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DIAGNOSTIC PALPATION OF THE FEMALE PELVIC ORGANS.

THE general practitioner, while keenly alive to the rapid progress in all departments of gynecology, is, as I have met him here and in the consulting room, less interested in the details and variations of technique of different operators in the performance of the major operations of gynecology than in the knowledge of how to reach a diagnosis in cases as they present themselves to him. He realizes that just here lies the difficulty; that, an accurate diagnosis being made, the indications for treatment are fairly clear. Upon a correct diagnosis, also, the family physician must base his decision as to whether he himself shall attempt to relieve the condition, or whether the interests of his patient are best subserved by referring her to the specialist.

The fundamental importance of palpation in the diagnosis of diseases of the female pelvic organs goes without question. With it alone, and without the aid of *any* instrument, the expert is able to make a diagnosis in the vast majority, if not in all, of his cases; without it, he cannot reach a satisfactory conclusion in a single case. Bimanual palpation forms the *sine qua non*, the very essence of gynecological practice.

In what follows we shall limit ourselves to the question of *diagnostic* palpation as distinguished from *therapeutic* palpation. The latter, embracing massage in its various forms, the bimanual reposition of the retroverted uterus without the aid of instruments, the divulsion of intrapelvic adhesions in narcosis after Schultze, et cetera, is a subject too large and varied for consideration within the limits of a paper such as this. Skill in therapeutic palpation, however, necessarily presupposes considerable familiarity with diagnostic palpation; while skill in the latter is augmented by practice of the former. The highest capabilities of both can only be developed and maintained by daily practice. Of the two disciplines, however, that of diagnostic palpation is fundamentally the more important and essential.

Advance in diagnosis by palpation has almost, if not quite, kept pace with the progress of gynecological surgery. Indeed, it is most natural that this should be so, and that the man who has frequent opportunity, by abdominal section, for instance, to corroborate or disprove a diagnosis previously made, to analyze sources of error, and to profit by their study, should become more and more expert in the interpretation of the findings of bimanual palpation. And it is just in proportion to the time, diligence and patience he is willing to devote to the practice of bimanual palpation before operation, and to a comparative analytical study of the real conditions presented at the operation itself, that he will derive benefit and increased knowledge from his experience. It is by no means uncommon to find a gynecologist of moderate, but thus thoroughly digested experience rather ahead in diagnostic abilities of his brother with larger clinical material imperfectly and superficially studied. The latter may claim that he has no time for the refinements of diagnosis. For him the discovery of an exudation, tumor or mass in the pelvis or abdomen is sufficient indication for abdominal section, without a careful analysis of the subjective symptoms and objective signs. Unnecessary celiotomies and other serious operations have, under these circumstances, again and again been performed.

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They have either terminated as so-called exploratory celiotomies—sometimes fatal—or if, mayhap, the *furor operativus* have been so intense as to blind the operator, paralyze his judgment, and prevent him from knowing when to stop, have resulted in the removal of healthy or but insignificantly diseased organs, or in other injury or death to the patient. A few mistakes of this kind are found recorded; the vast majority are, for obvious reasons, never published.

Gynecological diagnosis, in its more restricted sense, is nearly synonymous with diagnostic palpation of the female pelvic organs, and the practice of the latter resolves itself virtually into the practice of the bimanual touch, or combined external and internal palpation.

Vaginal palpation alone, and rectal palpation alone, have absolutely no place in modern gynecological diagnosis, and consequently in furnishing indisputable indications for treatment.

To illustrate: vaginal touch suffices to establish a diagnosis of cancer of the cervix; bimanual examination, however, is necessary to determine whether the case is still an operable one. The condition of ovaries and tubes can be satisfactorily made out only by the bimanual; yet who would be willing, at the present day, to undertake the active treatment of any gynecological case without first knowing the condition of ovaries and tubes?

Abdominal palpation, though by itself of little or no value in the diagnosis of pelvic disorders, cannot be dispensed with in the modern practice of gynecology, since many conditions of the abdominal organs, notably movable kidney and appendicitis, which so often produce symptoms complicating and counterfeiting disease of the pelvic organs, can only be recognized in this way.

Granted, then, the fundamental importance, in the practice of gynecology, of bimanual palpation of the pelvic organs, I propose this evening to consider the subject from three stand-points:

(1) The manner of practicing palpation of the female pelvic organs.

(2) The information to be gained from such palpation.

(3) Incidentally, some of the therapeutic indications derived from such information.

In doing so I shall make no pretense of dealing exhaustively with the subject, but will endeavor rather to indicate the routine and practical details of an every day gynecological examination.

And furthermore, we shall confine ourselves to gynecological diagnosis as far as it can be made by the fingers alone, without the assistance of any instrument whatsoever. As already stated, a diagnosis thus arrived at will suffice in the vast majority, certainly over ninety-five per cent. of all cases. The remaining less than five per cent., in which further exploration is possibly called for, are cases for the experienced specialist.

The practice of the bimanual touch will vary somewhat in its details according as it is undertaken in a well equipped office or hospital, or at the home of the patient. The office examination, furnishing the standard of conditions under which bimanual palpation is practiced to the greatest advantage, will be first considered.

The indispensables to a satisfactory practice of the bimanual touch are a good examining chair or table and proper leg-holders. Quite an array of both are in the market to suit various fancies, tastes and purses. As for the tables, nearly

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every one of them will answer the purpose, the choice between them narrowing itself down to a question of appearance, of greater or less convenience, of adaptability to uses in addition to those of diagnosis, as well as of personal predilection arising from familiarity and habit. I myself use a Harvard chair in my office, and the operating table bearing my name in my hospital, examinations, without thereby meaning to imply that either of them is superior for purposes of examination to many others. A point of some importance is to have the table of the proper height to suit the examiner, so as to avoid the fatigue of stooping and strained positions.

Many of the leg-holders or heel-rests in common use are objectionable, on the score of constrained position of the patient and incomplete relaxation of her muscles. I found my own leg-holders, originally devised to facilitate the performance of gynecological operations, so useful in connection with the examination of hospital patients, that some years ago I had a pair of them fitted to my Harvard chair without, however, removing the stirrups coming with the latter. I can thus use either leg-holders or foot-rests at will, but invariably prefer the former in first and difficult examinations. They act on the principle of suspending the lower extremities by the ankles, with the legs and thighs flexed, the knees falling apart by their own weight. Thus every muscle of the lower extremities, pelvis and abdomen is relaxed and the bimanual examination greatly facilitated.

I have also (*The New York Journal of Gynecology and Obstetrics*, January, 1893) had these leg-holders made in such a manner as to be readily transportable, and provided with clamps attachable to any table. They also form part of my portable gynecological operating table. Thus all the conveniences for thorough gynecological examination, as well as operation, at the home of the patient are at our command.

Immediately preceding each examination, the patient should empty the bladder. It is desirable, though not always as convenient, nor as imperative as in the case of the bladder, to have the rectum also empty. After removing her corset and loosening every article of apparel about the waist, the patient is ready for examination.

The patient is then placed in position on the table, upon the back, with her buttocks at the edge of the table and her feet or legs sustained by a suitable leg-holder. Whether she lie with the upper part of the body somewhat elevated, or perfectly flat, makes little or no difference when the author's leg-holders are used. With other leg-holders it is preferable to have the head and thorax somewhat raised.

Unnecessary exposure of the person should be avoided, and the patient's feelings of modesty should receive all due respect possible under the circumstances.

The examiner now takes his position at the foot of the table, and introduces the index finger of one hand into the vagina, carrying it along the posterior wall so as to avoid the sensitive parts of the vestibule, until the cervix uteri and the vaginal vault are reached.

The fingers of the other hand are placed upon the lower abdomen in such a manner that all the organs of the pelvic cavity successively come to lie between, and are palpated by, the internal and the external fingers.

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Obstacles to successful vagino-abdominal palpation, the bimanual examination as generally practiced, are a short vagina, unusually high position of the uterus and of its adnexa, and a well-developed panniculus adiposus. These obstacles can in nearly every case be overcome by combined recto-vagino-abdominal palpation.

Indeed, I cannot commend to you too highly this mode of examination, especially in difficult cases and in your first examination of any case. I employ it under the just-mentioned conditions all but invariably.

In practicing recto-vagino-abdominal palpation the fingers of one hand are placed on the lower abdomen in the usual way. The index finger of the other hand is pressed into the vagina, while the middle finger of the same hand enters the rectum. Or the thumb may be passed into the vagina and the index finger into the rectum, at the option of the examiner. Personally, I prefer the former arrangement.

I have very rarely found a patient to seriously object to this method of examination when properly undertaken, while at the same time the situation and the advantages of the more accurate diagnosis thus obtainable were explained to her.

Experience here as elsewhere is an important item, and the experienced, well-oiled finger can be so deftly and gently introduced into the bowel and beyond the third sphincter as to give the patient absolutely no pain. The disagreeable sensation of an impending fecal movement is the only thing complained of, and this passes away instantly the finger is withdrawn.

By means of the recto-vagino-abdominal touch, the examining fingers penetrate the pelvis to a much greater depth, the perineum being carried upward to the extent of about three centimeters upon the web between the vaginal and rectal fingers.

To satisfactorily and completely fulfill its mission as an explorer, the rectal finger must penetrate beyond the third sphincter, the situation of which corresponds in height with that of the os internum. Under ordinary circumstances the posterior surface of the uterus as well as the tubes and ovaries are thus palpated with the greatest facility. I can promise you that after you have once experienced its advantages, you will never again abandon this method of combined recto-vagino-abdominal palpation.

Elevation of the pelvis, the Trendelenburg posture, by causing the abdominal viscera to gravitate away from the pelvis, will occasionally prove a useful adjuvant in the performance of the bimanual.

The bimanual examination of *virgines intactæ* should always assume the form of a recto-abdominal palpation. There is no need in these cases of a vaginal examination; the finger in the rectum will teach us all we wish to know concerning uterus, tubes and ovaries. The only difficulty to be overcome is to identify the cervix; a little practice will enable us to master this detail.

An excessive deposit of fat over the lower abdomen and the buttocks, forms one of the most common of the ordinary difficulties to be overcome in bimanual palpation. In this connection it is well to remember that very fat women present a transverse crease or furrow, deeply indenting the panniculus adiposus, just above the pubis. By passing the finger-tips of the outer hand down to the bottom of this furrow or crease, the examination will sometimes be possible

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where, without this little artifice, it would fail. In any event, however, most of the fine palpatory work in fat women will have to be performed by the vaginal and rectal fingers.

Gentle, light and deft palpation will aid us in gaining the confidence and coöperation of our patient, and will often succeed where brusqueness and uncalled-for exertion of strength will fail. By pressing so hard as to cause the patient pain, we provoke the abdominal muscles to contraction, in self-defense, and thus directly defeat our purpose, besides exhausting the muscles of forearms and fingers and blunting our sense of touch.

The sense of touch, the *tactus eruditus*, is the gynecologist's stock in trade. Without it he could no more pretend to practice gynecology than a blind man could practice ophthalmology. A finely developed *tactus eruditus* is not to be looked upon as an innate gift; it is solely the result of daily, patient and painstaking cultivation.

A first examination of a patient at her house should never be made in bed unless her removal from bed be attended with risk. A firm table, strong enough to bear the patient's weight, is our first choice. In lieu of that, the head end of an ordinary sofa may be used to support the patient's buttocks, her back and head resting upon pillows, appropriately disposed upon the body of the sofa. With the patient's knees separated and drawn up toward her face and held there by her own or a friend's hand, an excellent posture for the practice of the bimanual touch is obtained.

Occasionally, though less and less frequently with increasing experience, examination in narcosis becomes necessary in order to establish a satisfactory diagnosis by bimanual palpation. It is scarcely necessary to add that when the patient submits to the unpleasantness and risk attending the administration of an anesthetic she has a right to expect that the verdict reached shall be final, and that, therefore, only a thoroughly competent examiner should officiate on the occasion.

To secure complete relaxation of the muscles of the abdominal wall, the routine examination of patients with abdominal or pelvic tumors in a full hot bath is recommended and practiced by F. Chlapowski (*Nowiny lekarskie*, 1891, Volume III). I do not see how, apart from the inconvenience and circumstance of the thing, the difficulties of proper posture of the patient, and of ready access to the pelvic organs, at the bottom of a bath tub are overcome. I have, however, occasionally availed myself of the relaxing effects of the hot bath to overcome excessive rigidity and hyperesthesia of the abdominal walls, the examination being made immediately *after* the emergence of the patient from the bath.

Before we proceed to the consideration of the pathological conditions of the female pelvic organs recognizable by bimanual palpation, it may be well to describe briefly the normal findings.

Under favorable conditions, with proper posturing of the patient, bimanual examination should furnish us a clear picture or conception of the size, position, consistence, et cetera, of the following structures and organs: anus, vulva, vagina, urethra, bladder, the lower five to six centimeters of the ureters, the rectum to beyond the third sphincter, cervix, uterus, tubes, ovaries, pelvic cellular tissue and peritoneum, walls of the pelvis, the broad, round and utero-sacral ligaments.

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Palpation of the ovarian ligaments is often a difficult matter, although of the greatest importance and almost pathognomonic significance in the diagnosis of small ovarian tumors.

In making gynecological examinations it is well to accustom oneself from the very beginning to a certain system or order, both as regards the examination itself and the record thereof. The general custom is to begin with the perineum and to examine and record in ascending order the condition of the organs and structures enumerated above. I follow the general custom in so far as, on my way to the tubes and ovaries, I make a mental note of the condition of the parts successively met. The real examination, however, I begin with the tubes and ovaries in all cases in which these structures can be reached and defined. The condition of the tubes and ovaries is of such essential and prime importance in diagnosis, prognosis and the formulation of therapeutic indications that we cannot afford to forego exact knowledge thereof in any case.

The findings on examination, then, are noted and recorded, beginning with the ovaries and tubes. The fundus of the uterus, our guide to the tubes, and along these to the ovaries, is the first thing sought for by the palpating internal and external fingers. The promontory of the sacrum is the next point to be located. It forms the principal landmark in the determination of dislocations of the uterus, tubes and ovaries, as well as of their degree.

Having introduced the finger or fingers to the proper depth in vagina, or vagina and rectum, the abdominal wall is depressed by the fingers of the external hand, until the finger tips of one hand recognize, or practically meet, those of the other behind to the uterus. This presupposes, of course, a uterus not enlarged by pregnancy or the presence of a tumor, and not impacted in retroversion in the pelvis. We are now ready to proceed to the palpation of tubes and ovaries, and with this palpation, as already stated, begins the examination proper.

Palpation of the ovaries is best accomplished by following the tube from the uterine cornu outward to the ovary. This will sometimes prove impossible of accomplishment from the vagina on account of inelasticity, thickening, or senile atrophy of the vaginal walls. Examination per rectum will enable us to overcome all difficulties of this sort, and to recognize with the greatest distinctness normal sized tubes and ovaries, especially when prolapsed backward with a retroverted fundus uteri. Indeed, by artificially dislocating the fundus backward by pressure with the fingers of the outer hand, we can, in practically all cases, bring the ovaries and tubes within easy reach of the rectal finger.

Having satisfied ourselves that the ovaries are normal in size, we next test them for sensitiveness on pressure. In doing so we must avoid being deceived by the presence of a lumbo-abdominal neuralgia as denoted by a Valleix point in the anterior abdominal wall near the median line. In differentiating we will remember that in mural neuralgia the pain on pressure is very localized, and is elicited by pressure of an external finger alone; while the pain of oöphoralgia or oöphoritis is elicited by pressure of the internal finger, or better still by compression of the ovary between the inner and outer fingers. A tender appendix vermiformis may, in rare instances, prove difficult to discriminate from ovarian pain on pressure. Palpation of the appendix from without will eliminate this possible source of error.

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A calculus lodged in the lower end of either ureter may be mistaken for a cirrhotic ovary. The diagnosis is cleared up by determining the presence or absence of a normal ovary on the same side with the doubtful hard body.

In all tumors of suspected ovarian origin the diagnosis can be made absolute only by determining the relations to the tumor of the ovarian ligament. When this ligament can be distinctly traced running from the uterus on to the tumor, we know the tumor must be ovarian. This is, however, by no means always an easy task, even when we resort to artificial dislocation of the uterus either upward into the abdomen or downward toward the pelvic outlet. The recognition of a normal ovary beneath or alongside of a pelvic tumor of doubtful origin will of course enable us to exclude ovarian tumor.

Palpation of the normal sized Fallopian tubes is to-day common property of all thoroughly trained physicians, and offers no difficulties under ordinary favorable conditions. The tubes are felt between the internal and external fingers as rounded cords, extending from either cornu uteri outward to the pelvic wall. The direction of the outer half of the tubes serves to distinguish these organs from the round ligaments; the relative position of the two structures also aids in their differentiation.

Perfectly normal tubes are non-sensitive on pressure, even as the healthy uterus itself. When the fingers recognize a normal-sized tube, sensitive on pressure, while an equal degree of pressure immediately above and below the tube fails to elicit pain, the diagnosis of salpingitis, probably catarrhal, must be made. Reasoning backward from the salpingitis, a causative endometritis is the logical deduction, even though all the other usual symptoms of the latter are absent. In the absence of contraindications, curettage and drainage of the uterus are the measures called for.

In cases of movable retrodeviated uteri, exact palpation of the tubes and ovaries is sometimes more easily accomplished after lifting the fundus forward bimanually. Should tubes and ovaries then be found non-adherent and normal in size, the tubes perhaps slightly sensitive on pressure, the indications for me would be curettage of the uterus and shortening of the round ligaments.

We have described the physical signs of a simple catarrhal salpingitis with but little, if any, increase in size of the tube. In the severer forms of salpingitis the ovaries, pelvic peritoneum and adjacent organs are generally more or less involved. An attempt to describe the most endless variations in the physical signs produced by these complications would lead us too far.

Whenever the tubes, in these complicated conditions, form the focus or starting point of the inflammatory process, and yet are not of themselves very greatly enlarged, it becomes a matter of practical importance to determine, if possible, whether the tubes maintain their normal direction, running straight outward from the horns of the uterus, or whether they are prolapsed backward into Douglas' sac, spiral in their course, club-shaped or very irregularly thickened. Under the first named circumstances curettage and drainage of the uterus, followed by an energetic ichthyol therapy, might still lead the case to a favorable termination, while with the last named conditions present more radical measures would be indicated.

A tubal tumor can, in most instances, be diagnosticated by bimanual palpation, more especially if we succeed in recognizing the ovary of the same side.

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The diagnosis, as to the character of the tubal tumor, whether it be hemato-, hydro- or pyosalpinx, tubal pregnancy, tuberculosis, actinomycosis, cancer or other malignant tumor, cannot, however, be made with any approximation to certainty by bimanual touch alone. If a tubal tumor be suspected the examination should be conducted as gently as possible, the possibility of rupture during manipulation being constantly borne in mind.

The diagnosis of occlusion of the abdominal end of the tube may occasionally be prognostically, as well as therapeutically, of practical value. This diagnosis becomes probable when the outer end of the tube can be felt as a club-shaped enlargement, with adhesions to neighboring parts.

The various uncomplicated displacements of the uterus are readily recognized on bimnaual palpation, especially by the recto-vagino-abdominal touch. In this connection the various physiological displacements of the uterus, due to over-distention of bladder or rectum, as well as to the posture of the patient, must not be lost sight of.

Quite a different matter is the diagnosis of displacement of the uterus, when these displacements are the result of disease processes outside of the uterus itself. The uterus may be dislocated in any and every direction by tumors of adjacent viscera, by para- and perimetritic exudates, scars and adhesions.

It is often extremely difficult to recognize the uterus when buried in the conglomerate pathological masses thus produced. Our chief aids in the discovery of the uterus, under these circumstances, will be the recognition of the continuity between cervix and body, as well as of the form, size and consistence of the uterus itself. This peculiar consistence of the uterus, under varying conditions, can only be learned from considerable experience and is almost impossible to describe. A knowledge thereof is of invaluable aid in diagnosis.

The recto-vagino-abdominal touch will furnish valuable information regarding the presence or absence of adhesion in cases of retroversion of the uterus. The therapeutic indications, in a given case, will depend upon this information.

Inversion of the uterus is completely and satisfactorily diagnosticated by bimanual palpation. A depression is felt where the fundus uteri should be, and the tubes and ovaries are recognized, arising from the depths of the depression.

The diagnosis of tumors of the uterus, by bimanual palpation, is easy in those cases in which the continuity of cervix, or corpus with the tumor, or the connection of the tumor with the uterus by a pedicle, can be traced. Failing in this we must have recourse to other diagnostic aids: contour and consistence of the tumor mass, the history of the case, et cetera.

Many forms of developmental anomalies of the uterus are recognizable by the bimanual touch. Thus the most frequent and practically important form of arrest of development is manifested by the co-existence of a large cervix and a small corpus, with probably undersized tubes and ovaries.

A uterus unicornis is recognized by normal insertion of the tube and round ligament on one side, while on the other side these structures are inserted into the uterus at the level of the os internum.

I have had occasion to deal operatively with no less than six double uteri. In four of the cases the condition was not recognized previous to operation. In two the diagnosis of double uterus was made by bimanual palpation and confirmed at operation. The diagnosis between a double uterus and a tumor

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connected with a single uterus is made by tracing the tubes. If these originate from the outer side of either mass, we have a double uterus to deal with. I have ventured the same diagnosis in several other cases in which there was no occasion for proving or disproving the diagnosis by operation or the sound.

In the diagnosis of diseased conditions of the cervix, we are not dependent upon palpation alone; the sense of sight may be brought to our aid. Nevertheless, the various pathological states affecting the cervix uteri: hypertrophy, elongation, lacerations, ectropium mucosæ, inflammation, polypus, carcinoma, et cetera, may all be recognized and distinguished with absolute certainty by the trained finger alone. The vaginal speculum as a diagnostic aid is not needed by the fully competent modern gynecologist.

Hegar's sign, the compressibility of the lower segment of the uterine body, as demonstrated by the bimanual touch, is, in the hands of the expert, a pathognomonic sign of pregnancy in the early months. To go further into the diagnosis of pregnancy would lead us too far. Permit me only to sound a note of warning in the examination of cases of suspected pregnancy. I have more than once known the bimanual *too vigorously applied*, to produce abortion, no instrument whatsoever having been used.

The female bladder can be outlined throughout its whole extent and the presence within it of a tumor, concretions or foreign body can be determined by the bimanual.

With the bladder empty the lower five to six centimeters of the ureters may be palpated, and dilatations and thickenings of that canal, as well as concretions within it, can be distinctly felt. The importance of these findings from a diagnostic point of view can scarcely be overestimated.

Want of time forbids our entering in detail upon the subject of the diagnosis by palpation of the various pathological changes in the pelvic cellular tissue and the pelvic peritoneum: parametritis, perimetritis, hematoma, hematocele. I will merely call attention to two points of great practical importance upon which sufficient stress is not usually laid. The first is the fact that in a first attack of acute peritonitis, pelvic or general, in a woman, our earliest positive diagnostic sign consists in a sense of fulness and fluctuation in Douglas' sac, easily recognizable by vaginal, or better, by combined rectal and vaginal touch. The second relates to cases of carcinoma of the uterus; if the sacral glands can be felt to be even slightly enlarged and tender, the case, no matter how favorable the other conditions may be, is probably beyond the help of operation.

Palpation of the female pelvic organs, although it may have revealed to us minutely and satisfactorily the condition of these organs, is insufficient in itself for a diagnosis complete enough to satisfy the demands of modern gynecology. The entire abdomen calls for careful palpation, especially with reference to the so frequent and important conditions of movable kidney and appendicitis. The other important organs of the body, heart, lungs, kidneys and brain must also be interrogated for evidences of disease. Even when we have thus gone over the whole field, and recorded the results of our physical examination, the diagnosis is not complete. The establishment of a scientific diagnosis calls for an analysis of the subjective symptoms of the patient, with the view of harmonizing them with the objective signs. In other words, each prominent symptom complained of must be traced to its source, and analytically referred to its

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causative condition, the latter having been determined by physical examination. Only after this is done are the indications for treatment clear, are we able to act intelligently in the attempt to help our patient. This forms a high standard of practice, but progressive modern medicine and modern gynecology are satisfied with nothing less at the present day.

If I have succeeded in impressing upon you this fact, in inciting in you renewed interest and zeal in the diagnostic palpation of the female pelvic organs, and in convincing you that the use of instruments for purposes of diagnosis is unnecessary and *eo ipso* unwarranted in modern gynecology, the objects of this cursory discourse will have been accomplished.—George M. Edebohls, A. M., M. D., in *The Post-Graduate.*

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