnant of an
ancient architecture, apart from the Cerebro-Spinal
System, which has been utilised and rendered
modern by that System. Another considers
that new organs and structures in the Ectodermic
area, have induced the correlation of the two
systems - Spinal and Sympathetic: "Examined
in every light," says Cunningham, "it possesses
features which effectually differentiate it
from the Cerebro-Spinal System, although it
has become inextricably united with it and
subservient to it.
THE CLINICAL CASES.
The crucial test comes when the foregoing anatomical and physiological views are subjected to clinical observation. Should the scale turn against them here, they must fall to the ground. But, if the cases at the bedside support the existence of the Inter-Retal Space, it may fairly be claimed, that proof of its presence is complete.

There being, so far as I know, no other writers on this theme, I have to depend on my own arrangement in the clinical work, and have therefore simply selected, what appear to me, to be the salient points.

Truly it is said, that, in the observation of nature, our ideas are tainted by our feelings. But the essence of scientific observation is to be uninfluenced by either theory or prejudice in correctly recording observed facts. I have sought therefore, in these cases, simply to ascertain and collect the truth in. I care nothing in what direction ever the issue may point, so only that observed facts be faithfully recorded. I have selected no special instances of the space, preferring to note simply those events and changes which occur in the ordinary course of nature. The cases all occurred, consecutively, in private practice.
Case I.

Fourth child. | 1st Aug 1911. | well nourished.

This case was only first seen 6 hours after complete labour.

Uterus showed as in drawing.
Fundus 4 in. above umbilicus.
Umbilicus 2\frac{1}{2} in. above line between Ant. Sup. Spines.

An intimate Rectal Space was found which measured 3 in. wide by 7 in. long, (of which 7 in. 3 were above, 4 below the umbilicus). On the patient straining to rise, an Intestinal Tumour (partly uterine and other abdominal contents) massed itself into this space.

Following up the case, further observation on the 8th Aug. showed that the space had diminished to 2\frac{1}{4} inches across.

On straining at this stage, there was but slight protrusion of viscera.
On requesting patient to endeavour to rise from recumbent posture the uterine globe massed itself through the Interoctal space as above. From above downwards the space measured 10.2 in. Its greatest diameter was 6 in. On relaxation the transverse measurements were a shade wider. The distended area between the Recto (Interoctal Space) in this case must have reached something like 50 square inches.

16th Aug. Third Stage:

After 3rd Stage, space measured 4 in. diameter at Umbilicus. Fundus was at Umbilicus.
Mrs W. S.  

Act 34.  

Recovering P.S. ondi.  

7th Aug. 1911.  

Well nourished.  

Family wealthy.  

This patient felt that she had carried her child high all through pregnancy, also somewhat to the left side. The conditions during the third stage were as in the drawing. After extraction of placenta, the fundus was 12 in above umbilicus.

Measured on the following day 5th Aug. the Intra-Abdominal space had narrowed as in second drawing to 2 in. in width x 5 1/2 in. in length. The uterus lay away to the left. The fundus later was still 12 in. above the umbilicus.

Measurable again on the 17th Aug. the Intra-Abdominal space had almost disappeared. It measured 4 in. long (3 in. above the umbilicus and 1 in. below) x 5 1/2 in. in width. A morænotary 'tumulus' appeared through this process on straining.
Case I.

W.F.G.  
aged 32. Residing Sleaford, Lincoln.

Eighth child in 11 years. 7th Aug 1911. Strong and well-nourished.

First stage progressing.

On examining, rectum readily observed - marques somewhat thin. Numerous Teniae and Intestinal spaces of roughly 100 sq. in. (12 3/4 in. long x 12 1/2 in. diam.)

During Third Stage. The Intestinal space fell to 6 1/2 in. diameter as shown in drawing.

On extraction of placenta the fundus measured level with the umbilicus. The Intestinal space now measured 5 in. in diameter. Measured again 26 hours later on 8th Aug. The space was 4 1/2 in. at umbilicus diameter x 10 in long. Finally 16th Aug.

The Intestinal space by this date had diminished to 3 in. diameter x 6 in. length (three inches of which were above the umbilicus, and three below) as shown.
Case VI.

Mrs J. R. V.  Act 36. Residing P't Lincoln.


Prior to Labour:
Intrauterine space, which showed some hourglass contraction opposite umbilicus, measured 6 ½ x 11 ½” as shown. Intrauterine space mostly taken up by foetus.
Labour Aug 16th 1911.
During Third Stage - Recti observed to be very elastic. Intra-Rectal space measured 4 in. x 10 in. (2 ½ of the 10 in. being below the umbilicus), Fundus when 1½ in. above umbilicus.

After extraction of Placenta, Fundus fell to ½ in. below umbilicus, and the diameter of the Intra-Rectal space to 3 ½ in.

Observed later on Aug 19th. The Intra-Rectal space had subsided to 1 ½ diameter x 6 in. in length (of which 6 in. 2 ½ lay below the umbilicus and 3 ½ above it.) as shown.

Aug 19th
Case VII.

Mrs. F. B. P.  Act 32. Residing at R. Lincoln.

fifth child.  15th Aug. 1911.

Third Stage:

The fundus uteri before the extraction of the placenta measured 2 1/2 in. above the umbilicus.

This patient considered that she carried her child high. On straining to rise the usual tumour (of shape of upturned boat, or 'tumulus') appeared.

The measurements during this process were observed to vary. Thus the diameter of the intra-rectal space, on straining, in this case was 2 1/2 in. at its widest part. When relaxed, the diameter of the space calked to 3 1/2 inches.

Immediately

Pelvis-Parame. Fundus uteri level with umbilicus.

22nd Aug. 11
Case VIII

Miss T. C.  ---  Age 23. Residing at St. Louis.
Second child. 18th Aug. 1911. Well nourished.
Excess of adipose tissue.

Third Stage progressing:

There was a tendency to adherent placenta in this case, and a good deal of haemorrhage.

The space between the Rami measured 3 3/4 in. wide x 9 in.
in length. Of this 9 in., 2 1/4 lay below, and 6 3/4 above the
umbilicus. The Fundus Uterus was 3 3/4 in. above the umbilicus.
At the conclusion of the Third Stage, the Fundus Uterus lay
exactly 1 in. above the umbilicus.

By the 26th Aug, the position was as in drawing. The
Intero-Retal space had receded to 2 in. Uterus x 5 in. in
length. (Of these latter, three inches lay above, two below
the umbilicus.)

On straining to rise a small narrow 'funnulus'
temporarily filled the space.
Case IX.

Mrs H. D., aged 27. Residing, Pantheon, P.S. London.

Third stage progressing—
The space between the Rectus here measured 5 in. diameter x 9 in. in length. The length was equally distributed—4 in. above and 4 in. below the umbilicus.
The greatest transverse measurement was at, or a little below, the umbilicus. The Funinus uteri was 4 in. above the umbilicus.
The best localiy to palpate the Funenus was at the umbilicus. The uterus however was very palpable at a lower level.

On straining as if to rise, the usual 'tumulus' massed itself into the space and measured 3 1/2 in. in diameter. Immediately post partum, the Funinus uteri fell to 1 1/2 in. below the umbilicus.

On 29th Aug. Uterus was no longer so easily palpable anteriorly. Observed especially in this case, that at this stage, the difference between the transverse measurements on straining and on relaxation was great—more so than at other dates. On straining, a more knife-edge tumulus appeared.

29th Aug.
Case X

Mrs. W. H. — Age 37. Resident Kirtou Point, Pte Lincoln.

North child, 10th Sept. 1911. Well nourished.

Third Stage progressing:

Showing 'Tumulus' produced on stretching.

The Uterine Recess Space here was 6 in. diameter x 10 in. in length.
Longitudinally 3 in. lay below the umbilicus. Above the umbilicus, the space extended right up to the Xiphoid- sternum.
On requesting the patient to try to sit up, a marked 'tumulus' at once filled the space. It was observed that the tone of the uterus in the upper parts above the umbilicus, was especially noticeable — more so than below. Best position to palpate uterus appeared to be about 2 1/2 in. above umbilicus.

After extraction of placenta the fundus lay 3/4 in. above the umbilicus.

On 18th Sept. The Uterine Recess Space was 3 in. diameter x 7 in. (2 1/2 in. below and 4 1/2 in. above the umbilicus). Xiphoid appendage to Pubic crest was 12 in. (6 in. on either side of the umbilicus). The fundus lay 1 1/4 in. below the umbilicus. 18th Sept.
Case X1.

Mr. W. R. B.  Age 39.  Residing at Stokes.
Second Child.  11th Sept. 1911.

Third Stage proceeding:

On account of a perineal tear, examination somewhat difficult. The Inter-Rectal space was 2.5 in. diameter x 8 in. (9.52" above, 2.5" below the umbilicus). On straining, 'Tumulus' formed as usual. This filled the entire space and reached up to the Xiphoid appendix. Fundus uteri was 1 in. above umbilicus. Best position to control uterine was about 1 in. above umbilicus.

After extraction of Placenta, the Intero-Rectal space diameter fell to 2.5 in.
Fundus uterus was 1.5 in. below umbilicus.

On Sept 21st umbilicus 1 in. lower. On straining 'Tumulus' still showed slightly as a narrow central excised groove.
Case XII.

Mrs. H. K.  
Act 26.  
Residing at Pt. Lincoln.  
17th Sept. 1911.  
Small stature.

Third stage proceeding:—

The intra-rectal space measured 2 3/4 in. in diameter (at its widest part which lay 1 in. above umbilicus) X 6 1/2 in. in length (2 1/2 below and 4 in. above the umbilicus). Fundus about 1 1/4 in. above umbilicus. On straining to rise, the Fundus uteri formed was 4 in. long (1 in. below the umbilicus).
The widest part was 1 1/4 in. above the umbilicus. The Fundus uteri was best controlled about 1 1/4 in. above the umbilicus, but a good plan appeared to be to place the fingers over the umbilicus, and drawing it upwards, to get in behind the fundus, and so come down upon the whole uterus.

Lateral drawing. Post Partum.

The condition on 23rd Sept.—

Uterus now noticeable from the front.
Case XIII.

Mr. J. H. D—— Act 27. Residing at P. Lincoln.
Third child. 19th Sept. 1911. Small of stature.
Summoned late, I found the third stage just over.

Lateral view. (Fundus uteri 1 in. above umbilicus.)

The Ileo-Rectal space measured 3½ in. in diameter,
by 7½ in. in length. It reached 2½ in. below the
umbilicus up to within an inch of the right
appendix. The uterus was best palpated 1 in. above umbilicus.

Observed later on Sept. 26th, the
Fundus uteri was 2 in. below
the umbilicus. The Ileo-Rectal
Space was 1½ in. diameter × 4½ in.
(2 in. below the umbilicus and 2½ above).
The Fundus found on straining was
now almost nil, because concurrent
with the straining, the Recti approximated
so as to nearly, but not quite, preclude its formation in this case.
Case XIV

Mr. C. B.  Oct 32.  Residing at St. Lincoln.
Second Child.  27th Sept. 1911.  Ill-nourished.

Third Stage preceding:

The Inter-Rectal Space here was 2 1/2 in. in diameter x 7 in. (which 4 1/2 in. lay above the umbilicus, and 2 1/2 in. below.) The Fundus uteri was carried palpated 1 1/2 in. above the umbilicus.

When the Third Stage had passed the Fundus uteri was 1 in. below the umbilicus.

On the 3rd Oct. The uterus was not readily palpable. The Xiphio-Pubic measurement was 1 in. less.

The Inter-Rectal Space had become almost obliterated. It still measured however one inch in diameter. From above downwards it measured two and a half inches. If there one inch and a quarter lay above the umbilicus, and one inch and a quarter below it.

On 3rd Oct.
Case XV.

Jno. H. W. 

Oct. 27. Residing at Cummins.

Primipara. 28th Sept. 1911. Well nourished.

This case was under the care of Dr. Gorrie, an Edinburgh graduate, in practice at the neighboring town of Cummins. I was summoned in consultation, the case being one of prolonged labour.

Third stage just over:

The uterus, Rectus space, without any damage, measured 5 in. in diameter at the umbilicus × 9 in. in length (2 in. below the umbilicus and 7 in. above). The fundus uteri lay 2 in. above, or nearly level with the umbilicus.

On asking the patient to try to rise, the 'Tumulus' immediately appeared, and was of exceptional size, measuring 5 in. in diameter × 10 ½ in. in length. Of this length 3½ in. lay below the umbilicus, and 7 in. above. In this case the damage made no difference to the diameter of the space, but the 'Tumulus' measured a little more than the relaxed space in length.

Lateral view.

The 'Tumulus' on aching was partly formed by the lower abdominal wall, independent of the junction of the Recti. Dr. Gorrie checked the measurement.
Case XVI.


Second child.  29th Sept. 1911.  Well nourished.

Third Stage proceeding:

Widest part of fetal retail space was above the umbilicus. Here the
Diameter was 3 in. The length of the
Space was 9 in. (6 in. above, and
3 in. below the umbilicus).

On straining to rise, the funnulus
was well marked above, less so,
below the umbilicus. In the formation
of this funnulus all the tissues appeared to participate.
The fundus were lay 1 1/4 in. above the umbilicus, as shown.

After the third stage, the fundus sank to the level of the
umbilicus.

On 5th Oct.:

The fetal retail space had almost
vanished. It measured now 3/4 in. in
diameter x 1 3/4 in. in length (1 in.
above and 3/4 in. below the umbilicus).
The patient was young and firmly
fixed.

On measuring for the position of
the fundus when, it was found to
lie 2 in. below the umbilicus.

On 5th Oct.
Case XVII.

Miss A.B.—
Oct 31. Residing at Park Lane.

Fourth child, 8th Oct. 1911. Well nourished.

Third stage proceeding;

Pre-eclampsia; 8 months child, still born.

The Intra-hepatic space measured 2 ½ in. in diameter [at a level 1 in. above the umbilicus] × 1 ½ in. (3 in. above and 2 ½ in. below the umbilicus). Fundus liver was palpated and controlled about 1½ in. above the umbilicus, through the thin skin of the space.

After third stage:

The Intra-hepatic space was now a shade smaller, measuring 2 in. a little above the umbilicus × 1 in. in length, (4½ in. above and 2 in. below the umbilicus).

The fundus liver was now measured on a level with the umbilicus.

Tumours well marked on the liver.

On 10th Oct.:

The Intra-hepatic space had almost disappeared, but still measured 1 in. in diameter × 3 in. (1½ in. on either side of umbilicus).

The fundus liver now lay 1½ in. below the umbilicus.
Case XVIII.

Mr. T. R. H.  

Act 36.  

Reading at Lipson.  

Seventh living child.  10th Oct. 1911.  

Well nourished.  

Third stage progressing:—

Lateral view of 'Tumulus' on drawing.  

The ridges, showing the limits of the 

Inguinal space both superiorly and inferiorly, 

were visible.

This case was one of very 

pendulous belly. The fundus uteri al post was 2 in. 

above the umbilicus — the uterus lying somewhat to 

the right side. Later on, but before the shedding 

of the placenta the fundus uteri rose to 2 in. above 

the umbilicus. The case was another of those which 

are extraordinarily easy of palpation. Thus the entire 

width of the uterus which was 6 in. wide could 

be freely palpated through the thin integument 

of the Inguinal space, while from above down 

wards quite 5 in. of the anterior surface of the 

uterus were likewise freely palpable.

On shaving to rise, the 'Tumulus' formed 

in the usual way, a larger percentage of it shaving 

below the umbilicus than in some of the other cases. 

It was interesting to observe the patient's efforts to cut 

up.
up in this case. She was really unable to lift herself up without the assistance of her arms.

I carefully considered where I could best palpate and control the womb. In such a case as this, the best position appeared to be almost all over the uterus immediately through the Recto-Rectal space. But as downward pressure would then subject the skin between the umbilicus and the Xiphoid Sternum to some stretching, I found a good way was to go, say, a little below the umbilicus, and laying the hand on the surface, carry this moveable skin (the whole tissues being thin and moveable) upwards to a suitable side so as to include the fundus, and then to proceed. External downward pressure then, as is used in Credé's method, produces no tension of the skin between the umbilicus and Xiphoid Sternum.

Immediately Post Partum:

On 17th Oct:

Marked 'Tumulus' or swelling. If

Fundus were now level with umbilicus, measured 5 in. in diameter x 8½ in. in Diameter of Recto-Rectal space 5½ in. as shown Length (4 in. above, 4½ below the umbilicus).
Case XIX.

Mr. J. F. C. ... Act 25. ... Residing at Zazilce.

Third child. 21st Oct. 1911. Well nourished, small.

Pudic, firm, well defined, umbilicus low, well placed, after parturition 1.2 inches below.

The umbilicus was found to be approximately 2 inches above the level of the pubis.

The uterine fundus was palpated and found to be at 2.5 inches above the umbilicus.

Lateral view, also post-partum.

On 30th Oct.

The position was as shown.

A small 'tumulus' appeared on the anterior portion of the abdomen, and it measured about 1 inch in diameter. It was situated about 1.5 inches above the umbilicus.

On 30th Oct.

The tumulus was found to have disappeared, and the position of the fundus remained unchanged.
Case XX.

Mrs J. B——. Oct 31st. Residing at Kopnie.
4th child.
5th Nov. 1911. Well nourished.

Third Stage proceeding:—

This patient had the misfortune to sustain a fall
the day before her accouchement. I was obliged to hurry with
the measurements. The Fundus uteri (no doubt owing to the
haemorrhage of which there
was a good deal,) rose at this
stage to 4 in. above the umbilicus. The 'Tumulus'
produced on straining measured 5 1/2 in. X 10 1/2 in., of which
7 in. lay above, 3 1/2" below the umbilicus.

On account of the haemorrhage I was unable to
perform the post-partum measurements, except to note that
immediately post partum the Fundus uteri had fallen to
the exact level of the umbilicus.

On 16th Nov.—

By this time the Recto-Rectal
space had greatly diminished in size.
It measured 1 3/4 in. Diameter X 4 3/4 in. (of which
3 1/4 in. lay above, and 1 1/2 in. below the umbilicus).
The Fundus uteri lay 1 in. above the umbilicus.
The 'Tumulus' was mostly visible above umbilicus. 16th Nov.
Case XXT

Mrs. A. B.  Act. 34.  Residing at Plunkett
Fourth Child.  8th Nov. 1911.
Patient felt that she carried her child "high".
Third Stage proceeding:—

Wurm somewhat to the right.
Fundus 1½ in. above umbilicus. Best position to control the fundus, was 1½ to 1½ in. above the umbilicus.

On straining to rise the ‘tumulus’ formed as usual, massing itself into the Sub-Retrocervical space.

Immediately post-partum:—

Lateral view: Fundus return at umbilicus.

On 16th Nov.
The Sub-Retrocervical space had now become minimised to 2½ in. in diameter x 4½ in. in length (equally divided above and below the umbilicus.)
The fundus uteri had now fallen 1½ in. below the umbilicus.

On 16th Nov.
Here, then, we have twenty-one obstetric cases. All have been taken immediately from bedside notes, and, in the case of difficult curves, have been directly transferred from the original clinical drawings. By careful measurement, each shows an Intero-Rectal Space to exist. The sizes of the spaces naturally differ in every case. One antecedent is common to them all—advanced pregnancy. According to Mr. Wills' Method of Agreement, 'the sole unvariable antecedent of a phenomenon, is probably its cause.' What may I therefore infer? This, that the advanced pregnant condition was, in these cases, the cause of the formation of the Intero-Rectal Spacing. Not necessarily, that it is the only cause, in all cases, as other phenomena, (fluids, tumours, etc.) in the abdomen, might also cause it. But, as in none of the cases described was the space absent, I may infer, that, in these cases at least, it was caused by the advanced pregnant state. In this respect, few doubts of anything further. "A supposition," he says," coinciding with so many facts, laws, and other probable hypotheses, almost "ceases to be hypothetical, and its high "probability causes it to be regarded as "a known fact." (Logic, p. 271.)
THE PRACTICAL ISSUE.
A few words on this practical issue.

(A) As to suspension:

The clinical cases throw light on uterine suspension. Prior to labour, (Cases II and VI) this is shown; (also Case V in the first stage). These cases show the disposition of the muscular loop, and the support given to the uterine muscle. Clinically, also, at the lower boundary of the space, where the Recti are in close union, one can note the combined muscles massing into loop form, and sweeping round from side to side, forming a muscular support to the uterine.

The view of the Dublin anatomist, mentioned by Professor Milroy, that the splitting may take place right down to the pubis, I am not in a position to deny. None of the cases here cited suggest it, and if it occurs, I should regard it as pathological. The uterine, in such a case, would be devoid of its natural muscular loop support to its body, and its neck would rest heavily on the pubic bones. A like ill result would follow the division laterally of either of the Recti. There would then be solution of continuity of the suspensory loop. It is upon the ligamentous union, and close approximation, of the Recti inferiorly, it is upon these, remaining intact, that the Suspension
suspension of the uterus depends. The two Retch, by their characteristic disposition, form practically a triangular bandage,—one of whose ends is attached to the pubic crest; whose centre, is co-apsed to the globe, a few inches below the umbilicus, (where it best counteracts the action of gravity); and whose remaining ends, attach themselves to either side of the chest wall.

Again, the suspension question casts light on the space itself. The projecting uterus appears to mould the split recti somewhat into its own shape. Thus, prior to labour, the space is more spherical. After delivery, the space, relaxing, becomes more ovoid.

(B) As to Retch:

"It is not enough to know," says Locke, "we must turn what we know to account." It is impossible to follow the clinical cases, without being struck with the close intimacy between the uterus and the inter-racial space. Is the uterus large, as before labour? The space likewise is large. Is the uterus smaller, through shedding of contents? Likewise the space becomes smaller. The space is conditioned by the womb. The space is not a fixed abdominal one, situated, say, laterally, and un influenced by the size of the womb. On the contrary, it is
the "expess image" on the anterior abdominal wall, of the uterus itself. Geologists are keen to reconstruct ancient life histories from the study of fossil remains. As when some archaic Labyrinthodon, has left, embedded in primal sands, the marks of his foot prints, so, in some measure, does the uterus leave its unmistakable mark upon the abdominal wall. The intra-rectal space is, veritably, "the place where the womb lay." The tissues of the space are thinner than all around—mere skin, fascia and fat, linea alba, transversalis fascia, extraperitoneal fat, and peritoneum. If we wish, in any stage, to palpate, here we are nearest. Here, all interposing structures are reduced to a minimum. Particularly in the third stage, if we desire to manipulate, where can we reach the uterus more easily than through the Cae, thin skin of the space it has so recently occupied? The space thus forms the strategic area, the vantage ground, the "seat of election," in obstetric ritual. I contend for. Palpated through this space, the uterus is instantly and distinctly felt. If one chooses any other area, the ventral, lateral muscles interpose, and uterine palpation becomes correspondingly less distinct.
SUMMARY.
1. The anterior abdominal wall, in woman, shows abundant preparedness for reproduction.
2. In advanced pregnancy, a separation, or splitting, of the Recti—not a forward distension of the muscles—occurs normally.
3. The separation does not extend down to the pubis, but ceases as a point a few inches below the umbilicus. Should it go further, it is probably pathological.
4. The linea alba, above this point, is physiologically capable of great distension.
5. Among contributing factors, the separation of the Recti superiorly, and concurrent distension of the white line in the same situation, give rise to the Intra-Abdominal Space.
6. Prior to labour, the space is somewhat spherical in shape; after the second stage, it is oval—more or less, but not invariably, below—more or less towards the Xiphoid appendix.
7. The space progressively increases in size with the growing uterine. After labour, it progressively disappears.
8. The space varies in size in different cases. Commonly it is symmetrical, but occasionally, (Case XVIII) is more marked to one or other side.
9. The tissues of the space are exceedingly thin;—skin, a little fat and fascia, distended linea alba, transversalis fascia, sub-peritoneal fat, and peritoneum.
10. The boundaries of the space are, superiorly, the converging Recess, and sometimes the Xiphoid Appendix; laterally, the upper portions of the separated Recti. Inferiorly, the space is again bounded by the diverging Recti, where the muscular fibres mass together in a transverse loop.

11. In looking for anatomical explanation, these suggest themselves:

(a) The intertwining of one of the origins of the Rectus, with its fellow of the opposite side. The close approximation of the muscles inferiorly.

(b) The singular 'Folds of Douglas' at the junction of the lower fourth, with the upper three-fourths.

(c) The five rod-like Plicae, running up from below.

(d) The Adipinecum Lineae Albae, (Gray), appearing posteriorly, between the Recti, and sending out ligamentous branches into the muscles.

12. The older writers foreshadow, but do not describe, an Inter-Rectal Space. Symington, and Ogimble, agree that "Such a separation can readily take place." Berry, of Melbourne, our leading Commonwealth anatomist, writes, "I should naturally expect to find — certainly in many cases — the condition to which you refer."

13. In looking for physiological explanation, these suggest themselves:

(a) Dilating pressure of the uterine, acting on
on the yielding portion of the linea alba, and on the upper portion of the Recti. (A) The action of the Transversalis muscles, extending inwards behind the upper parts of the Recti.

(B) Apart from the relatively high co-efficient of muscle, the visceral and somatic innervation is such, that, through the Rami Communicantes of the Sympathetic, the deeper parts are brought into closest correlation with the superficial. (Mayland, Hand, etc.)

14. The existence of the space is a matter of simple observation, attested to clinically, in twenty-one consecutive cases:

11) (Third Stage) Average point of limitation, inferior of the separation = 3 in. below umbilicus.

12) (Pain to Labour) Diameter of Space is of large size — in one instance (Case V) 12 5/8 in.

13) (Third Stage) Average Diameter of Space = 4 1/8 in.

14) (Third Stage) " length " = 8 3/4 in.

15) (Third Stage) Maximum Diameter at umbilicus(11 cases) " " = above " (9 cases)

" " = below " (1 case)

16) (Third Stage) Average position Fundus (17 cases) = 1.95 in. above umbilicus

17) (Part. Partum) Average position Fundus (11 cases) = level with umbilicus.
average position fundus (6 cases) = .95 in. above umbilicus.

(4 cases) = 1.18 in. below

15. Practically, the normal splitting of the Recti forms a suspensory muscular loop, in which the body of the uterus rests, thus assisting in the problem of uterine suspension.

16. The Inter-Rectal space forms a natural "seat of election", should it be desired to manipulate the uterus, at any time during the Ritual of Labour. Elsewhere the Vento-lateral muscles interpose.

Z. Kaiman.
List of Authors mentioned:

6. Munro Kerr, "Operative Midwifery" p. 179.
17. Fehske, (Cur. für d. med. Wiss.)
27. McKenzie, 'Association of Sensory Disorders and Visceral Diseas' Brain P. 111
28. Read (In Mayland's Abdominal Pain, p. 381-39)
35. Laschka - (Illustration from)