

## CHAPTER II

# GYNECOLOGIC EXAMINATION AND DIAGNOSIS

The physician who wishes to do accurate work in the diagnosis and treatment of diseases of women must be in possession of certain facts, as follows:

Knowledge of the anatomy and physiology of the organs involved.

Reliable history and examination of the patient.

Knowledge of the organic and functional disturbances to which the parts are liable and of the differential diagnosis and treatment of them, along with coordinating knowledge which will enable understanding of the situation as a whole as well as of the local disturbance.

Diagnosis is based upon the symptoms given by the patient and the signs found on examination. It should, as far as possible, be both an anatomic and a pathologic diagnosis—that is, it should state the structure involved and the character of the pathologic process. The fact that a diagnosis must eventuate from the history and examination requires that the diagnostic significance of symptoms and signs be kept in mind and utilized as the examination proceeds.

### METHOD IN DIAGNOSIS

Accurate and prompt diagnosis is much facilitated by a **grouping of diseases under certain prominent symptoms**. This is the natural method, the one that is followed unconsciously. The prominent sign or symptom in the case brings to mind a group of diseases, and then by the consideration of other ascertained facts, the diagnosis is narrowed down to one or two of these. This differentiation should be made as one proceeds with the examination.

For example, suppose during an examination an ulcer is found on the external genitals. Immediately arises the question, "Is this a chancroidal or syphilitic or tuberculous or malignant or simple ulcer?" Endeavor to settle the question then and there. Recall the facts in the history bearing on the differential diagnosis. Notice the characteristics of the lesion. Is there lymphatic involvement and, if so, of what type? Are there in other parts of the body evidences of syphilis or tuberculosis?

Each important sign must be thus critically considered, and the habit of doing so should be cultivated. In a few cases the diagnosis is apparent from a few prominent facts, but in most cases, particularly in deepseated and serious diseases, the diagnosis must be established by a **critical analysis** of the mass of information obtained in the history and examination. It is this critical analysis, this testing and elimination of diseases that do not stand the test, that makes the difference between the careful diagnosis and the snap diagnosis, between a reliable diagnostician and an unreliable one.

This effective application of the signs to the diagnosis should, as far as practicable, be **made promptly and rapidly**, as they are encountered in the examination. Though in a systematic history and examination all the important

facts are supposed to be obtained, yet if the application of the symptoms to the diagnosis is made as one proceeds, certain points of particular importance in the diagnosis in that case will be given the special attention which they require. Hence the importance of having in mind for immediate use, the diagnostic significance of the common signs encountered.

### Consider Extragenital Conditions

Disturbing symptoms in the lower abdomen or back do not necessarily mean genital disease. The trouble may be in some other structure in that vicinity or elsewhere. In this connection we must consider the following structures:

**Digestive System**—Gastroenteritis, Appendicitis, Cecal Tuberculosis or Tumor, Colitis, Diverticulitis, Proctitis, Hemorrhoids, Tumor of Rectum or Colon.

**Urinary System**—Urethritis, Cystitis, Bladder Stone or Tumor, Pyelitis, Ureteral Stone or Stricture, Kidney Stone or Tumor.

**Skeletal System**—Arthritis of Sacroiliac, Sacrococcygeal, Lumbar or Lumbosacral Joints, Vertebral Tuberculosis or Tumor or Injury, Postural Backache or Occupational Strain.

**Nervous System**—Tabetic Crises, Transverse Myelitis, Neuritis and Neuralgia, Hysteria and Other Forms of Psychic Pain.

It is not necessary to go into detail regarding the above conditions; to name them is sufficient to call attention to them for differential diagnosis. Most of the serious mistakes in diagnosis come not from ignorance of the symptoms of various diseases but from the fact that the missed disease was simply not thought of when deciding on the cause of the patient's symptoms.

### Grouping of Pelvic Symptoms

Having concluded from the brief preliminary questioning that the trouble is probably in the genital tract, the next step is to determine to what general group of pelvic disturbances this belongs. It is interesting to note that in nearly all cases of a distinct lesion the symptoms presented fall easily into one of two groups. One of these may be designated as the "inflammatory symptom-complex" and the other as the "new growth" set of symptoms.

#### INFLAMMATORY SYMPTOM-COMPLEX

SYMPTOMS	LESIONS
Acute onset	Inflammation
Sharp pain	Tubal pregnancy
Tenderness on examination	Endometriosis
Remissions	Tumor with twisted pedicle or
Recurring attacks	complicating inflammation

#### NEW GROWTH SYMPTOM-COMPLEX

SYMPTOMS	LESIONS
Gradual onset	Uterine tumor
Pressure or dragging	Ovarian tumor
Not tender	Prolapse or other displacement
Continuous	of the uterus
Gradual increase	Relaxation of pelvic floor

In complicated cases there may, of course, be a combination of conditions with consequent mixture of symptoms, but uncomplicated lesions usually drop readily into one or the other of these two symptomatic classes.

There are, however, gynecologic patients without any lesion. They constitute a third class—the “functional” group. The symptoms may simulate those of either class of lesions or they may be a mixture. The diagnosis of functional disturbance is made by elimination of a definite lesion through satisfactory examination. The “functional group” includes endocrine, vitamin, and nutritional disorders, allergic manifestations, postural or occupational strain or congestion, and neurologic and psychic disturbances. The pelvic symptoms from any one of these disorders may be very real and distressing and require careful discriminating active treatment. This fact should be kept in mind by those physicians who, as a writer has well remarked, “When they cannot discover something with the microscope or the stethoscope or a test tube or the x-rays, in a patient who is obviously ill, have the unspeakable gall to tell the suffering one that ‘there is nothing the matter.’ ”

### Pitfalls in Diagnosis

Before taking up the details of gynecologic examination and diagnosis, it is well to call attention to some of the pitfalls which the practitioner will encounter. Forewarning may put him on the alert and diminish the number of bitter surprises which come with experience. If gynecologic diseases always followed a typical course and the patient always picked out from her subjective disturbances the identifying ensemble of symptoms, gynecologic diagnosis would be easy work in which the tyro could proceed confidently and safely, and the experienced gynecologist would have to look elsewhere for the difficult problems and unexpected findings which give spice and interest and development to life. But there is no necessity of going elsewhere for difficult problems or stimulating surprises. Gynecologic diagnosis furnishes plenty and to spare, as every gynecologist can testify. It has been said that “The abdomen is the greatest surprise-box ever opened,” and the pelvic portion of it is not the least disconcerting.

The particular diagnostic difficulties pertaining to each disease will be considered in the chapter treating of that disease, but it may be helpful to call attention here to certain difficulties having a general bearing. Keeping these in mind constitutes a part of that diagnostic alertness or eternal vigilance which must be exercised in working safely through the maze of diseases and their combinations and associated conditions.

**Errors About a Pelvic Mass.**—A common error is to interpret a mass as something which it is not. The nature of a pelvic mass must be determined *indirectly*. We cannot see it or touch it directly, except through the danger of peritoneal invasion. There are no sounds which identify it (except in late pregnancy or aneurysm). Our palpation of it must be through intervening tissues which may obscure its outlines or give a false impression as to its size and consistency. Attempts to overcome these difficulties have aided some, but they have not removed the necessity for trained palpation nor for gray-matter activity on the possible interpretations of what is felt. The “educated

touch" is acquired laboriously through multiplied trial and interpretation and revealing demonstration at operation or autopsy, so it is well to start the process early.

The *apparent size* of a mass under vagino-abdominal palpation depends a good deal on the thickness and consistency and tension of the intervening tissues, particularly the abdominal wall as indicated in Figs. 122 to 124. The *apparent consistency* may be misleading on account of the intervening tissues or on account of failure to palpate completely. The *apparent tenderness* of the uterus or other pelvic mass must be interpreted with caution. For example,

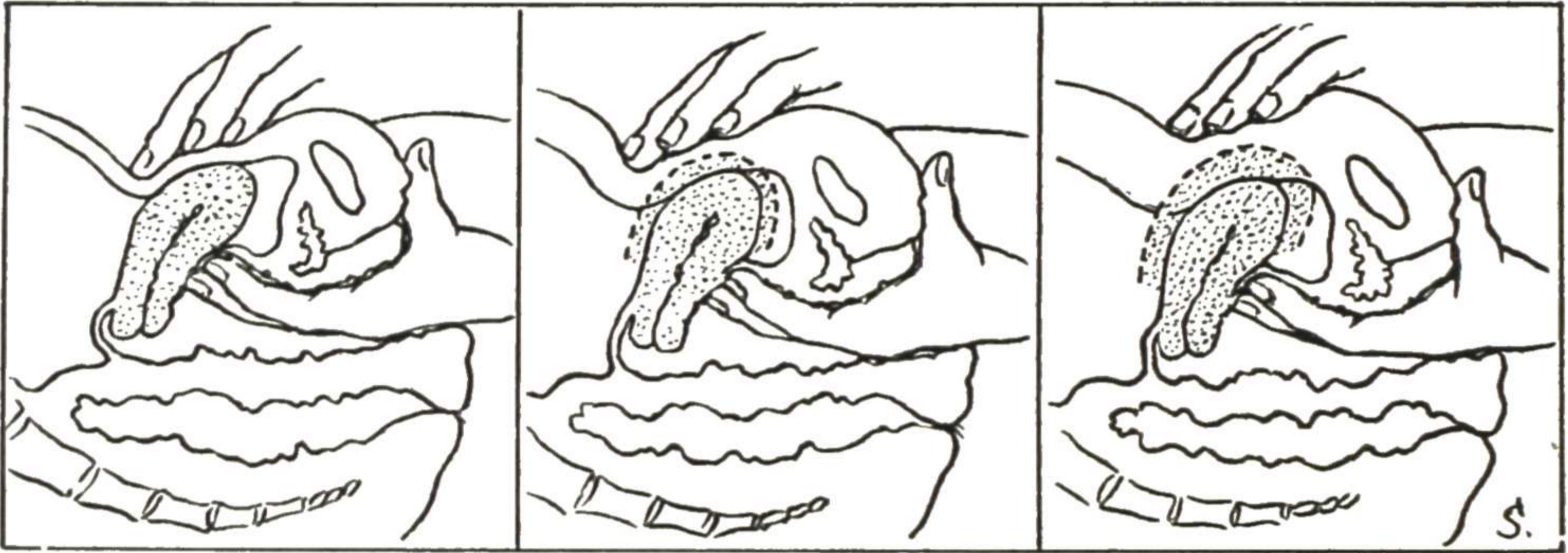


Fig. 122.

Fig. 123.

Fig. 124.

Figs. 122 to 124.—Error in estimating size of uterus may be caused by thick abdominal wall, particularly when wall is very thick, as in Fig. 124.

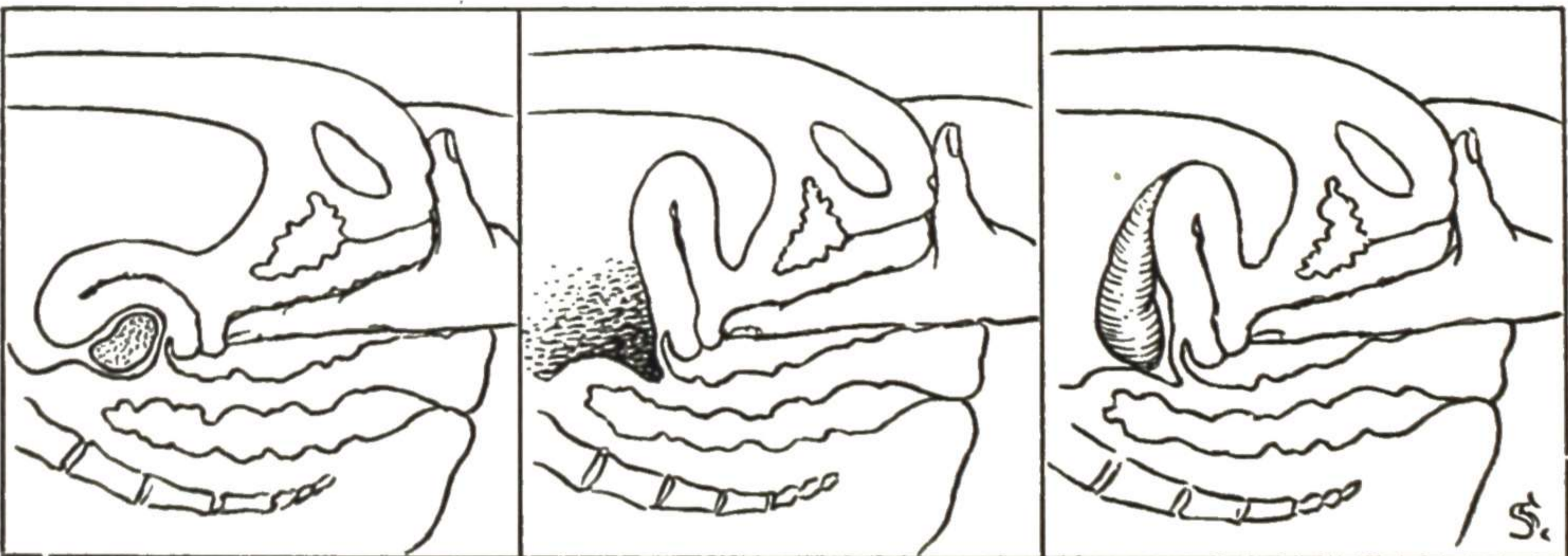


Fig. 125.

Fig. 126.

Fig. 127.

Figs. 125 to 127.—Various cul-de-sac conditions which may cause pain when cervix is pressed on. Fig. 125.—Ovary under retrodisplaced uterus. Fig. 126.—Inflammatory mass. Fig. 127.—Tube, enlarged by inflammation and prolapsed.

when pressure on the cervix causes pain do not jump to the conclusion that the cervix is tender. Consider other conditions which may cause pain when the cervix is moved or pressed on, such as those shown in Figs. 125 to 130. Again, tenderness may be due also to neuritis in the area. Remember also that pain is a subjective symptom which may be a referred psychic phenomenon or possibly a deliberate attempt to deceive.

**Errors About the History.**—The information obtained from the patient occupies a large place in the diagnosis in most cases, and in some cases certain items are of decisive importance. The history, however, is largely a subjective

matter, the "facts" as stated being the patient's interpretation of recalled sensations which often were, even at the time, not clearly defined in content or origin. In addition, there are the suggestive and other psychic factors to be considered. Occasionally also there is attempt at deception, the patient endeavoring to build up a claim for damages for some alleged accident or pretending acquired disease as a cause for divorce or hoping for abortion from some instrumental examination or treatment.

**Errors About Tests.**—When by the history and pelvic examination the diagnosis has been narrowed down to two or three conditions, decisive differential diagnostic information may often be furnished by one of the various special tests. An important point to keep in mind, however, is that in many instances the diagnostic significance of the result of a laboratory test depends on the associated clinical findings. The test simply furnishes one item of information, and for use in clinical diagnosis this test-item must be correlated with the items obtained from the history and the examination. Even the test-item itself (the pathologist's interpretation of what he sees) may need to be varied

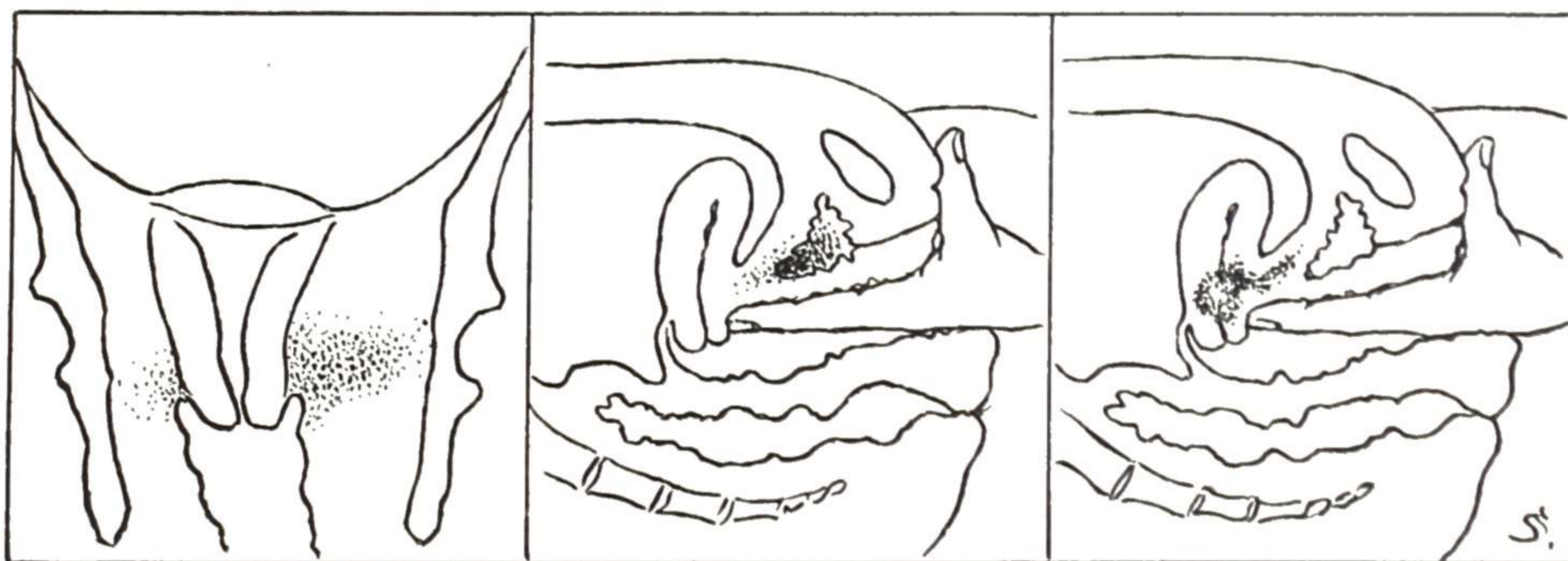


Fig. 128.

Fig. 129.

Fig. 130.

Figs. 128 to 130.—Other conditions causing pain when cervix is pressed on. Fig. 128.—Parametritis. Fig. 129.—Cystitis. Fig. 130.—Uterine inflammation or cancer.

with the clinical findings. Consequently, helpful coordination between the clinician and pathologist is necessary to avoid serious mistakes on each side.

**Facts and Assumptions.**—Owing to the hiatuses in our knowledge of deep-seated conditions in a patient even after a careful examination, some assumptions are usually necessary in making a diagnosis. For example, in palpating a pelvic mass there are some portions the outlines of which can be clearly felt and other portions the outlines of which cannot be felt. To complete the diagnosis we assume a certain approximate outline in the nonpalpable area, endeavoring to avoid error by careful interpretation of all the findings. The outline of the palpable portion represents a fact while the outline of the nonpalpable portion represents an assumption. Unless constantly on guard we are likely to overlook the relative dependability of the two in working toward a conclusion. It is so easy to allow the probable to slip into the positive class, to be used later as a positive factor in deciding between diagnostic possibilities, that this process not infrequently leads to a wide error in diagnosis. The reason for the error becomes apparent as one traces back from the

operation-findings through the ways in which the erroneous diagnosis was reached, but it is better to recognize the pitfall before the fall-in.

**Ignoring Unaccounted-for Symptoms.**—Unaccounted-for symptoms and examination findings are danger signals one must learn to heed. The symptom or examination sign which will not fit into the otherwise satisfying diagnosis is an irritating nuisance to the careless diagnostician but a stimulating question mark to the careful one. An unaccounted-for symptom indicates that there is something still unknown about the case, and as long as its cause remains unknown it throws doubt on the correctness or completeness of the diagnosis. "A word to the wise is sufficient."

## HISTORY

A few preliminary questions as to the principal complaint will put the patient at ease and indicate the general type of disturbance. The systematic record is then begun, and care should be taken to cover the important items under the following headings.

### History Record

**Social Items**—Name, address, age, married, occupation.

**Previous Health**—General health, abdominal inflammation, nervous disturbances, operation, etc.

**Pregnancies**—Confinements, miscarriages, sterility.

**Menstrual History**—Beginning, regularity, duration, amount, pain, last two menstruations.

**Beginning of Present Trouble**—When, how, cause.

**Principal Symptoms**—Character, time of onset, duration of each.

**Disability**—Confinement to bed, interference with work, etc.

**Complications**—Character, onset, duration.

**Family History**—In special cases, nervous disturbance, tuberculosis, etc.

**Previous Treatment**—Different kinds, results.

**Summary of chief symptoms demanding relief.**

It is well to put down the facts not strictly medical when beginning the written record, for if postponed some of them are liable to be overlooked altogether. Record accurately the patient's name, address, age, whether married or single; and if single, the occupation; if married, how long. If she has been married more than once, or if a widow, or if living apart from her husband, she will probably mention the fact and also any correlated facts bearing on the present disturbance. For business reasons, it is advisable to note other items of information—for example, the husband's occupation and business address.

After completing the history and before beginning the examination, fix in mind the chief symptoms for which the patient seeks relief. Keep these in mind while making the examination and endeavor to find the lesion or condition that causes each of them. These symptoms serve to indicate the directions for special investigation. The diagnosis should be made, to a considerable extent, as the examination progresses. Before finishing the examination, you should have formed an opinion as to whether or not you have found the cause or causes of the symptoms which brought the patient to you.

### Keep a Record

A short record, giving in a systematic way the principal facts of a case, may be made quickly and more than repays for the time consumed. And the principal advantage is not the permanent record it gives for reference after some years, though that is important, especially to the teacher, but the fact that it systematizes and steadies and improves the physician's work day by day. Such an account of the case in black and white, referred to frequently as the patient returns for treatment, is a constant stimulus to accurate diagnosis and a constant help in the treatment, particularly if the case is a long-continued one. Again, in court a physician is supposed to have some record of his work. You may at any time be called upon to testify as to the exact findings in the case of some patient whom you saw several years before.

### Is a Pelvic Examination Required?

After obtaining the information the patient can give concerning her illness, the next step is to make the physical examination, provided there are symptoms indicating that such examination is needed.

In the case of a **virgin**, pelvic examination is rarely indicated until after medication has been tried and failed to give relief. Occasionally, however, a young woman will present such symptoms that local examination at once is advisable to exclude tumor or other serious lesion. In such case, abdominal examination, inspection of external genitals to exclude inflammation or imperforate hymen, and rectoabdominal palpation will usually give sufficient information to exclude serious pelvic disease.

If conditions still remain doubtful and a small hymen precludes digital palpation, examination under anesthesia may be required. In a bleeding case, curettage may be needed, at once or after trial of medication, and the vaginal examination may be postponed till then, thus sparing the girl an ordeal and also obtaining much more information.

On the other hand, in the case of a **married woman**, if decided pelvic symptoms are present, an examination should, as a rule, be made at once, particularly if there has been previous treatment without satisfactory result.

If the patient is **menstruating**, the examination is of course postponed, unless there is urgency. A nonmenstrual bloody discharge is not a contraindication to examination, but rather an additional indication for it.

If the patient is extremely anxious to avoid the examination, treatment without it may be tried for a while in a suitable case, even though immediate examination seems decidedly preferable. But the physician should be cautious of assuming responsibility for the treatment of alleged conditions which he has not been allowed to investigate.

## PHYSICAL EXAMINATION

Physical examination consists of the general and the local examination. The **general examination** should be pursued far enough to give a reliable idea of the general physical condition, to show any serious disturbance, and to indicate whether the patient's disability is probably due to pelvic disease or to some extrapelvic trouble.

In the **local examination** an investigation is made of the genital tract and adjacent structures. The **steps** in the local examination and the **order** of their employment which the authors find most convenient when the patient can be placed on a table are given in the following outline. It is in this order also that the various methods are taken up for detailed consideration.

When the patient is sick in bed at home, the order of examination is more frequently abdominal, vaginal, vaginoabdominal, and rectoabdominal. Inspection of the external genitals and the speculum examination are usually not required in such a case, but of course should be employed if they will furnish needed information.

### **Regular Steps**

#### In the Local Examination

Abdominal Examination.

Inspection of External Genitals.

Vaginal Examination (Digital).

Vaginoabdominal Examination (Bimanual).

Speculum Examination and taking specimens of Discharge.

Rectoabdominal Palpation.

Localization of Backache.

In the case you are considering, the regular examination and history may furnish all the information needed for diagnosis and treatment, so that after making the examination you are in a position to proceed at once with the therapeutic directions. On the other hand, there may still be questions to be answered to enable satisfactory diagnosis and effective treatment.

Most of the serious mistakes in diagnosis are not due to ignorance but to oversight of the possibilities in the case. Hence it is well to present the possibilities in a suggestive outline which can be taken in at a glance. This outline will serve as a memorandum of the various examination measures which may be helpful in special gynecologic and associated conditions.

### **Special Examinations**

Colposcopic Magnification of Cervix Lesions.

Chemical (Iodine) Test of Cervix Covering.

Determination of pH of Vaginal Contents.

Endometrial Biopsy.

Gas Test for Tube Patency.

X-Ray Examinations.

With opaque material for location of tubal occlusions and outlining tubal and endometrial cavities.

For fetal bone shadows, calcified structures (dermoid, myoma), possible foreign body.

For lesions of intestinal tract (appendicitis, intestinal growth or stenosis) or of the urinary tract (prolapsed kidney, stone, hydronephrosis, ureteral lesions).

For arthritis, metastatic growths, or other lesions of pelvic bones and lower spine.

Of skull for sella turcica deformity in pituitary endocrine disturbances and for internal exostosis in severe menstrual headaches.



Pelvic Palpation under Anesthesia (vaginoabdominal, rectoabdominal).

Aspiration of Fluid.

Intra-Abdominal Inspection (through endoscope, through incision).

Endocrine Investigations.

Pregnancy Tests.

Extragenital Examinations (which may be required in certain gynecologic patients, for differential diagnosis or in preparation for operative treatment).

Cardiovascular (heart sounds, pulse, blood pressure, electrocardiogram).

Urinary tract (cystitis, pyelitis, ureteral stone or stricture).

Intestinal (appendicitis, colitis, diverticulitis, stenosis, growth).

Orthopedic (sacroiliac or spinal arthritis, metastasis, postural strain).

Neurologic (neuritis or neuralgia, tabetic pains, spinal growth or deformity, psychoses).

Blood (leucocytosis, agranulocytosis, leucemia, anemia, N.P.N., clotting time, sedimentation time, sugar index, other cellular and serum conditions).

Nutrition and Vitamins (weight variations, digestion, stamina, vitamin deficiencies).

Endocrine (thyroid, ovarian, pituitary, adrenal).

Allergy (foods, medicines, underwear, powders, other contact substances).

In Fever of undetermined origin or other Obscure Conditions, the various infectious diseases must be considered, including gonorrhoea, tuberculosis, syphilis, brucellosis, chancroid, granuloma inguinale, lymphogranuloma, as well as infections with streptococci or staphylococci or anaerobic bacteria.

Various Rarer diseases may produce puzzling pelvic lesions, such as actinomycosis and echinococcus disease. Even inert particles may work into the tissues and give rise to obscure lesions (inclusion granulomas), such as the granulomas from inclusion of lycopodium powder grains on gloves in abdominal operation or on rectal suppositories used for rectal distress.

## ABDOMINAL EXAMINATION

Have the patient lie near the edge of the bed or table, in a comfortable position, with the head slightly raised on a pillow and the knees drawn up sufficiently to relax the abdominal muscles.

The abdomen is subjected to:

**Inspection**—Contour, Color, Eruption, Striae, Scars.

**Palpation**—Tension, Tenderness, Mass, Fluctuation, Fluid Wave, Fat Wave, Fetal Movement, Uterine Contraction, Friction Rub.

**Percussion**—Area of Dullness.

**Auscultation**—Fetal Heart Sounds, Vascular Murmur.

**Mensuration**—For accurate comparison.

## INSPECTION OF ABDOMEN

**Contour**

ALSO MOVEMENT, COLOR, ERUPTION, STRIAE, SCARS

The principal thing to determine by inspection is **contour**. Determine also the other items mentioned—movement of wall, color, eruption, striae, scars—but usually they are of secondary importance. As to contour, there may exist one of several conditions, as follows:

The smooth, moderately full contour of the normal abdomen.

The flat, sunken abdomen of wasting disease, with empty intestines.

A swollen, prominent abdomen.

Fig. 131 shows normal contour, as the patient is prepared for abdominal examination. In the enlarged abdomen the contour or simple outline may give some idea of the cause of the enlargement. In Figs. 132 to 135 the contours of moderate ascites, marked ascites, cystic tumor, and solid tumor are shown and contrasted.

## PROMINENCE OF THE ABDOMEN

Decided prominence of the abdomen is due to many different affections—so many that it is difficult to remember them in an ordinary list. They are easily remembered, however, when grouped according to location. Thus conveniently arranged, they form five groups, as follows:

- A. Some Affection of the Abdominal Wall.
- B. Something in Intestines.
- C. Something in Peritoneal Cavity.
- D. Some Enlarged Organ.
- E. Tumor from Pelvis or Abdomen.

**A. Abdominal Prominence From Some Affection of Wall**

**Obesity** (Fig. 136).—There is evidence of fat deposit in other parts of the body. The abdominal wall may be picked up as a thick roll, and the fingers made almost to meet beneath (Figs. 137, 138, 139), showing that most of the prominence is due to the thickness of the wall. There is no distinct localized mass, like a tumor in the wall.

Percussion gives resonance all over the abdomen. Sometimes a distinct “fat wave” may be obtained, but it may be distinguished from a “fluid wave” by the expedient shown in Fig. 173, and also by percussion. In some cases, when the patient stands, a distinct roll of fat drops below the general abdominal contour, as shown in Fig. 140. Prominence from obesity has been mistaken for ovarian tumor, and also for pregnancy (Fig. 141).

**Tumor of Wall**.—There is a distinct mass, which is superficial and moves with the wall and is apparently inseparably connected with it. The mass may be picked up and the fingers approximated beneath it. There is no apparent connection with any intra-abdominal organ. There is dullness on light percussion, but resonance on deep percussion. Fig. 142 shows a tumor of the abdominal wall.



Fig. 131.—Profile of normal abdomen. Patient arranged for abdominal examination.

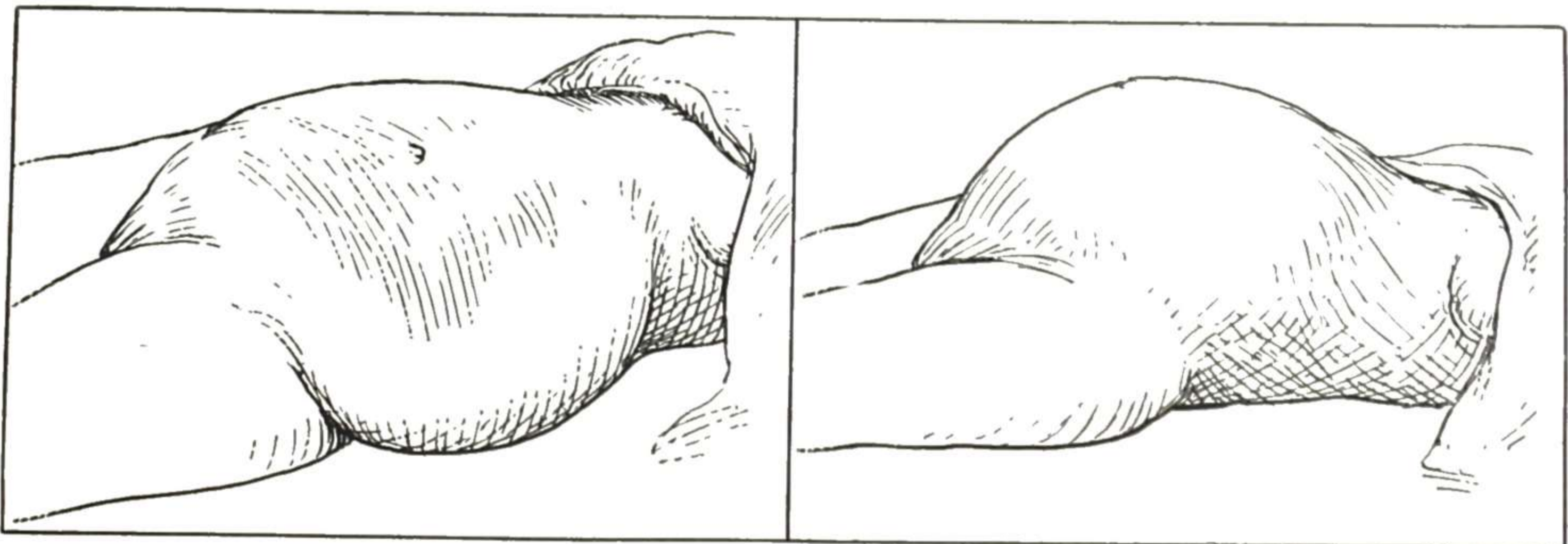


Fig. 132.

Fig. 133.

Fig. 132.—Contour of abdomen in moderate ascites.  
 Fig. 133.—Contour of abdomen in marked ascites.

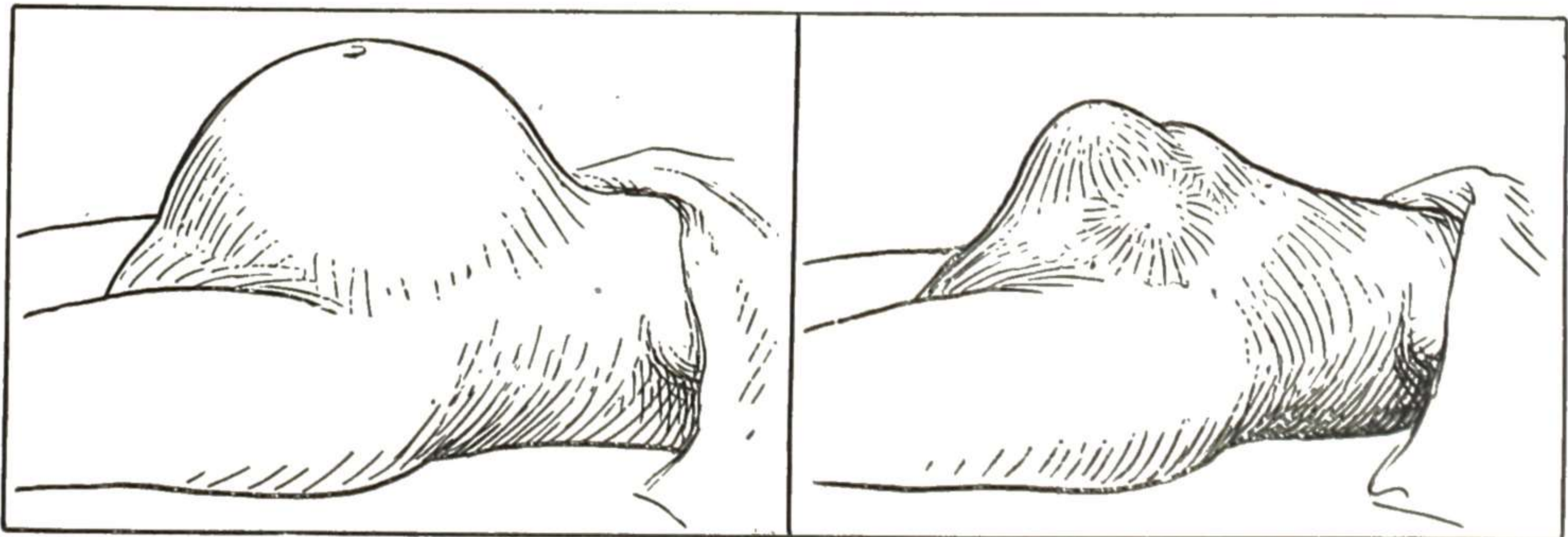


Fig. 134.—Contour of abdomen in cystic tumor. Fig. 135.—Contour of abdomen in solid tumor.

**Inflammatory Mass in Wall.**—Same as tumor with evidences of inflammation added—pain, tenderness, fever and, in some cases, redness and fluctuation.

Some years ago the senior author witnessed, as a visitor, an operation upon a supposed strangulated ventral hernia. The patient gave a history of a long-standing swelling some distance to the left of the umbilicus. This suddenly enlarged and became painful, the enlargement being accompanied by abdominal pain, vomiting, constipation, and evidences of inflammation in the mass. The patient was brought before a medical class for operation. As the hernial site was evidently infected, it was decided to open the abdomen elsewhere and deal with the intestine through the clean opening. Accordingly the peritoneal cavity was opened by a median incision. Exploration showed that the peritoneal surface of the abdominal wall on the affected side was perfectly normal. There was no hernia. The trouble was an abscess of the abdominal wall, probably resulting from the suppuration of a tumor. A large operative opening into the peritoneal cavity in such close proximity to an abscess made a very uncomfortable state of affairs for the surgeon, particularly as the abscess was so large and so near the surface that it was thought necessary to open it at once. It was opened as far as possible from the median incision.



Fig. 136.—Obesity. The most prominent feature in this case is the marked obesity.

**Ventral Hernia.**—There is a distinct localized protrusion, which is most pronounced when standing or sitting, and diminishes when the patient lies down. Coughing makes the mass prominent and gives a distinct impulse to it. The mass is resonant on percussion, when containing intestine, and is partially or wholly reducible. When the mass is reduced, the margin of the opening may be felt. Figs. 143 and 144 show an umbilical hernia. When strangulated and so inflamed as to prevent satisfactory palpation, a ventral hernia may give much trouble in diagnosis, particularly if it contains only omentum.

**Relaxation of Wall.**—There is general protrusion of the wall when sitting or standing (Fig. 145), which largely disappears when patient lies down (Fig. 146), unless tympanites is pronounced. On palpation the walls are lax and no abnormal mass is felt. The abdomen is everywhere resonant on percussion.

**Separation of Recti Muscles.**—The recti muscles are ordinarily held firmly together by the junction of the sheath of one side with that of the other side, forming a strong fibrous septum in the median line. In some cases of abdominal distention from pregnancy or a tumor, the tissue between the recti muscles is greatly stretched laterally and remains so. This gives a wide, weak place between the recti muscles in which the tissues are lax and thin (Fig. 147). When the patient raises her head and shoulders from the pillow, or otherwise makes strong intra-abdominal pressure, there is bulging of this weak portion of the wall between the recti (Fig. 148). In such a case, the hand may be sunk deeply into the abdomen between the separated recti muscles (Fig. 149).

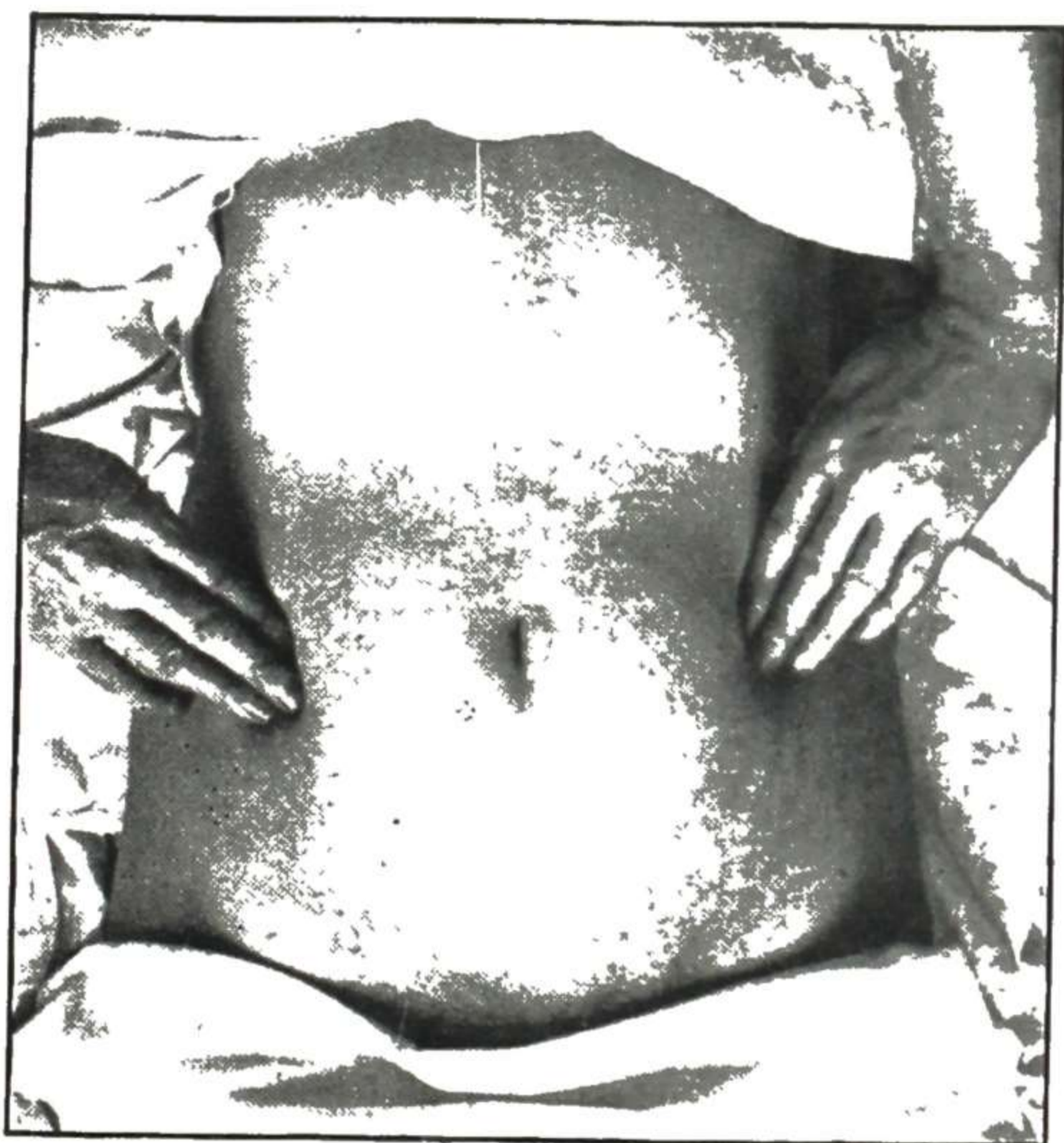


Fig. 137.



Fig. 138.

Fig. 137.—Testing the thickness of the abdominal wall. First step.

Fig. 138.—Testing the thickness of the abdominal wall. Second step. The fingers carried beneath the wall.

### B. Abdominal Prominence From Something in Intestines

**Gas (tympanites).**—Gas may cause marked prominence when associated with relaxation of the abdominal wall. There is no distinct mass felt on palpation. Percussion shows hyperresonance over the entire abdomen. There are usually symptoms indicating gastric or intestinal indigestion. Tympanites is frequently associated with enteroptosis. Fig. 150 shows tympanites which the patient mistook for pregnancy.

**Fecal Impaction.**—Fecal impaction may cause localized prominence in any part of the abdomen, but it is usually situated along the course of the colon. The diagnosis depends largely on the exclusion of other causes of enlargement, the history of constipation, and the effect of treatment directed toward clearing out the intestinal tract. Have the patient take a purgative until free bowel movements are secured, then a large enema and then return for another examination.

### C. Abdominal Prominence From Something in the Peritoneal Cavity

**General Ascites.**—General ascites may be slight (Fig. 151) or marked (Fig. 152). In ascites, i.e., free fluid in the peritoneal cavity, the abdomen is inclined to spread out at the sides and flatten at the top. There is usually a

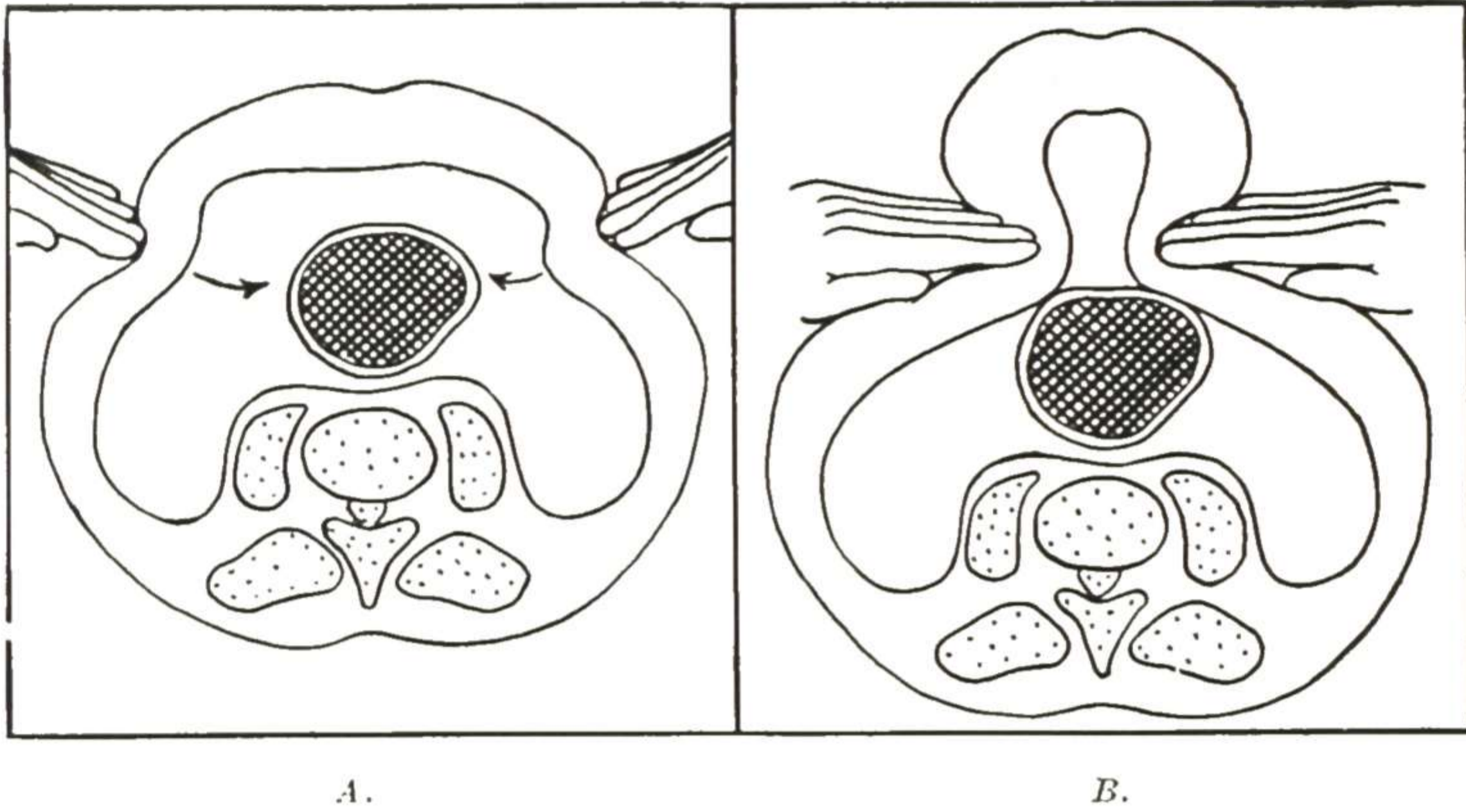


Fig. 139.—Testing thickness of abdominal wall. A, First step. B, Second step. Fingers carried beneath the wall.

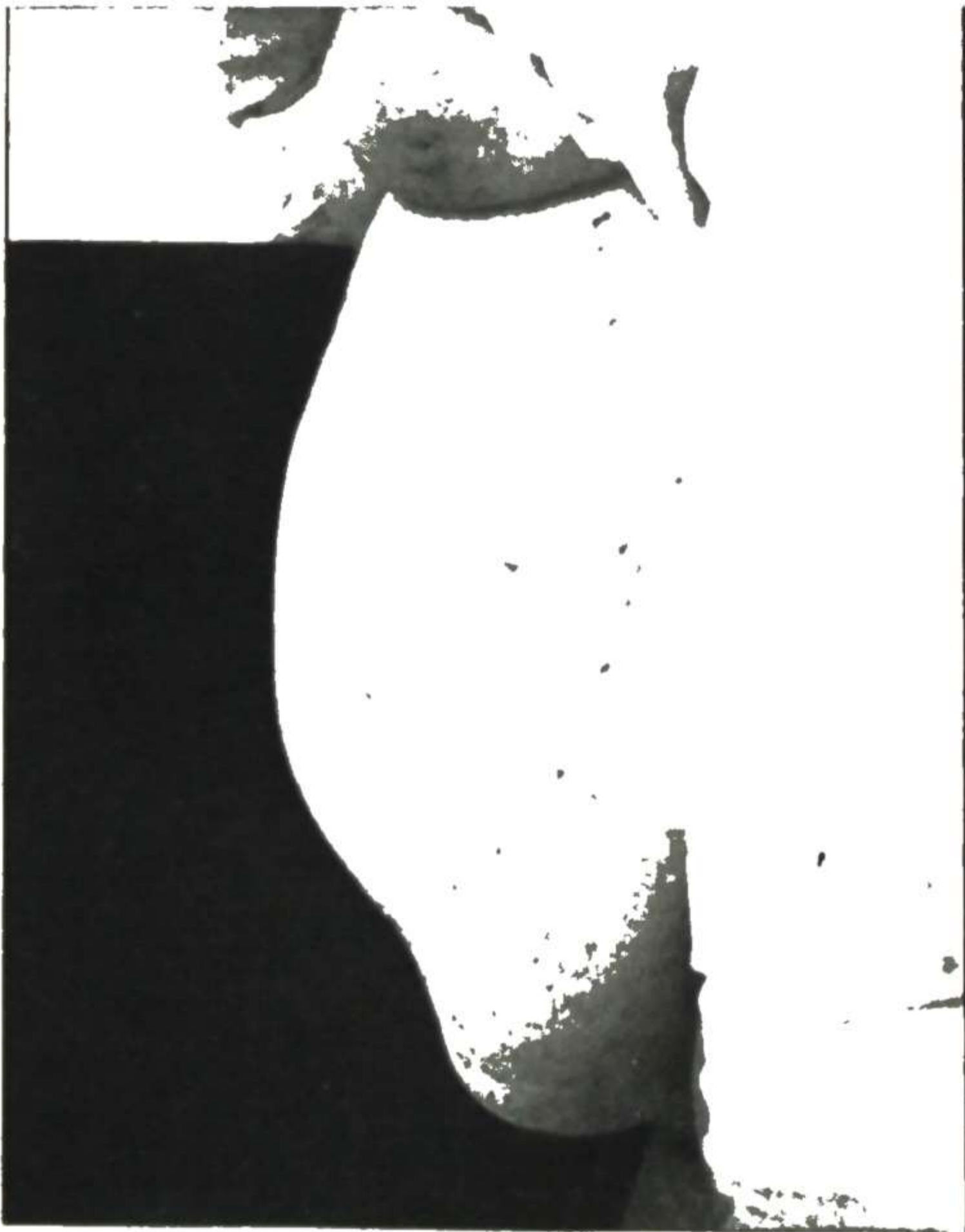


Fig. 140.



Fig. 141.

Fig. 140.—Obesity. Patient standing. Same patient as shown in Fig. 136. Notice the thick roll of subcutaneous fat that drops down below the general contour of the abdomen.

Fig. 141.—Obesity, mistaken for pregnancy by patient. (Williams—*Obstetrics*.)

distinct fluid wave, obtained as explained in Fig. 172. When the patient is turned on the side or when she sits or stands, the area of dullness changes, because the fluid seeks the lowest part of the peritoneal cavity (Figs. 175 to 179). Another diagnostic point is that in some cases where there is free fluid

in the peritoneal cavity, when the patient stands there may be decided protrusion of the umbilicus, which protrusion disappears when the patient is in the recumbent posture.



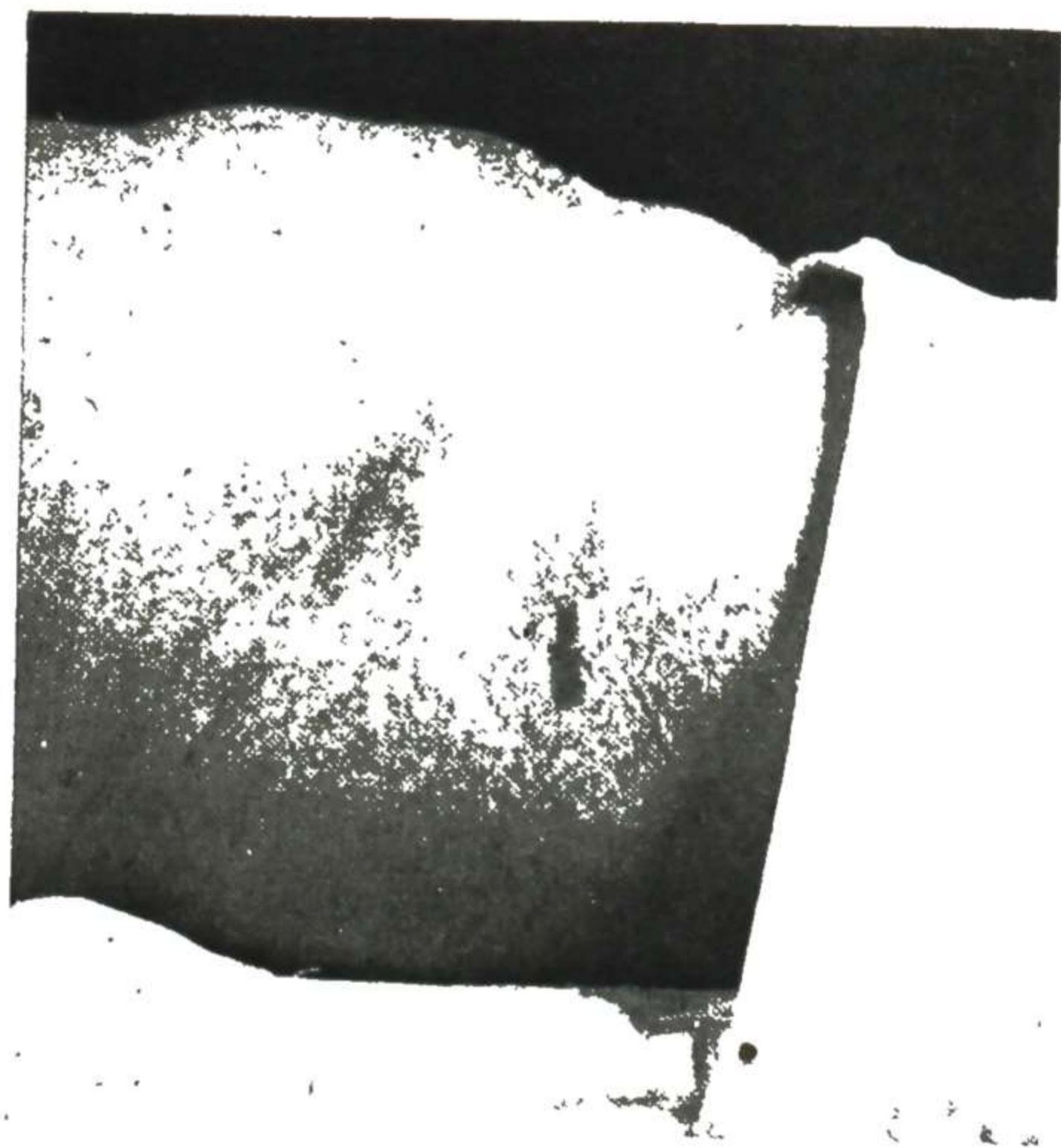
Fig. 142.

Fig. 142.—A tumor of the abdominal wall. (Montgomery—*Practical Gynecology*, The Blakiston Company.)



Fig. 143.

Fig. 143.—A small umbilical hernia, with a relaxed abdominal wall. (Hirst—*Diseases of Women*, W. B. Saunders Company.)



A.



B.

Fig. 144.—Ventral hernia. A, Patient recumbent. B, Patient standing.

**Encysted Fluid** (pus or serum or blood).—A distinctly limited collection of fluid, walled off or encysted, may be present in peritoneal tuberculosis and also in abscess from salpingitis or appendicitis. There may be considerable

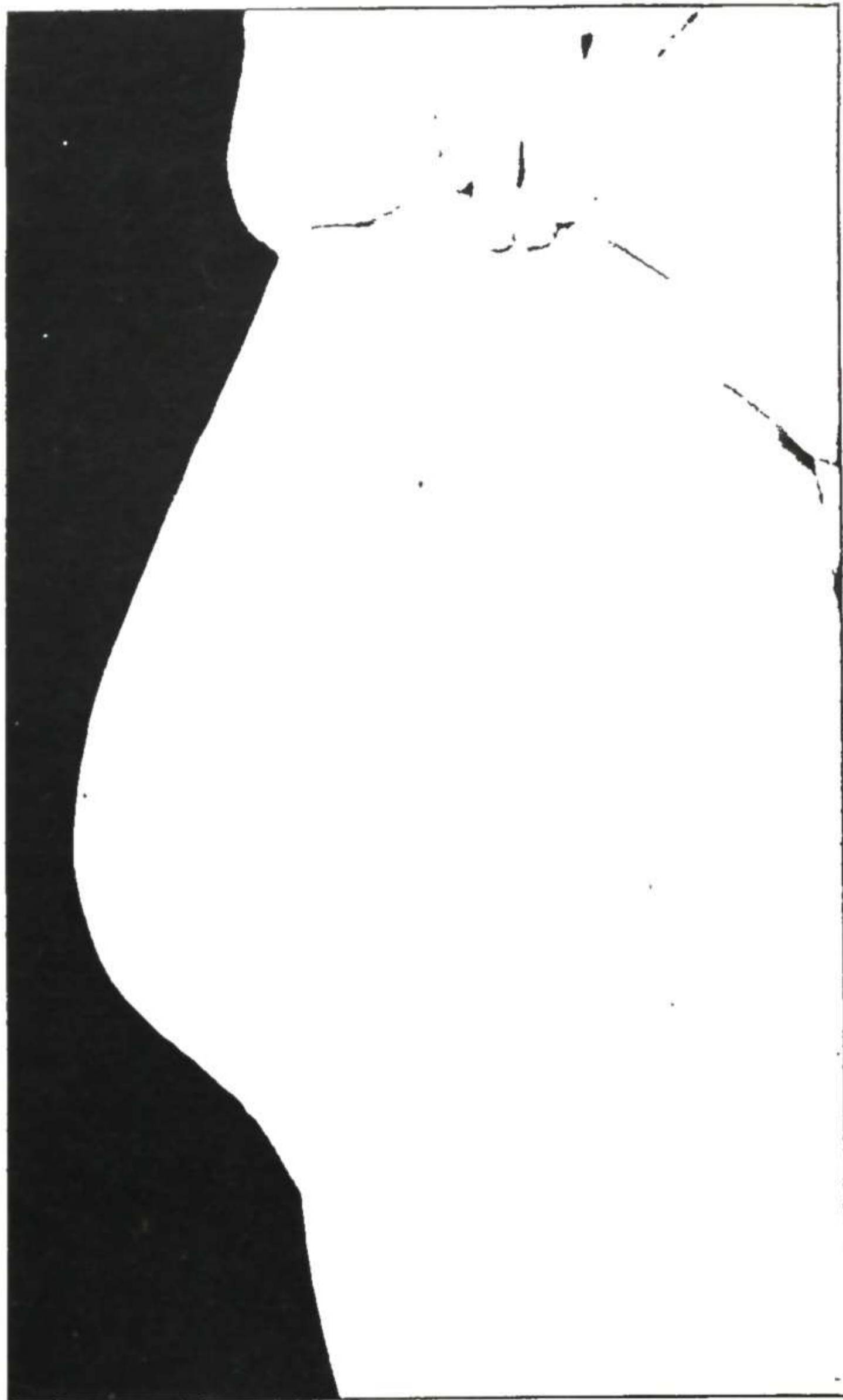


Fig. 145.



Fig. 146.

Figs. 145 and 146.—A patient with relaxed abdominal wall. Contrasting the abdominal prominence when standing with the abdominal contour when lying down.

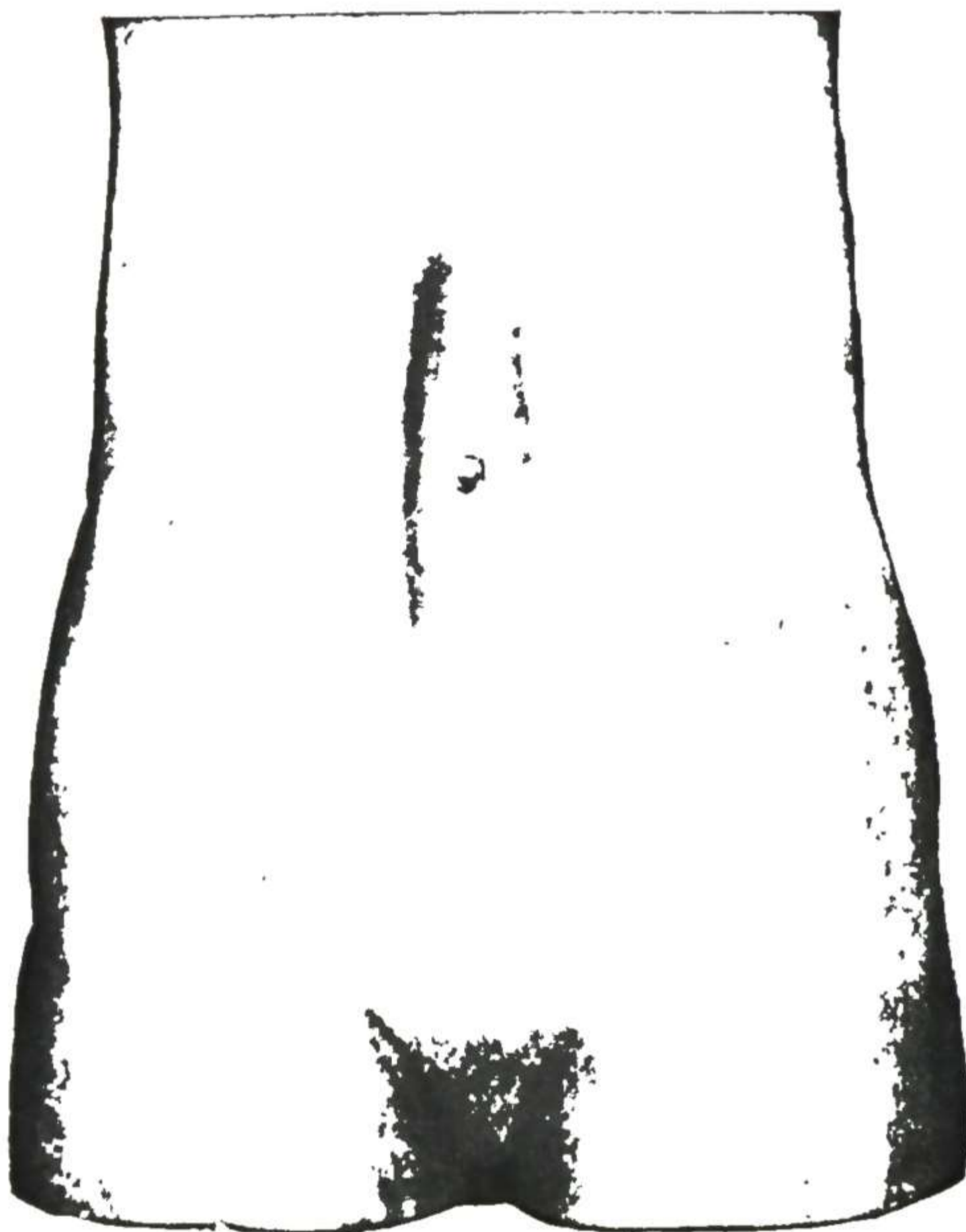


Fig. 147.



Fig. 148.

Fig. 147.—Median grooving of the abdominal wall where there is separation of the recti muscles. The woman is represented as lying on her back. (Webster—*Diseases of Women*, W. B. Saunders Company.)

Fig. 148.—Patient with marked separation of the recti muscles. The illustration shows the marked bulging between the separated recti as the head and chest are raised from the table, the abdominal muscles being thus made to contract. (Webster—*Diseases of Women*.)





Fig. 149.—Patient with marked separation of the recti. The photograph from which this illustration was made was taken as the upper part of the body was being raised from the table. The physician's fist is buried in the gap between the muscles, which are contracting. In this case there was pronounced pendulous abdomen. As the patient lay relaxed on her back, the distance between the muscles at the level of the umbilicus measured five and one-half inches. (Webster—*Diseases of Women.*)



Fig. 150.—Tympanites, mistaken for pregnancy by the patient. The small figure in the upper corner shows the internal condition as determined by the bimanual examination, the uterus being of normal size. (Edgar—*Practice of Obstetrics*, The Blakiston Company.)

solid exudate associated with the swelling, and also other evidences of inflammation, either septic or tuberculous. The diagnosis between the two forms of inflammation may usually be readily made from the history and the accompanying symptoms. Extrauterine pregnancy, like the inflammatory processes



Fig. 151.—Ascites. A moderate amount of fluid in a relaxed abdomen. Notice how the abdomen spreads out at the sides. (Kelly—*Operative Gynecology*, D. Appleton-Century Company.)

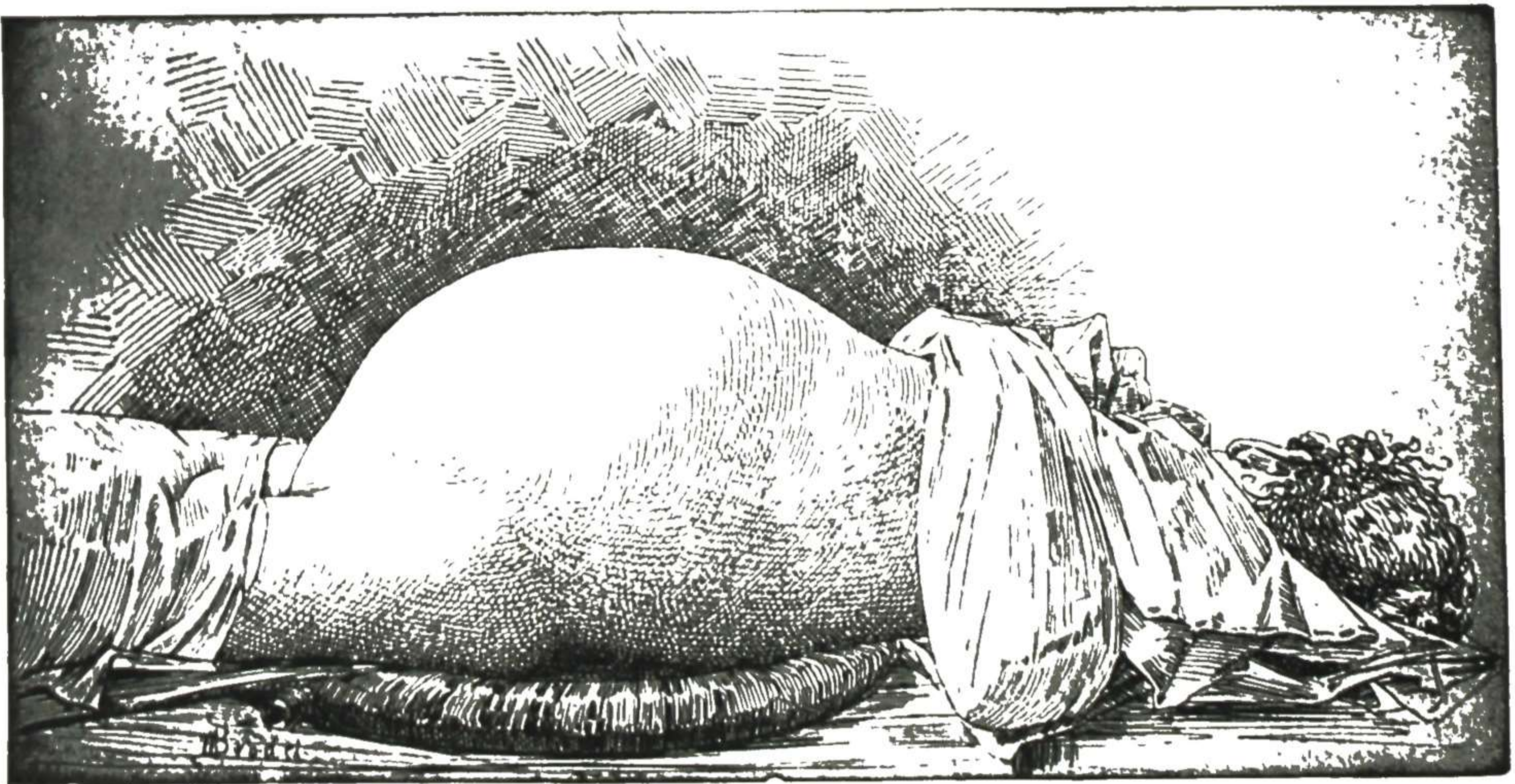


Fig. 152.—Marked ascites. Notice the gentle slope at the lower and upper portions of the abdomen. In the case of a tumor the rise is usually much more abrupt. (Kelly—*Operative Gynecology*.)

just mentioned, may present the evidences of encysted fluid. For the points in differential diagnosis, between extrauterine pregnancy and ordinary pelvic inflammation, see Chapter XI.

**Pseudocyst of the Lesser Omentum.**—Following injuries or disease of the pancreas, there may be a collection of fluid in the lesser peritoneal cavity,

causing prominence of the abdomen and evidence of encysted fluid. The diagnosis is usually made during the progress of the operation. In all these cases of encysted fluid or solid exudate, there is dullness over that portion of the mass lying against the abdominal wall and resonance elsewhere.

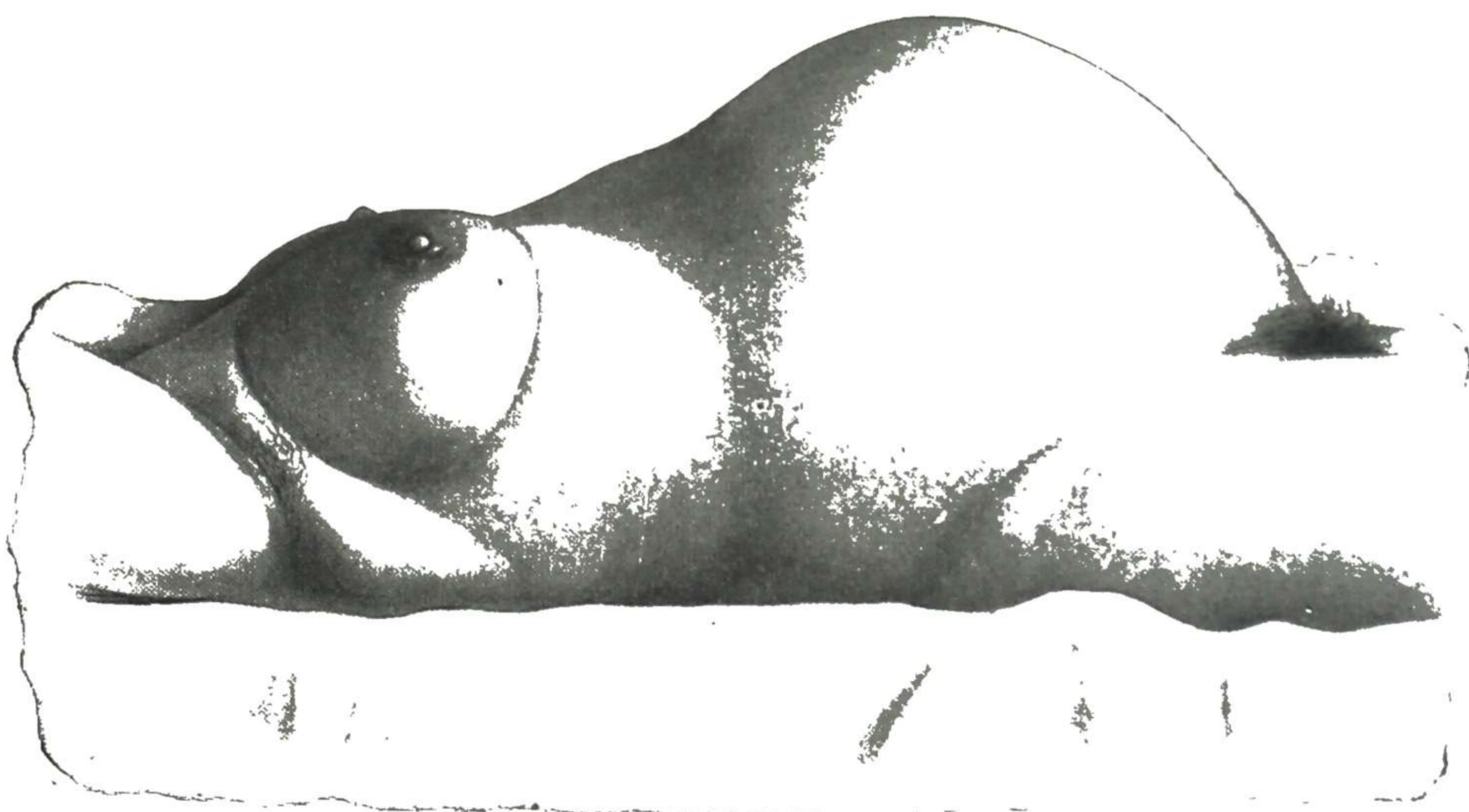


Fig. 153.—Contour of the abdomen in pregnancy, with patient recumbent. (Edgar—*Practice of Obstetrics*, The Blakiston Company.)

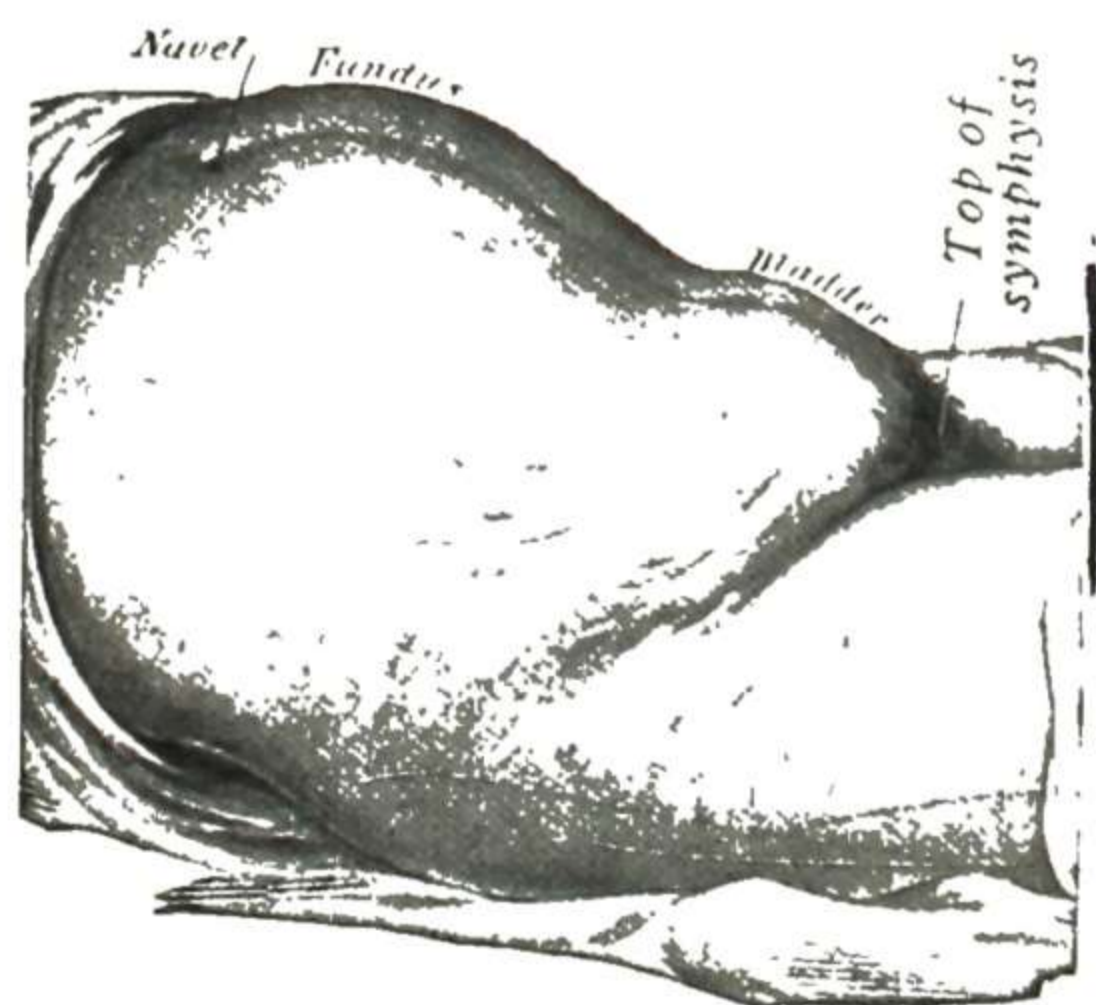


Fig. 154.

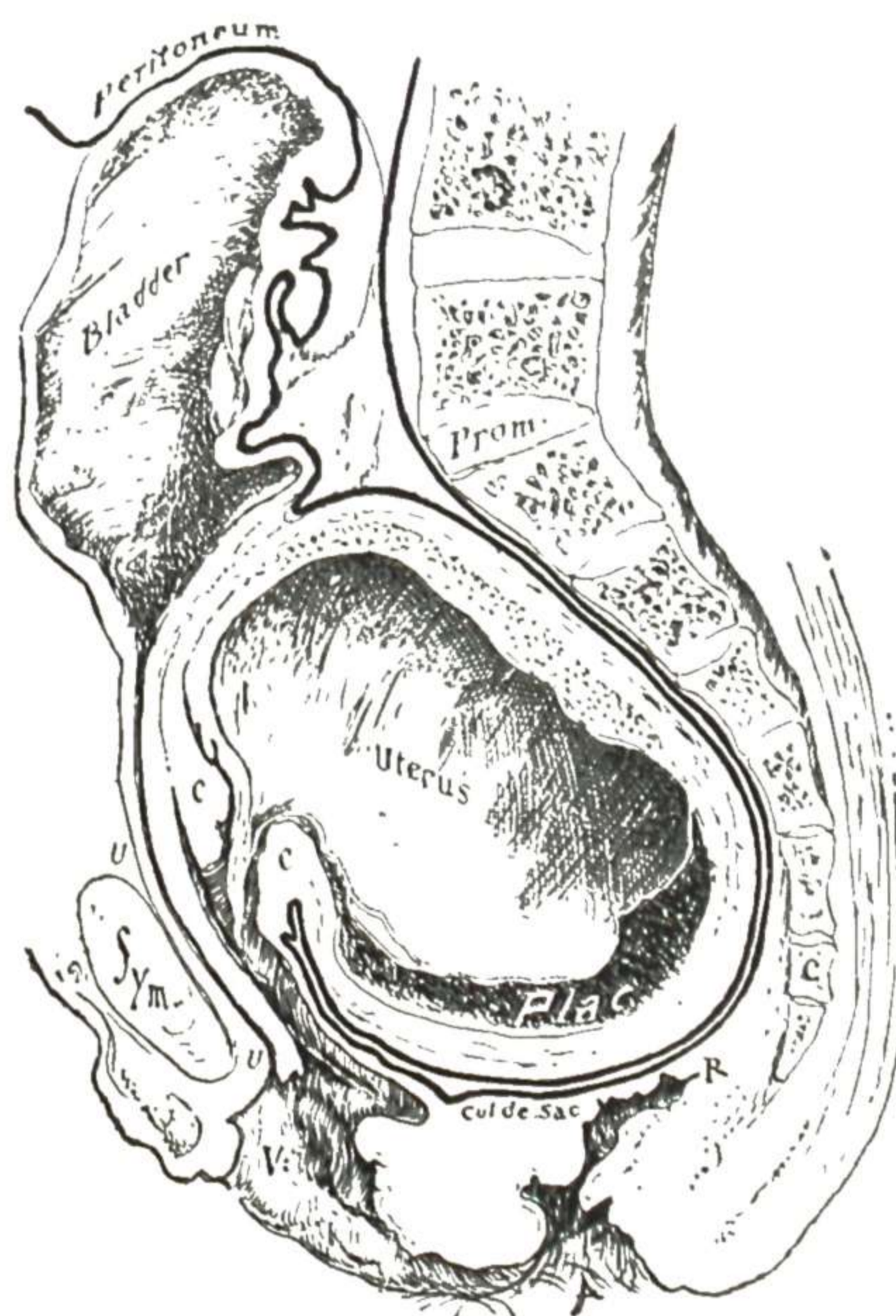


Fig. 155.

Fig. 154.—Contour of the abdomen in a case of distended bladder. The patient is in labor. Notice how well the bladder prominence stands out from the general abdominal prominence due to the pregnant uterus. (Norris—*American Textbook of Obstetrics*.)

Fig. 155.—Frozen section of the body of a woman who died from rupture of a distended bladder. The cause of the retention of urine was a retroverted uterus four months pregnant. (Norris—*American Textbook of Obstetrics*, from *Arch. f. Gynäk.*)



Fig. 156.—Distended bladder, caused by pressure of a tumor.



Fig. 157.—Bladder emptied, showing change in contour.

### D. Abdominal Prominence From Some Enlarged Organ

**Uterus Pregnant** (Fig. 153).—There is dullness over the mass and resonance at the sides. There is no change of outline of dullness on change of position of patient. There are also the various signs of pregnancy, including the fetal heart sounds if the pregnancy is far enough advanced.

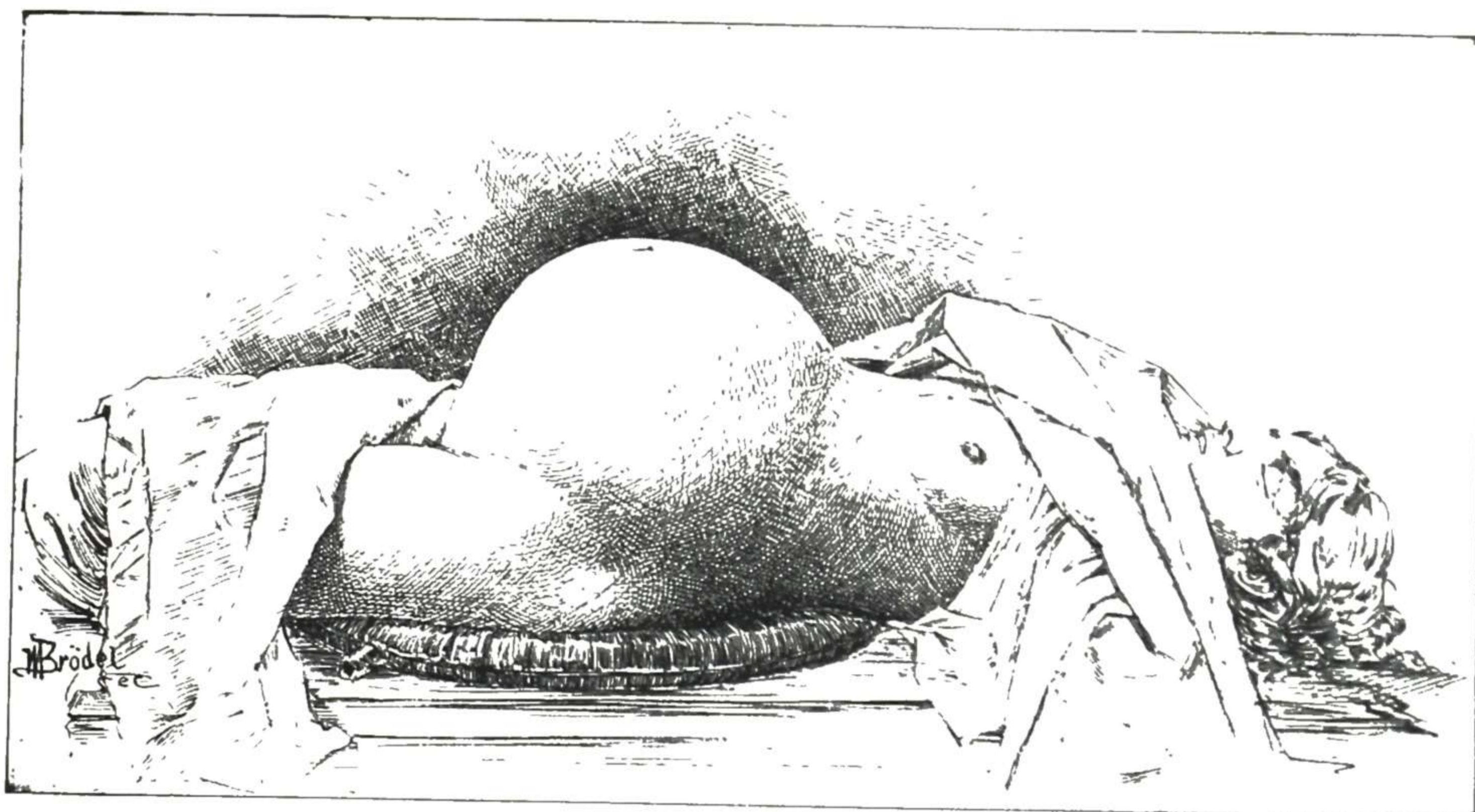


Fig. 158.—Contour of the abdomen in a case of large cystic tumor (parovarian). Notice the abrupt rise of the abdominal wall at both the lower and upper portions. (Kelly—*Operative Gynecology*.)

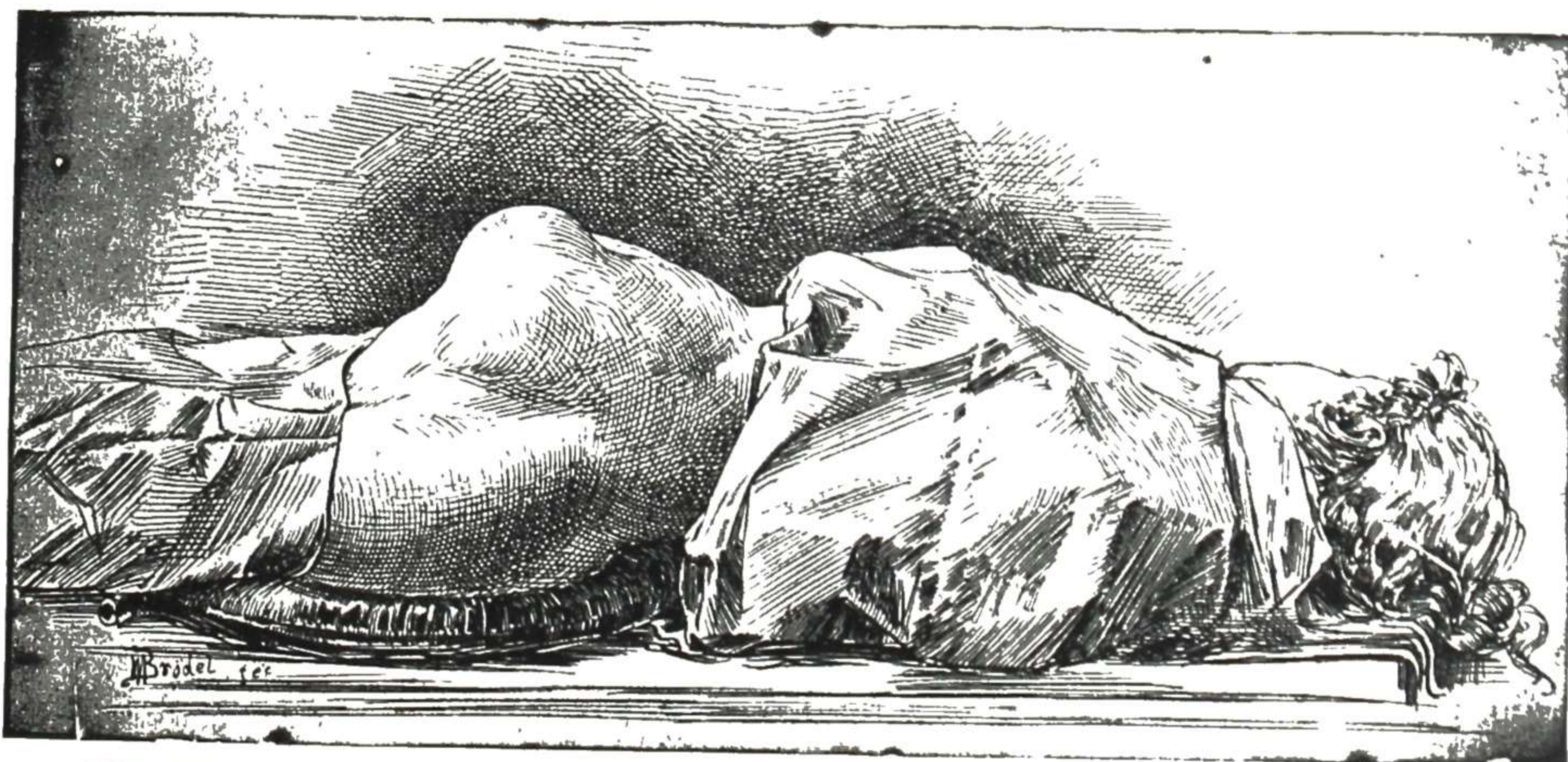


Fig. 159.—Contour of the abdomen in a case of large solid tumor (uterine myoma). The irregularity, so common in solid tumors, is well marked. (Kelly—*Operative Gynecology*, D. Appleton-Century Company.)

**Bladder Distended With Urine.**—The retention of urine to such an extent that the distended bladder produces a distinct prominence of the abdomen happens occasionally in labor (Fig. 154), in pregnancy with retrodisplacement (Fig. 155), in pelvic tumors compressing the urethra and in certain nervous affections. There is dullness over the mass with resonance at the sides. In one of our cases, examination showed a large cystic mass, presumably an ovarian

cyst with a solid portion deep in the pelvis. In trying to determine the degree of mobility of this deep portion it was pressed on in various directions, and when it was pressed back urine shot out of the urethra. The cystic tumor was distended bladder, holding 2,500 c.c. of urine. Fig. 156 is a photograph of the abdomen with the bladder full and Fig. 157 with it empty.

**Spleen Enlarged** from chronic malaria, leucemia, or other cause.

**Liver Enlarged** from malignant disease, hypertrophic cirrhosis, or other cause.

**Gall Bladder Enlarged** on account of occlusion of duct and distention with mucous secretion and inflammatory exudate. It sometimes becomes so much distended as to form a large cystic mass in the right side of the abdomen.

### E. Abdominal Prominence From a Tumor

**A Tumor Projecting Up From the Pelvis** (Figs. 158, 159).—Such a tumor has its point of attachment in the pelvis, the free margin of the growth extending upward into the abdominal cavity. The growth may be either cystic or solid. There is dullness over the mass and resonance at the sides. There is no decided change of outline of dullness with change of position of patient, except where there is complicating ascites. There are found also the usual symptoms caused by the particular variety of pelvic tumor present.

**A Tumor Connected With Some Abdominal Structure.**—Such a tumor has its point of attachment in the abdomen with the free margin of the growth extending toward, and sometimes into, the pelvic cavity. There is dullness over that portion of the mass lying against the abdominal wall and resonance elsewhere, unless there be associated ascites. There are symptoms also pointing to the organ affected and to the nature of the growth.

## PALPATION OF ABDOMEN

### Tension, Tenderness, Mass

ALSO FLUCTUATION, FLUID WAVE, FAT WAVE, FETAL MOVEMENT,  
UTERINE CONTRACTION, FRICTION RUB  
TENSION AND TENDERNESS

As to **tension**, we determine whether the wall is soft and easily depressed, or is firm and resisting from muscular tension. The latter condition may be due to nervousness or fright, the patient fearing that the examination will cause pain, or it may be due to genuine **tenderness** from inflammation or irritation beneath the wall, as in peritonitis or intraperitoneal hemorrhage.

The best way to begin palpation is to place the palmar surface of the **whole hand flat** on the abdominal wall (Fig. 160, A). Hold it there perfectly quiet for a moment, that the patient may see that you are not going to cause pain. Then, as the muscular tension relaxes, depress the wall carefully with the fingers (Fig. 160, B) in various directions and situations as the hand is moved about over the surface. Begin the movement of the hand gradually, at the same time directing the patient's attention away by a question or two. When the patient's attention is fixed on the palpating hands, there is likely

to be troublesome tension of the wall. As the examination proceeds, **deep** palpation is made in various parts of the abdomen in order to exclude disease in the various regions. Palpation with **both hands** assists much in determining the character and consistency of the tissues between them and under them.

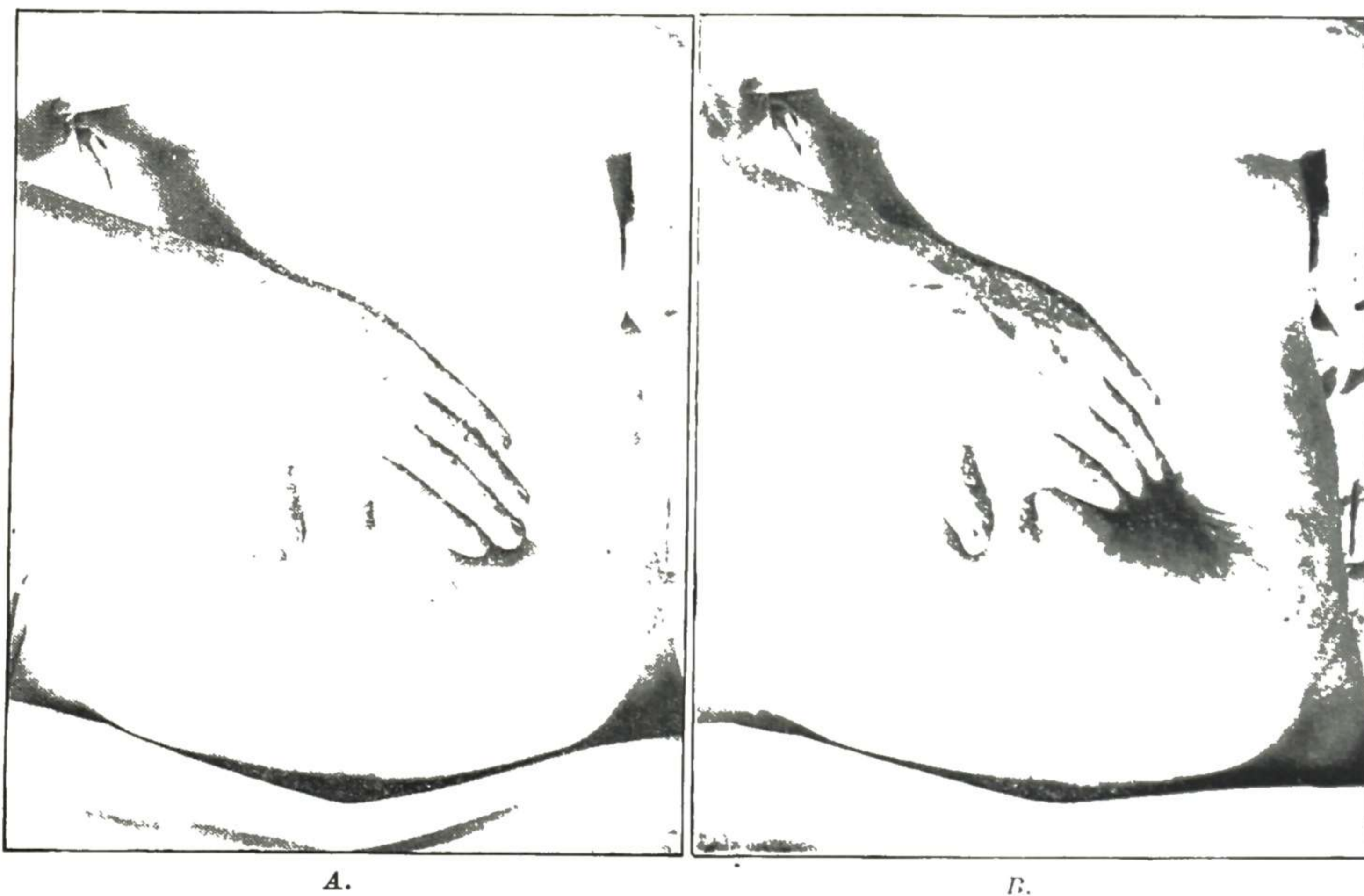


Fig. 160.—*A*, Palpation of the abdomen. First step. Hand flat on abdominal surface. *B*, Palpation. Depressing the wall with the fingers of one hand, in various situations.

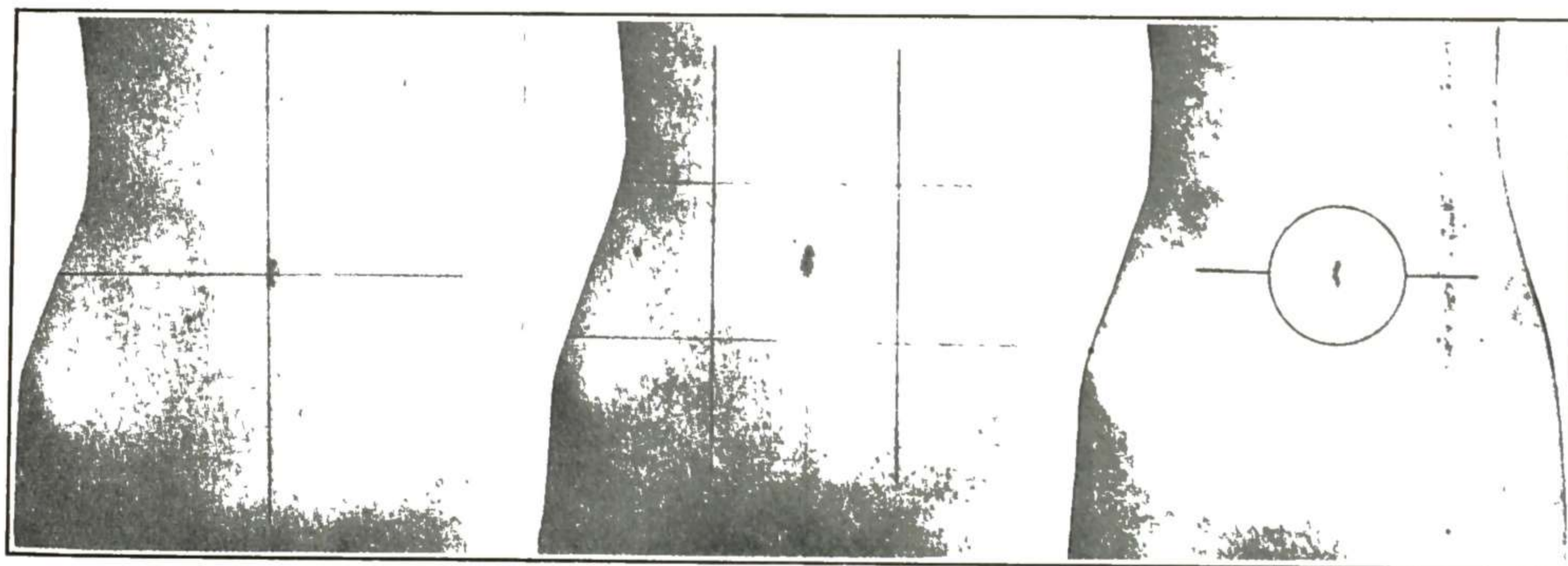


Fig. 161.

Fig. 162.

Fig. 163.

Fig. 161.—The abdominal surface divided into quadrants.

Fig. 162.—The usual anatomic division of the abdomen into nine regions by two transverse lines and two vertical lines. The upper transverse line is at the level of the cartilages of the ninth ribs, and the lower with the highest points of the iliac crests. The two parallel vertical lines pass through the cartilages of the eighth ribs and the middle of Poupart's ligaments.

Fig. 163.—Division of the abdomen into regions by means of a circle with a two-inch radius and two-inch horizontal lines.

particularly when the abdomen is rather full. If a resisting area is found, work the fingers around it, depressing the wall and examining all portions of it. The palpation should always be made **gently**, for if the manipulations cause pain or frighten the patient, the wall is immediately made tense and then no satisfactory examination is possible.

In a case of suspected appendicitis or one-sided inflammation, the difference in tension of the abdominal wall on the two sides is of diagnostic importance.

Having determined the general tension and tenderness, search is made for local tenderness. The exact location of the tenderness should be carefully

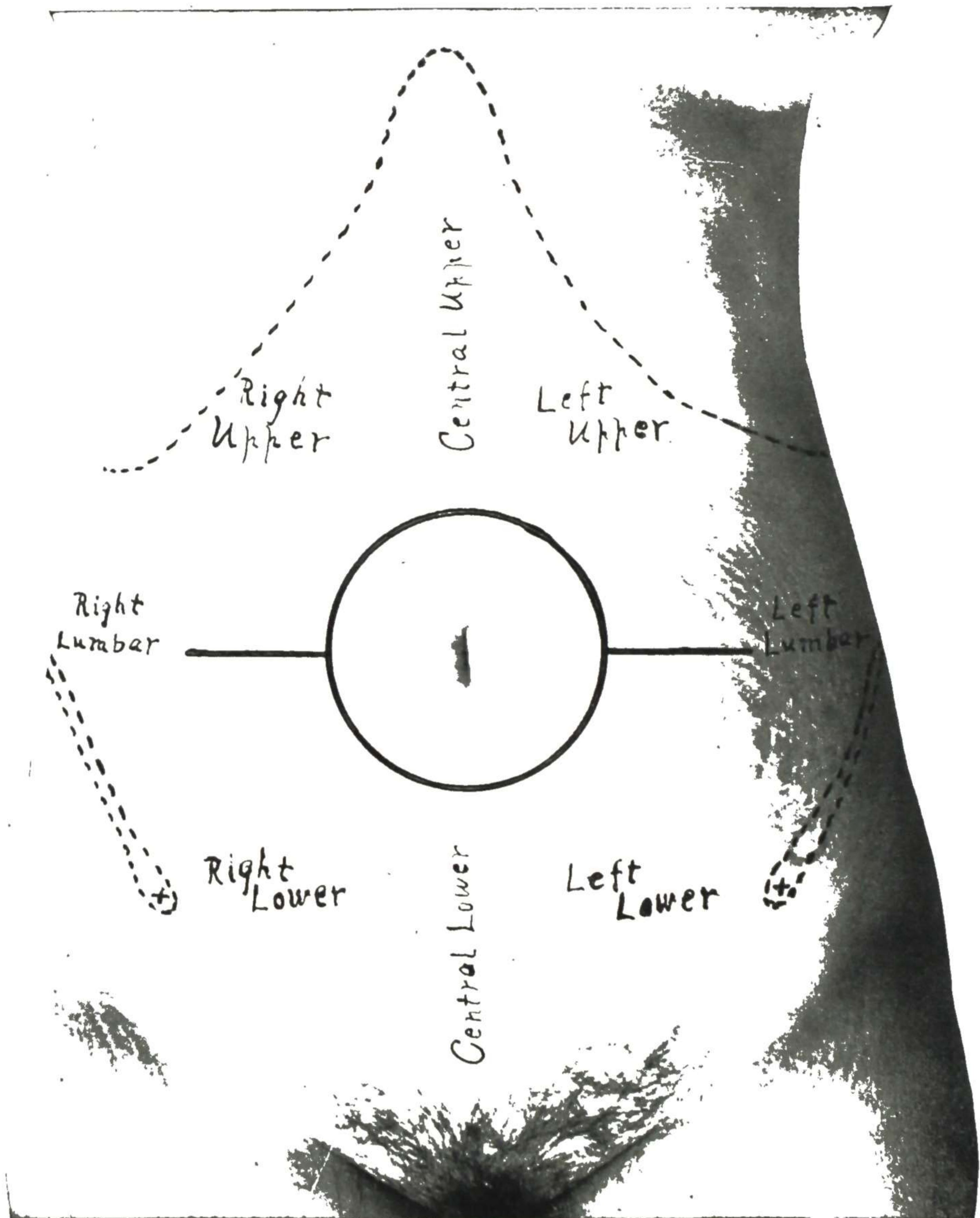


Fig. 161.—Another abdomen divided with the circle and short horizontal lines, and showing the names on the primary regions. The area within the circle carries the usual designation, "umbilical region."

determined, and also whether it is circumscribed to that area or extends to other areas. When the area of tenderness has been accurately located, we know what organs are likely to be affected, and the further differentiation between affections of those organs may be proceeded with.



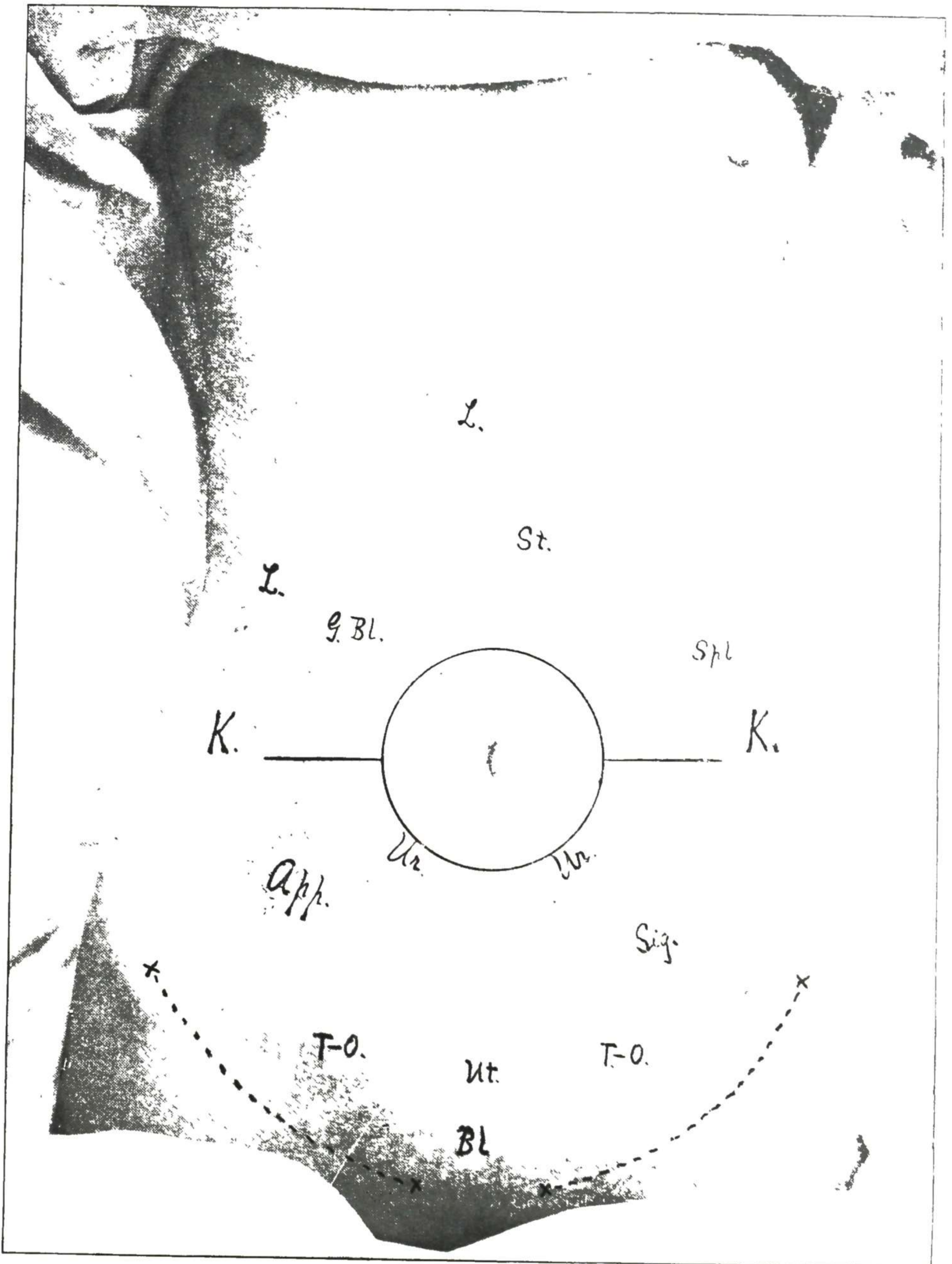


Fig. 165.—Various areas of significant point-tenderness. These are the areas to be investigated during the course of an abdominal examination.

**Regions of the Abdomen.**—For convenience in designating the location of tenderness or of a mass, the abdomen is divided into regions. There are several methods of division. A simple one is the division of the surface into quadrants by an imaginary horizontal line passing through the umbilicus and a vertical line through the same point (Fig. 161).

This is used in obstetrics for designating the approximate location of the fetal heart sounds and is convenient for designating in a general way the location of large masses, but it is not sufficiently definite for the accurate localization of small masses or points of tenderness.

For the more definite localization, there is the time-honored anatomical division into squares (Fig. 162). As a practical working division for diagnostic and teaching purposes, however, this has been found decidedly unsatisfactory, as is attested by the many attempts of clinicians to devise a simple method of dividing the surface and of designating the various regions.

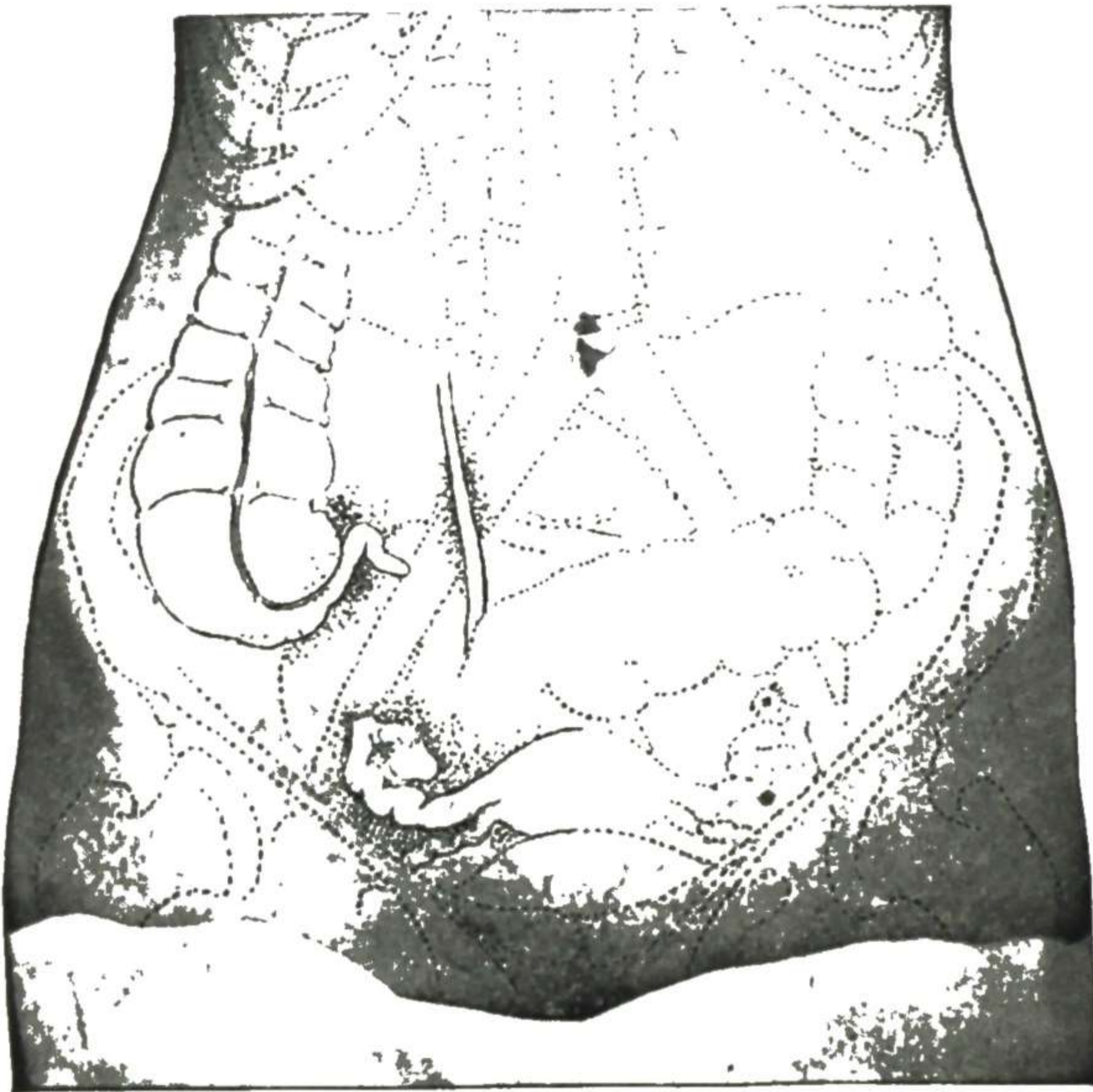


Fig. 166.

Fig. 166.—The right lower abdomen. The organs commonly affected and the areas accordingly of particular interest are indicated by the stippling.



Fig. 167.

Fig. 167.—Palpating the area of the appendix and cecum. Appendix tenderness is usually most marked about the middle of a line from the umbilicus to the anterior superior spine of the ilium, slightly nearer the latter (McBurney's point).

Failing to find a method of division that was satisfactory clinically, we devised that shown in Fig. 163, which, so far as we know, is original. The only lines not marked by natural landmarks are a circle with a two-inch radius about the umbilicus and a short straight line extending horizontally for two inches from each side of the circle.

The **regions** are designated as right lower, left lower, central lower, right upper, left upper, central upper, umbilical, and right and left lumbar (Fig. 164). This method of division is simple, and the names are easily remembered and are self-explanatory. In fact, these designations are the ones commonly used in conversation among physicians in describing the location of a mass or

area of tenderness. For example, we speak of tenderness in the right lower region of the abdomen, or, more briefly, in the "right lower abdomen," or in the "left lower abdomen," or in the "right upper abdomen," etc.

Within each of these principal regions there are one or more points which are of special interest. The special interest attaches to each one of these points because well-defined tenderness limited to such point usually means an affection of a particular organ. It must be kept in mind, however, that in some cases such point-tenderness is due to an affection of some adjacent organ (as when inflammation within the cecum causes tenderness in the appendix region), or even of some distant organ which has become displaced (as when the right kidney has become displaced into the appendix region).

Again, in some cases tenderness is due to an organic or functional disturbance of the nerves of the abdominal wall or to reflected pain, due to a lesion in some other part of the abdominal cavity or to some organic or functional lesion in a distant part of the body. But even in these exceptional conditions the tenderness is usually not genuine "point-tenderness," but is more extensive and can be traced in some direction sufficiently far to indicate its probable origin.

With the above-mentioned exceptions kept in mind, the special **areas of point-tenderness** are of great help in the differential diagnosis of abdominal lesions. The most significant ones are shown in Fig. 165.

#### **Tenderness in Right Lower Abdomen (Fig. 166)**

**Tubal or Ovarian or Broad Ligament Disease** (inflammation, tumor, extrauterine pregnancy).—The tenderness is most marked low in the side near Poupert's ligament (tuboovarian region). It does not ordinarily extend to the appendix region though it may, in exceptional cases, involve both regions. A mass may be felt on vaginoabdominal palpation between the uterus and the pelvic wall. There is a history of uterine and pelvic inflammation or other pelvic disturbance.

**Appendicitis.**—Tenderness is most marked about the middle of a line drawn from the right iliac spine to the umbilicus (McBurney's point). By sinking the fingers deeply into the abdomen near the umbilicus and then carrying them outward toward the iliac spine (Fig. 167), the appendix may often be felt to roll under the fingers as a tender cord. There is usually a history of stomach or bowel disturbance and of attacks of pain radiating about the umbilicus and finally settling down in the appendix region.

**Some Disease of the Cecum or Ascending Colon.**—Inflammation, tumor, and intussusception are the more common affections of the cecum. They present much the same local signs as mild appendicitis. The tenderness and the mass are not localized to the appendix region, however, but extend up along the ascending colon.

**Stricture of the Ureter.**—There is a painful point over the ureter and tenderness extending up and down its course. There is usually pain extending from the kidney along the ureter, to the bladder. There is nearly always decided tenderness over the kidney, and often tenderness in the broad ligament portion of the ureter.



Fig. 168.



Fig. 169.

Fig. 168.—Palpation of a movable kidney, with the patient on her back. First step. The loin is grasped as here shown, to prevent the displaced kidney from slipping unnoticed back into its place at the beginning of palpation.

Fig. 169.—Palpation of a movable kidney, with the patient on her back. Second step. Palpating the kidney with the right hand while it is held in displacement with the left hand.



Fig. 170.



Fig. 171.

Fig. 170.—The point for kidney tenderness laterally.

Fig. 171.—The point for kidney tenderness posteriorly.

**Movable Kidney.**—A rounded mass is felt on deep palpation in or near the appendix region. It is somewhat tender. It is movable and may be displaced upward into the kidney region. Special methods for palpating it are shown in Figs. 168 and 169. There is a history of irritable bladder, particularly when standing or walking. There may be pain radiating from the kidney region along the ureter to the bladder. The urinary findings will indicate whether or not there is inflammation or irritation along the urinary tract.

**Kidney Disease,** for example, a tumor or tuberculosis or inflammation, may cause tenderness extending from the kidney down into the right lower abdomen. Kidney disease is indicated by tenderness at certain points (Figs. 170, 171) and enlargement, and by the urinary findings.

**Intestinal Disease.**—Painful diseases of the small intestine, either acute or chronic, may give rise to tenderness in the right lower abdomen.

**Tuberculous Peritonitis** and other forms of peritoneal disease occasion tenderness here, when extending to this region.

**Nervous Affection.**—Various organic and functional nervous diseases cause marked hypersensitiveness of the abdominal surface and of the intra-abdominal structures. The pain complained of is out of proportion to any obvious sign of disease. By palpating over the abdomen it is found that there is tenderness everywhere, even up on the chest walls. Pinching up the skin may cause almost as much pain as the pressure on deeper structures. General observation of the patient will show that she is nervous. Special examination will show evidence of neurasthenia, hysteria, or other disease of the nervous system.

### Mass in the Abdomen

When a mass is discovered determine so far as possible its position, size, shape, consistency, tenderness, mobility, and attachments.

The **position of a mass** indicates in a general way the organ or group of organs from which it arises. Keep in mind, however, that it may be due to some adjacent organ, or even some distant organ displaced into that region.

The **size and shape of a mass** are determined by ascertaining its length, breadth, thickness, and general contour. The length or height of a tumor projecting up from the pelvis is usually designated as so many fingerbreadths or "fingers" above the symphysis or below or above the umbilicus. The breadth may be given approximately in fingers or inches, stating at the same time whether or not the mass is situated symmetrically on both sides of the median line; or the mass may be referred to as filling the pelvis from side to side or as filling the abdomen. It is sometimes difficult to convey a satisfactory idea of the general contour of a mass by a detailed description, when it may be very quickly conveyed by referring to some familiar object.

Another method of recording the size and shape of a mass is to draw it within a stamped outline of the pelvis and abdomen.

The **consistency of a mass** should be carefully determined. Is it uniformly solid or does it present hard nodules, or does it contain fluid? If the mass contains a collection of fluid of sufficient size, there may be elicited that peculiar sensation known as **fluctuation**, the recognition of which is one of the first lessons in surgical work.

The **tenderness of a mass** as determined by palpation is of much importance in differential diagnosis. In acute inflammation (as in acute salpingitis or peritonitis), or in acute irritation (as in hemorrhage from tubal pregnancy), the tenderness is very marked. On the other hand, in uncomplicated ovarian or uterine tumors, tenderness is slight.

The **mobility and attachments of a mass** are determined by attempting to move the mass in different directions. The fingers are worked in deeply about the mass at various points, and it is determined just what part may be easily displaced and what part is fixed. The fixed point of a mass usually indicates its point of origin, i.e., the organ involved, while the free border indicates the direction of growth, and hence is opposite to the point of origin.

Fixation of a mass may be due to inflammation, exudate or old adhesions, or to malignant infiltration, or to its being retroperitoneal or even in the abdominal wall. It is difficult at times to estimate how much of an abdominal



Fig. 172.

Fig. 172.—Trying for a fluid wave across the abdomen.

Fig. 173.

Fig. 173.—Differentiating a fat wave from a fluid wave. The fat wave is stopped by the pressure in the median line.

enlargement is due to fat in the wall. The maneuver shown in Figs. 137 to 139 is very helpful in determining the **thickness of the abdominal wall**. A mass found in the pelvis does not necessarily originate in the pelvis, but may be an organ or growth from elsewhere. Pelvic spleens and pelvic kidneys have given rise to serious diagnostic mistakes. The differential diagnosis of masses in the pelvis will be further considered under vaginal and vaginoabdominal palpation.

#### **Fluid Wave, Fat Wave, Fetal Movement, Uterine Contraction, Friction Rub**

If there is a large collection of fluid, as in a case of marked ascites, a **fluid wave**, started by tapping on one side of the abdomen, may be felt by the other hand applied to the other side (Fig. 172). A somewhat similar wave may be caused, also, by a thick layer of subcutaneous fat (fat wave). In such a case,

however, if an assistant presses lightly in the median line with the ulnar edge of the hand (Fig. 173), the **fat wave** will stop at the line of pressure.

A distinct fluid wave may be obtained in any large collection of fluid with a comparatively thin wall. It is present in well-marked ascites, in unilocular cysts, and in multilocular cysts with one or more large cavities. Occasionally the fact that there are different large cavities in the cyst may be surmised by a distinct difference in the fluid wave as obtained through different parts of the cyst. In a cyst with small cavities no fluid wave is obtained, as there is not a large enough single cavity, although fluctuation may be as clear as in a single large cyst. Also, in a cyst with thick gelatinous contents a fluid wave may not be obtained.

In late pregnancy, **fetal movement**, caused by the fetus' changing position or kicking, may not infrequently be felt. In some cases the hardening and softening of the uterus in contractions may be distinct even in the earlier months of pregnancy, and when felt is evidence of the character of the mass under examination.

## PERCUSSION OF ABDOMEN

### Area of Dullness

**Percussion** over the abdomen serves to confirm the information obtained by palpation, and also brings out some new facts—for example, by outlining accurately the **area of dullness** it shows at what portion of the abdominal wall the tumor or fluid lies against the wall, and at what portion there is intervening intestine. It shows also whether the mass or fluid changes relations when the patient changes position. In a ventral hernia (intestinal) it shows that the large mass, which might be taken for a tumor or inflammatory mass, is resonant—i.e., it contains air, and, therefore, must under ordinary circumstances, contain intestine. Endeavor to get definitely in mind exactly the reason for the dullness or resonance found in a particular case, and then its diagnostic significance will be clear.

The use of **superficial** and **deep** percussion in succession may give valuable information in some cases. Ordinary percussion is moderately light and superficial, and gives resonance over all the normal abdomen, except where the liver lies against the wall. In marked obesity, however, superficial percussion is likely to give only dullness over all the abdomen, while deep percussion (a hard percussion stroke against the finger pressed in deeply) gives resonance.

A tumor of the wall or of the omentum ordinarily gives dullness in light percussion and resonance in deep percussion.

An area of dullness where there should be resonance may be due to an enlarged organ, such as distended bladder, or pregnant uterus, or to free fluid (ascites, Figs. 175, 177, 179) or to encysted fluid or to a tumor from some pelvic organ (Figs. 174, 176, 178) or to a tumor from some abdominal organ or to a retroperitoneal growth. The stationary character of the outline of dullness in a tumor on changing position of patient and the shifting dullness in ascites are indicated and contrasted in Figs. 176 to 179.



Fig. 174.

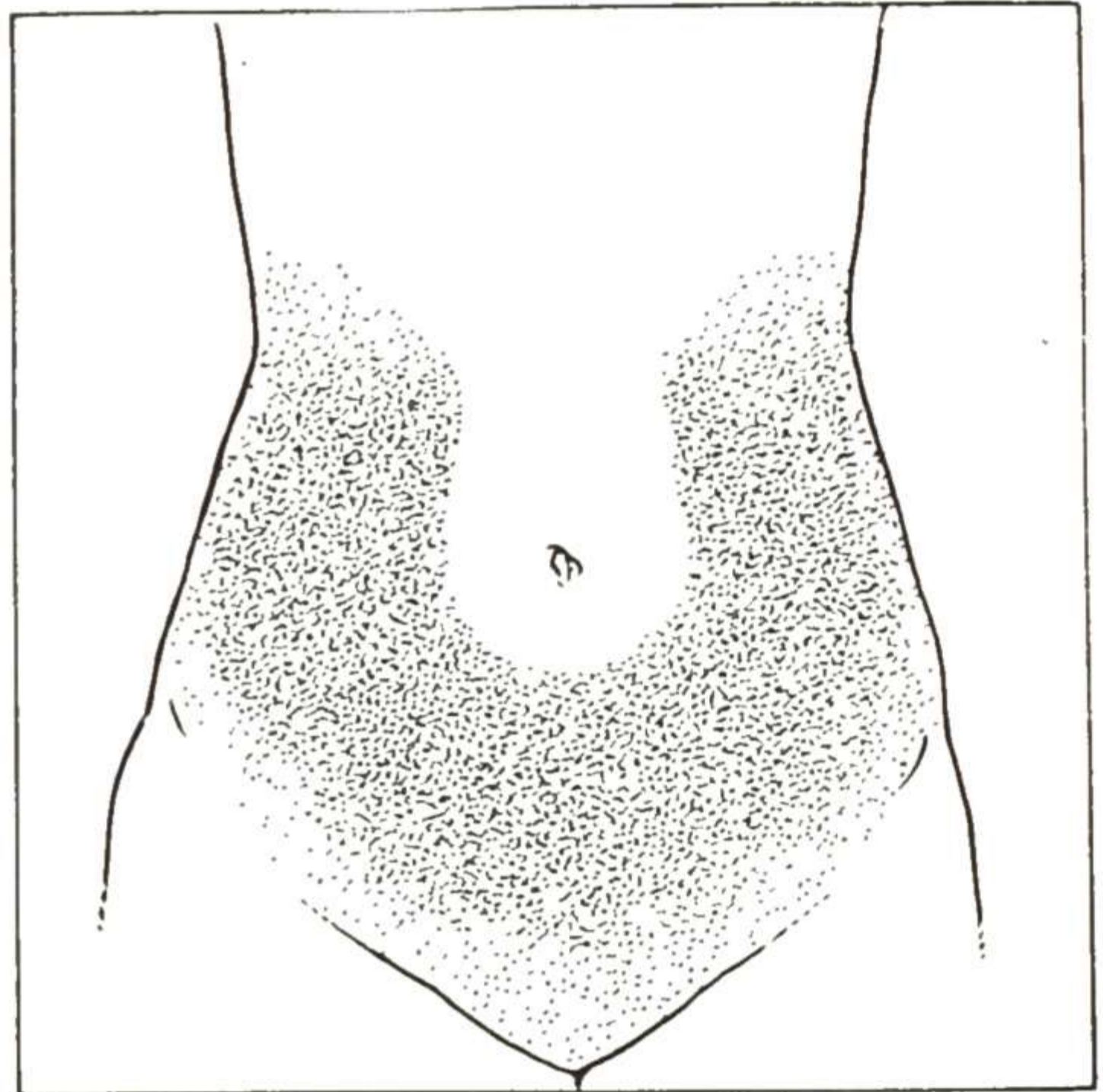


Fig. 175.

Fig. 174.—Indicating area of dullness from a large mass of regular outline rising out of the pelvis, for example, the pregnant uterus or a symmetrical myoma. Dotted line indicates the palpable part of the mass above the dull area. The dull area is the part against the wall.

Fig. 175.—Indicating area of dullness in marked ascites with patient recumbent. (Figs. 174 to 179 are from Butler's *Diagnostics of Internal Medicine*, D. Appleton-Century Company.)

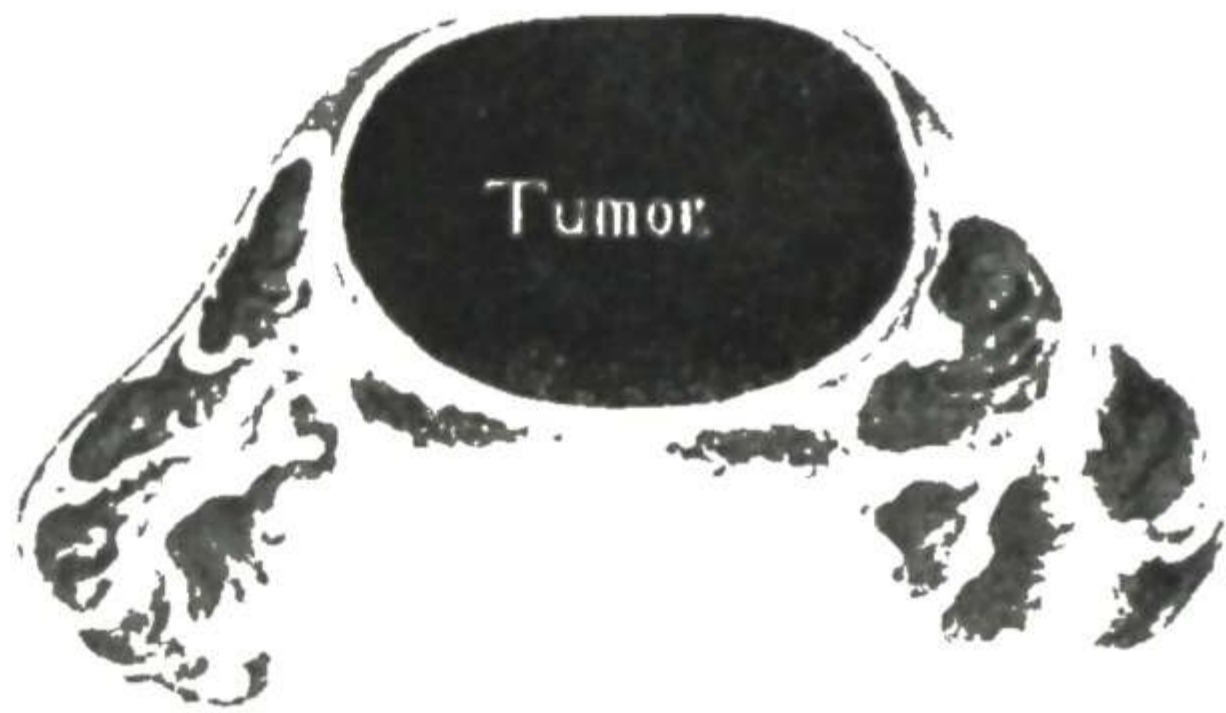


Fig. 176.



Fig. 177.

Fig. 176.—Indicating the relation of the dull and resonant areas in the case of a tumor occupying the central lower abdomen.

Fig. 177.—Showing the reason for the disposition of the dull and resonant areas in a case of moderate ascites.

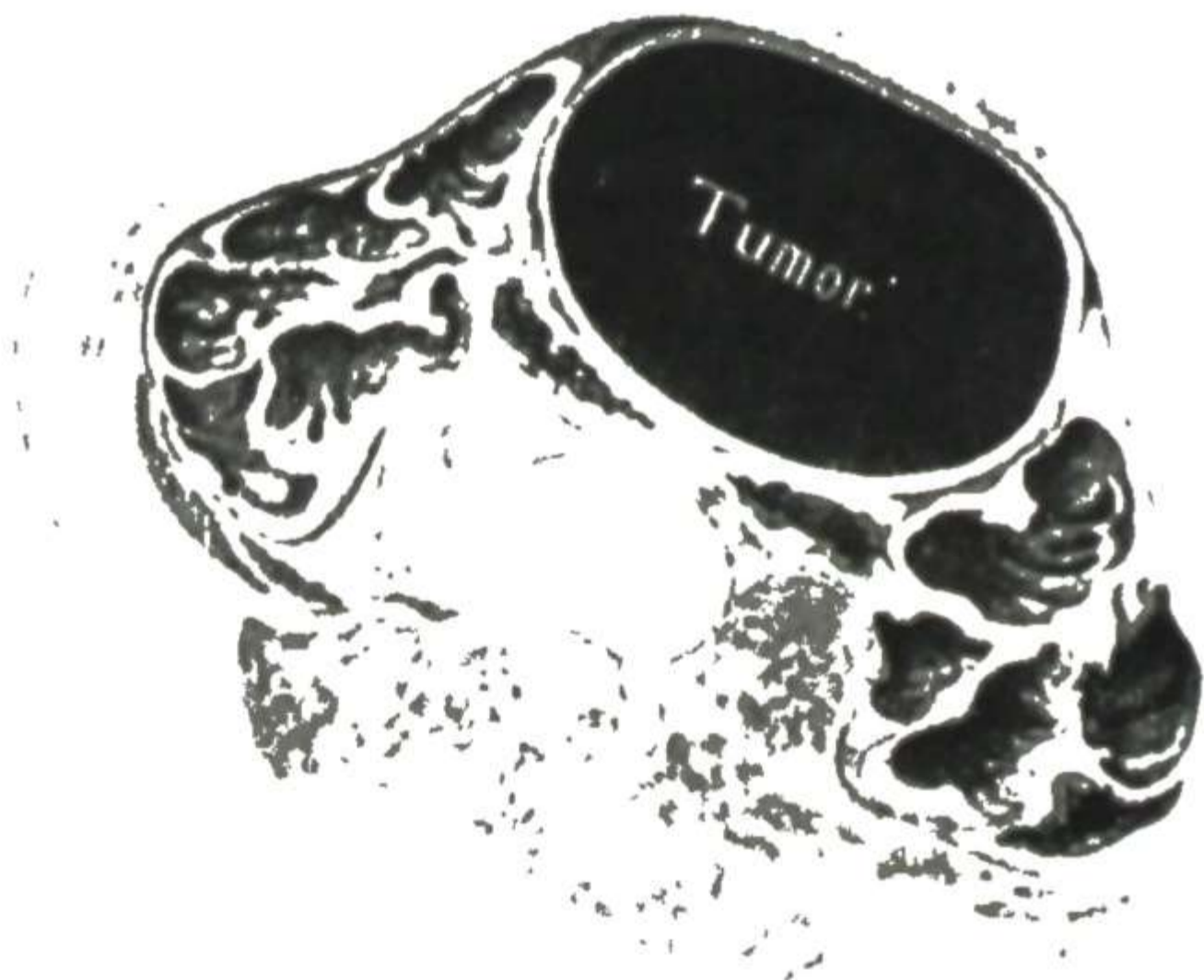


Fig. 178.

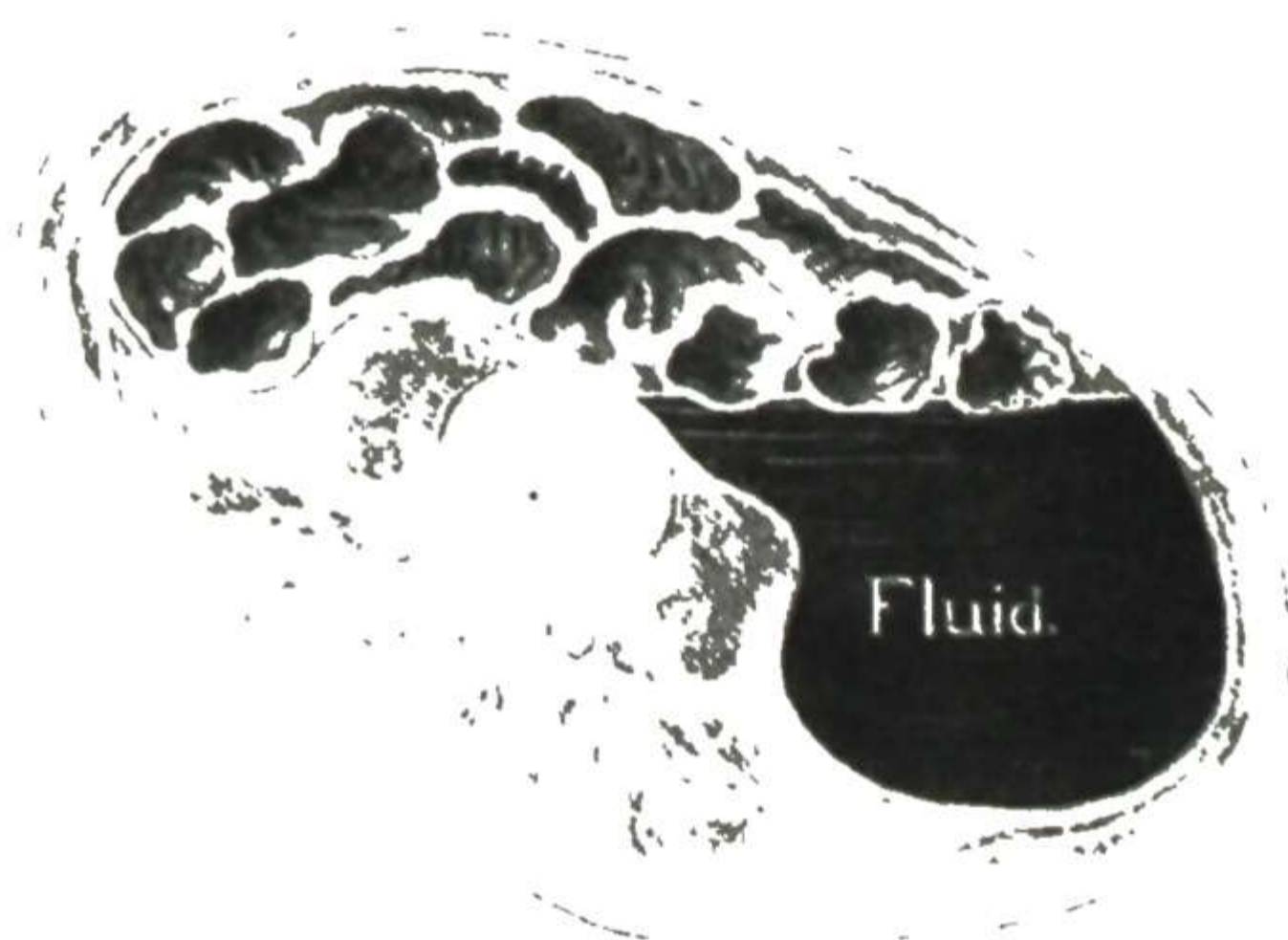


Fig. 179.

Fig. 178.—Tumor with patient turned on side. No change in area of dullness. Compare with Fig. 179.

Fig. 179.—Ascites with patient turned on side. The fluid gravitates to the under side, leaving the upper flank resonant.



## AUSCULTATION

**Fetal Heart Sounds, Vascular Murmur**

Auscultation assists in differentiating between advanced **pregnancy** and a large ovarian tumor or large myoma. The placental murmur may be simulated by the large vessels of a tumor. The absence of fetal heart sounds does not exclude pregnancy, for even in normal pregnancy they are sometimes difficult to hear. Auscultation should be employed also in obscure cases of pain in the abdomen, for the pain may be due to **aneurysm** of the abdominal aorta or other large vessel, which would give a murmur, and which occasionally runs its course unrecognized until rupture and sudden death. The senior author recalls such a case, the diagnosis being made at the autopsy.

## MENSURATION OF ABDOMEN

Measure the abdomen when it is very large or when there is a growing tumor, or when for other reason it may be desirable to know **exactly any difference** in size some weeks or months hence, or when it is desired to speak with accuracy concerning the size of the abdomen in the case of a large growth.

The measurements are made with the ordinary tapeline. When measuring a patient, take enough measurements to make an accurate record. Measurements along the following lines will show variations with a large growth in any part of the peritoneal cavity:

1. From umbilicus to sternal notch.
2. From umbilicus to pubes.
3. From umbilicus to right anterior superior iliac spine.
4. From umbilicus to left anterior superior iliac spine.
5. Circumference of body at level of umbilicus.
6. Circumference of body 3 inches above umbilicus.
7. Circumference of body 3 inches below umbilicus.

**EXAMINATION OF EXTERNAL GENITALS AND ADJACENT STRUCTURES**

If the patient complains of irritation about the external genitals, or of itching or burning, or of frequent or painful urination, or of sores or swelling or discharge, the parts should be inspected in a good light. For this examination, the patient is draped and the hips brought near the end of the table in a comfortable position, as shown in Fig. 180. A general inspection is then given to see if there is any marked abnormality. The labia are then separated, to expose the vestibule and urethral and vaginal openings, and also the openings of the ducts of the vulvovaginal glands.

By examination determine whether any of the following conditions are present:

**Discharge**—Mucoepithelial, Mucopurulent, Purulent, Bloody, Watery.

**Inflammation**—Gonorrhoeal or otherwise.

**Ulcer**—Simple, Chancroidal, Syphilitic, Tuberculous, Malignant.

**Swelling**—Inflammatory, Stasis Infiltration, Edema, Hematoma, Hernia, Cyst.

**New Growth**—Condyloma, Urethral Caruncle, Lipoma, Fibroma, Malignant Growth.

**Malformation**—Imperforate Hymen, Adhesions of Labia, Pseudohermaphroditism.

Determine also the:

**Condition of Hymen**—Intact, Lacerated, Destroyed.

**Condition of Perineum**—Normal, Lacerated (wide opening, vaginal walls visible, shallow perineum, scar tissue, fistula).

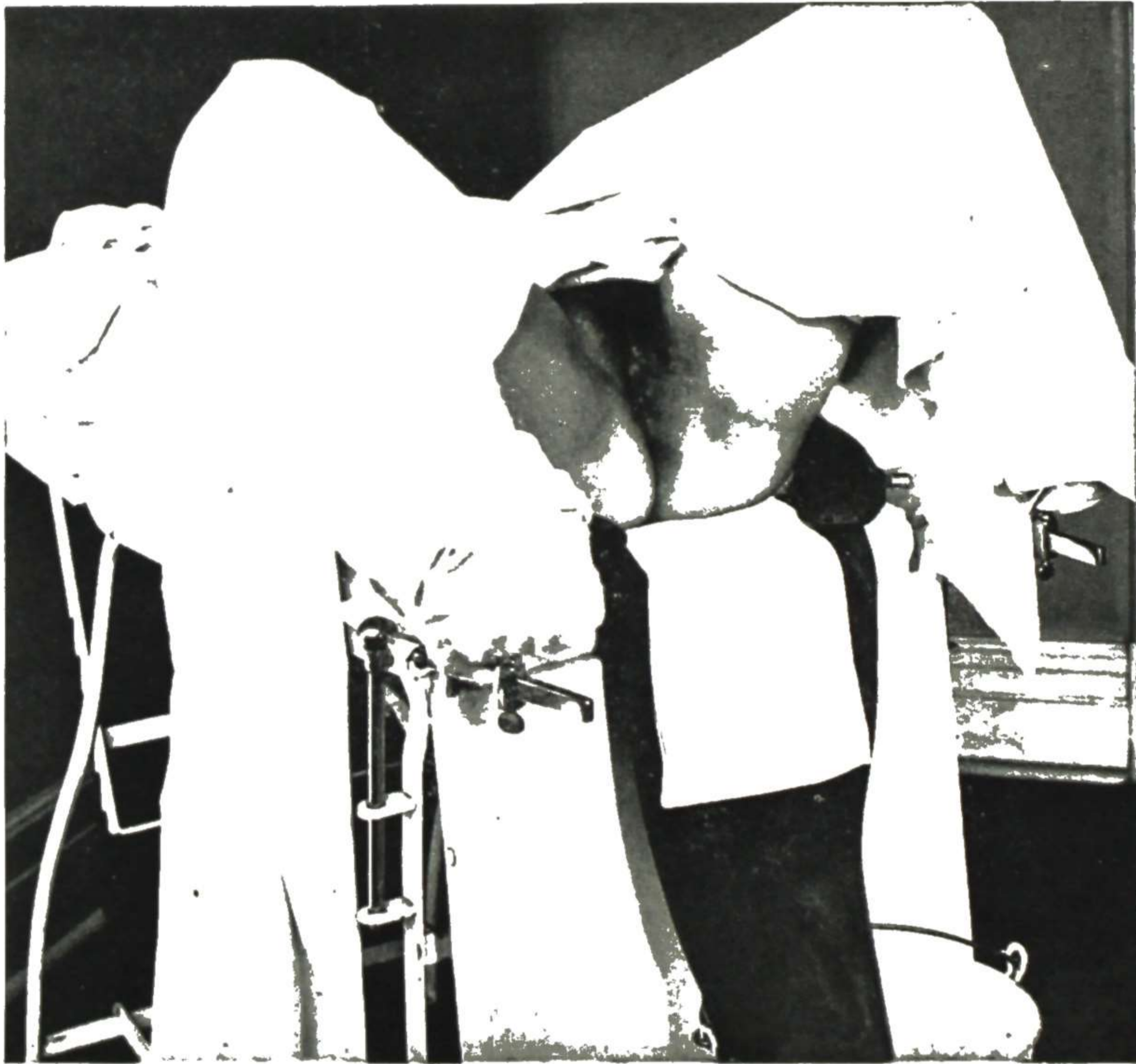


Fig. 180.—Patient in position for examination of external genitals and adjacent structures.

## DISCHARGE ABOUT EXTERNAL GENITALS

### **Mucoepithelial, Mucopurulent, Purulent, Bloody, Watery**

Leucorrhœa is a term frequently used to designate discharge from the genital tract. Its derivative meaning, "white flow," applies especially to mucoepithelial discharge but through custom it has come to be used as a general term to designate all vaginal discharges except the bloody.

**Mucoepithelial Discharge (normal).**—The normal mucous secretion from the cervix moistens and macerates the vaginal epithelium. The mixture of this cervical mucus and vaginal epithelium appears at the external genitals as a clear or slightly whitish discharge. Usually it is hardly noticeable, only just

enough to keep the parts normally moist. At the menstrual periods, and under other conditions favoring pelvic congestion, it may increase so as to be somewhat annoying to the patient, though hardly of pathologic importance.

**Mucopurulent Discharge.**—When there is inflammation or persistent congestion in the uterus, the mucous secretion is much increased, and there are thrown out, at the same time and for the same cause, many leucocytes, which mix with the mucus, giving it somewhat of a purulent character, the prominence of the purulent feature depending on the amount of this admixture of dead leucocytes. If it contains enough mucus to be noticeable, the discharge is sticky and stringy, and may be drawn out into long threads.

**Purulent discharge** presents the appearance of pus, either thin pus or thick yellow pus, as from an abscess or inflamed surface. Determine just where this comes from—i.e., whether from the urethra or vulvovaginal gland, or inflamed surfaces on the external genitals, or from the vagina.

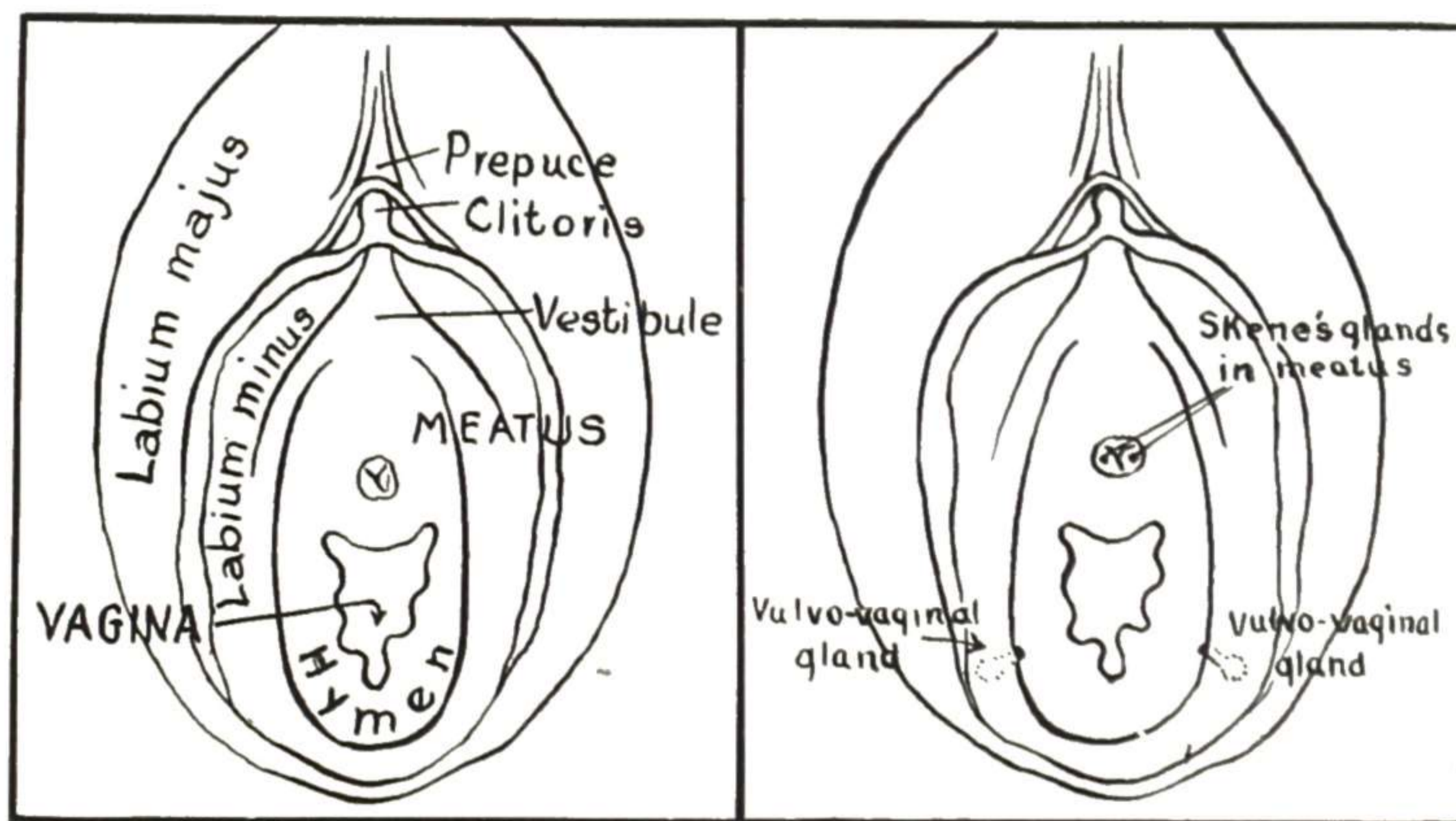


Fig. 181.

Fig. 182.

Fig. 181.—External genitals.

Fig. 182.—Areas most likely to harbor persistent inflammation.

**Bloody Discharge.**—The discharge is red or brown, the intensity of the color depending, of course, upon the amount of blood. It varies all the way from a slight reddish or brownish tinge, hardly noticeable, to practically pure blood or clots. The blood may be mixed with any of the other pathologic discharges—mucopurulent, purulent, or watery.

**Watery Discharge.**—This may be due to leakage of urine through a vesico-vaginal or ureterovaginal fistula or to rupture of the membranes in pregnancy. Occasionally in a malignant tumor of the vagina or uterus, or when there is a sloughing myoma, the foul discharge will become thin and watery.

Dip the tip of a cotton-wrapped applicator in this purulent discharge and spread some on a microscopic slide.

If possible, secure some discharge from the urethra or vulvovaginal gland (Figs. 181, 182), for the pus from these situations is much more satisfactory for microscopic examination for gonococci than the mixed vulvar or vaginal discharge.

To secure urethral pus, separate the labia, cleanse the meatus, and compress the internal end of the **urethra** by pressure against the anterior vaginal wall with the tip of the index finger. Then, still maintaining the pressure, draw the tip of the finger along the urethra toward the meatus (Fig. 183). This brings the urethral pus to the meatus.

Chronic inflammation in the urethra is likely to be situated in **Skene's glands**, and in such a case some pus may be pressed from these small glands by compressing the urethra (by pressure through anterior vaginal wall) just back of the meatus. In some cases, particularly in a multipara, the urethral mucosa pouts out, so that by careful examination the orifice of one or both of Skene's glands may be seen. Fig. 184 shows such a gland opening (left side) and also a drop of pus which has been pressed from the gland on the right side.



Fig. 183.



Fig. 184.

Fig. 185.

Fig. 183.—Method of pressing pus from the depth of the urethra to the meatus.

Fig. 184.—Slight eversion of urethral mucosa, so that openings of Skene's glands come into view. On left side the gland opening is seen. On right side a drop of pus has been squeezed from the gland and partially obscures the field. (Kelly—*Operative Gynecology*.)

Fig. 185.—Palpating the left vulvovaginal gland, to determine if there is thickening or tenderness, or if pus can be pressed from it.

The **vulvovaginal glands** (Bartholin's glands) are situated symmetrically on both sides of the vaginal opening. The opening of the duct of the gland of each side is situated laterally, just in front of the remnants of the hymen and a little below the middle of the lateral margin of the vaginal opening. Draw aside the labia in this situation and look for the opening of the gland, and determine whether or not the opening is reddened and if there is any discharge from it.

To examine either vulvovaginal gland, to determine if there is any thickening or tenderness from inflammation, or if pus can be squeezed from it, grasp the region of the gland between the index finger in the vagina and the thumb outside, as shown in Fig. 185. When normal, the gland is scarcely noticeable by palpation.

When inflamed, there is thickening and the gland is felt as a small, firm, tender nodule. If pus can be pressed out, make a smear for staining for gonococci. In case of abscess or cyst, the swelling is much larger. A well-marked red area involving the opening of the gland duct indicates previous inflammation, usually gonorrhoeal, and gives a clue to the origin of inflammatory lesions found higher (cervical, tubal).

### VAGINAL EXAMINATION (DIGITAL)

In the vaginal examination, or digital examination as it is frequently designated, one or two fingers are introduced into the vagina and the structures within reach are palpated. In this way valuable information may be obtained in certain cases. It is also a preliminary step to the important vaginoabdominal or bimanual examination, to be taken up later.

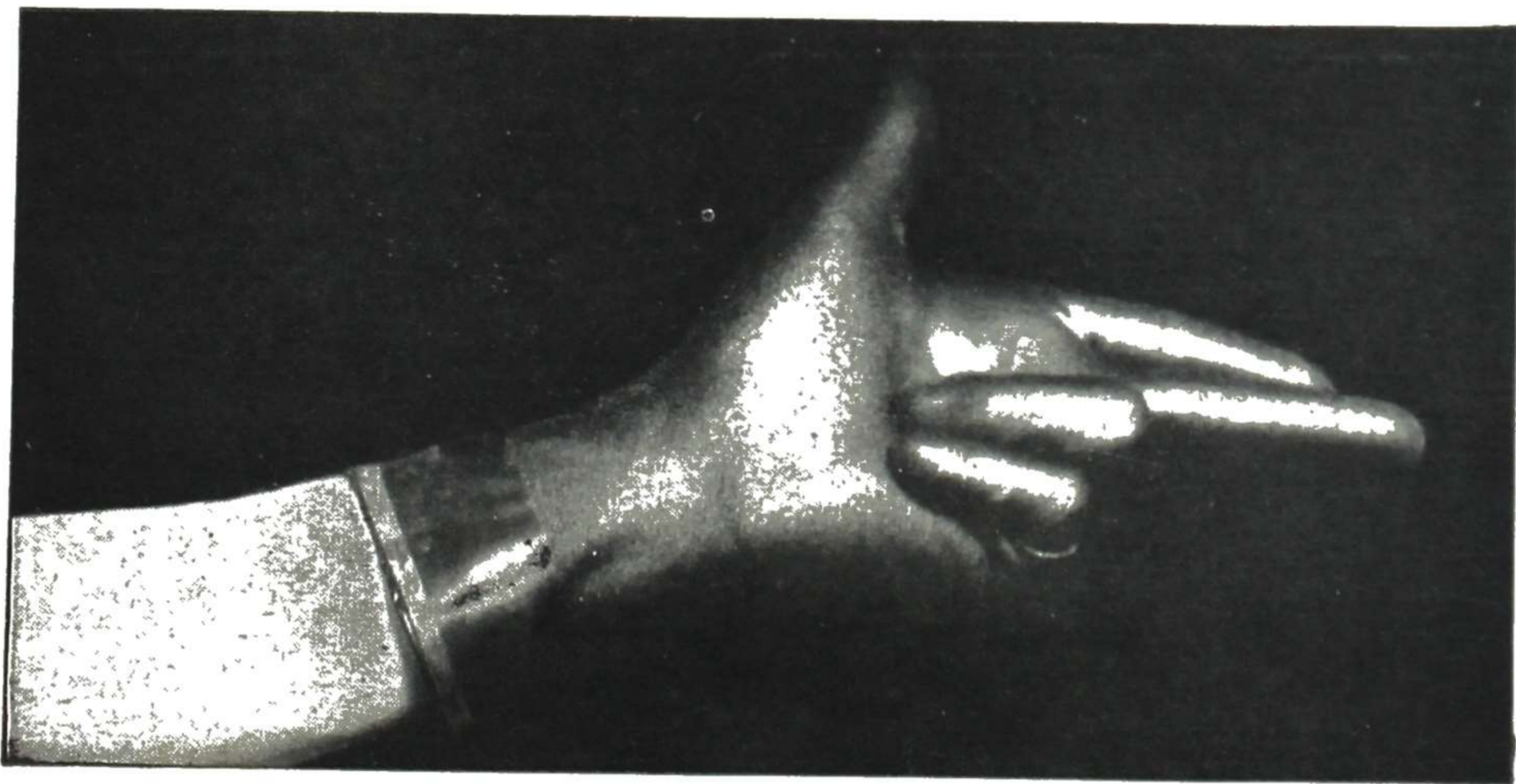


Fig. 186.—Position of the fingers for the vaginal and vaginoabdominal examinations.

#### Method of Examination

Use **two fingers** for the vaginal palpation where the size of the vaginal opening will permit. A much deeper and more accurate examination can be made with both the index and middle fingers than with the index finger alone. Ordinarily in the examination of a married woman, even one who has had no children, two fingers may be introduced without difficulty, provided the fingers are well lubricated and care is taken to cause no pain.

It is important also to separate the labia with the fingers of the other hand while the examining fingers are being introduced, for, if the hair and labia are allowed to roll in with the examining fingers discomfort is caused and the opening is considerably narrowed.

It is advisable to use **rubber gloves** in practically all cases. When intact, they give complete protection against syphilis or other infection which might come through an unnoticed abrasion about the fingers. Another advantage is that less scrubbing of the hands is needed after the examination. Fig. 186 shows the **position of the fingers** ordinarily preferable in the vaginal examination, and the hand gloved and ready for the examination. In introducing the fingers, remember that a bony arch surrounds the vaginal opening above and at the sides (Fig. 187) and that additional space can be secured only by depressing the muscular floor as shown in Fig. 188.

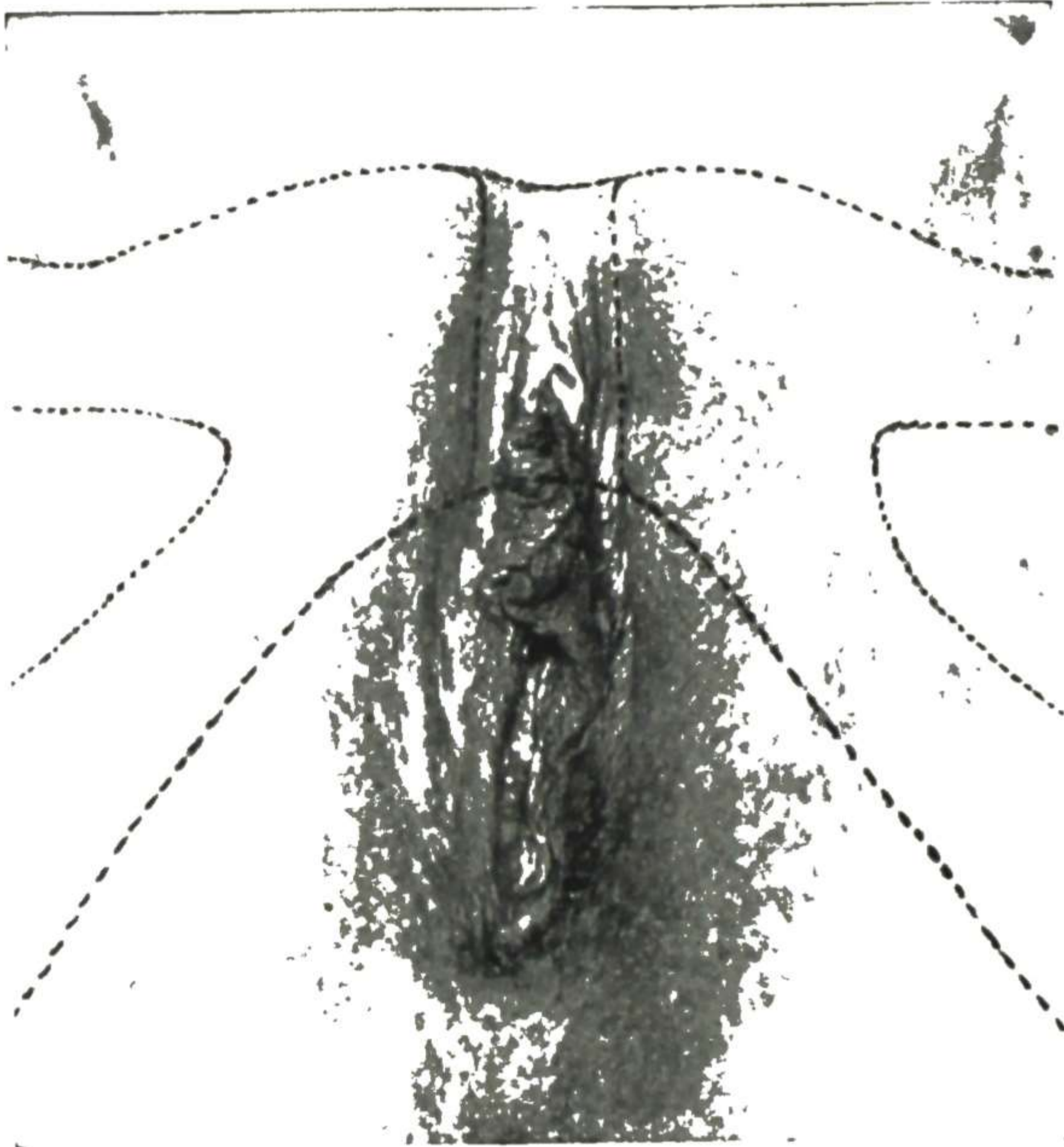


Fig. 187.



Fig. 188.

Fig. 187.—The bony arch, which bounds the vaginal opening above. Additional space needed for examination is secured by depressing the perineum, as shown in Fig. 188.

### What Structures to Palpate

With one or two fingers, well lubricated and introduced into the vagina, palpate the following structures:

**Vaginal Walls**—Roughness, Tenderness, Discharge, Induration, Swelling, Stricture.

**Base of Bladder**—Tenderness, Induration.

**Cervix Uteri** { Position,  
 Direction of axis,  
 Size and shape,  
 Laceration and eversion of lips.  
 Condition of external os,  
 Consistency of cervix,  
 Tenderness,  
 Mobility.

**Pericervical Tissues**—Tenderness, Induration.

**Pelvic Floor** { Size of opening,  
Resistance to backward pressure,  
Protrusion of vaginal walls,  
Scars and distortions,  
Thickness of perineum.

### CERVIX UTERI

**Position, Direction of Axis, Size, Shape, Laceration With Eversion of Lips.**  
**Condition of External Os, Consistency of Cervix,**  
**Tenderness, Mobility**

The cervix uteri is felt at the upper end of the vagina as a firm, conical body, projecting through the upper portion of the anterior wall. It is distinguished from the surrounding vaginal wall by its greater hardness.



Fig. 189.

Fig. 190.

Fig. 189.—Digital examination to determine position of cervix. Normal position.

Fig. 190.—Digital examination. Cervix low.

**Position of Cervix.**—The normal position of the cervix is from three to three and one-half inches from the vaginal orifice. The fingers are carried toward the top of the vagina until the tip of the finger touches the cervix. If the vaginal orifice comes well up to the upper end or the third joint of the finger, the cervix is in normal position (Fig. 189). If the cervix is encountered by the finger before it is introduced that far, the cervix is low (Fig. 190). If not encountered at that point, it is high. Another method of determining the position of the cervix is to ascertain whether it is above or below the level of the ischial spines, for normally the lower margin of the cervix lies approximately at the interspinal line.

In cases where, after examination in the dorsal posture, it is still uncertain as to whether or not there is serious descent of the uterus, the patient may be examined in the standing posture. The patient stands, with one foot slightly elevated on the round of a chair or on a small stool, while the examiner, sitting on a chair in front of her, makes the vaginal examination.

**Direction of Cervix.**—Determine whether the cervical canal, i.e., the axis of the cervix, points **across** the vagina above toward the coccyx as it should (Fig. 191), or **along** the canal as shown in Fig. 192. Direction of the cervix forward along the vaginal canal is usually due to backward displacement of the uterus. However, it is sometimes due simply to anteflexion of the cervix.



Fig. 191.

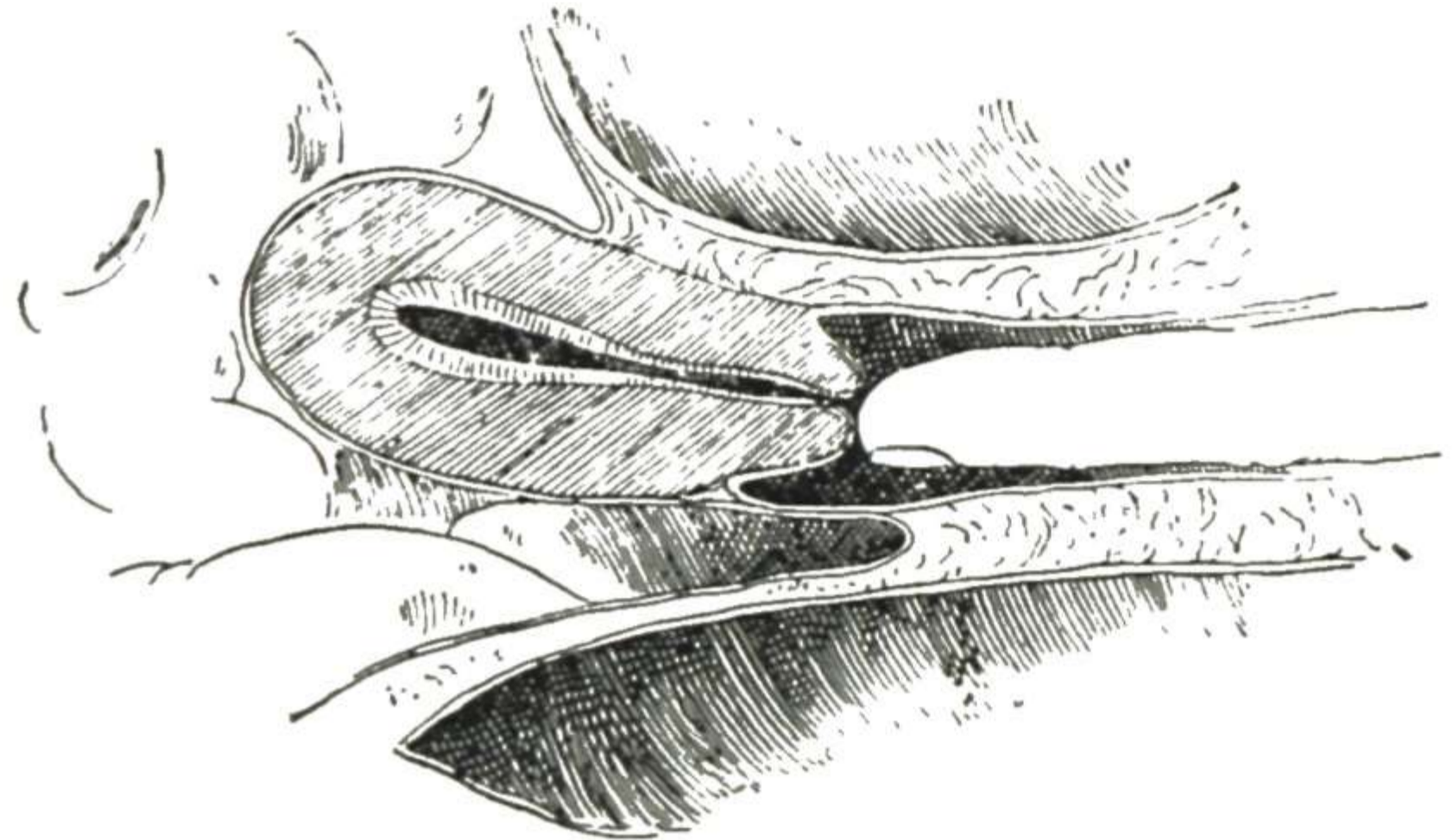


Fig. 192.

Figs. 191 and 192.—The relation of the cervix to the examining finger. Fig. 192, Retroversion of the uterus, showing the relation of the cervix to the examining finger. Compare this with Fig. 191, which shows the relation of the cervix to the examining finger when the uterus is in normal position. (Keating and Coe—*Clinical Gynecology*, J. B. Lippincott Company.)



Fig. 193.



Fig. 194.

Fig. 193.—Palpating the cervix to determine softening. The light stippled area represents the softened portion. The uterus is represented as enlarged from early pregnancy.

Fig. 194.—Beginning carcinoma within the cervix, causing a hard nodule, which can be felt on digital examination. (Kelly—*Operative Gynecology*, D. Appleton-Century Co.)

**Size and Shape, Laceration and Eversion, Condition of External Os.**—The size and shape of the cervix vary much in different individuals, and in the same individual at different periods of life. In women who have never been pregnant the normal cervix has the shape of a rounded cone about one inch wide, and projects into the vagina from one-half to three-quarters of an inch. The external os is small and round, and is at the flattened apex of the cone.



In certain abnormal cases the cervix is very long (an inch to an inch and a half) and pointed. This condition is known as conical cervix. It is frequently accompanied by a very small external os ("pinhole os"), and is one cause of sterility.

In women who have borne children the cervix is larger and broader, and comparatively shorter. The os is a transverse slit and is irregular in shape, and may be large enough to admit the finger tip. There are usually small scars and irregular depressions from lacerations in labor. When the cervix has been severely lacerated, there may be two or three distinct lips. Again, it may, on account of chronic inflammation, become enlarged to two or three times its normal size and may be felt as an irregular ball at the top of the vagina.

**Consistency.**—The normal cervix is like hard connective tissue, almost as hard as tendon. Its consistency is closely approached by that of the end of the nose when firmly pressed upon. During pregnancy the cervix **softens**, the softening beginning at the lower end and gradually involving more and more as pregnancy advances (Fig. 193). The softening is so marked that the softened portion is sometimes missed entirely.

Abnormal **hardening** of a portion of the cervix may be due to scar tissue, to cystic disease, to a myoma nodule, or to malignant infiltration (Fig. 194).

**Tenderness of Cervix.**—The cervix is much less sensitive than the vaginal wall, and rarely becomes very sensitive even when diseased. The pain complained of when the cervix is pressed upon is usually due to the pulling upon inflamed periuterine structures, by the resulting movement of the uterus.

**Mobility of Cervix.**—Normally the cervix is freely and painlessly movable a short distance in all directions. Its range of mobility may be diminished by scar tissue or by malignant infiltration in the upper part of the vagina, or by an inflammatory exudate in the pelvis, or by a uterine tumor, or by any pelvic tumor that fixes the uterus. Its range of mobility may be increased by laceration or overstretching of the supports, posteriorly or anteriorly or laterally, a frequent accompaniment of pelvic floor injuries.

## PERICERVICAL TISSUES

### Tenderness, Induration

The tissues about the cervix, immediately beneath the vaginal wall, may be palpated, and tenderness or induration noted. If induration is present, note whether it is a distinct, well-defined mass or diffuse infiltration and thickening of the tissues.

## PELVIC FLOOR

### Size of Vaginal Opening, Resistance to Backward Pressure on Pelvic Floor, Protrusion of Vaginal Walls, Scars or Distortions, Thickness of Perineal Body

Is there loss of support at the pelvic outlet? Is there so much relaxation, due to imperfect healing of an **open tear** or of a **subcutaneous tear**, or due to **subinvolution** of the pelvic sling, that the pelvic organs are not satisfactorily supported? Keep in mind that the important supporting structure in the

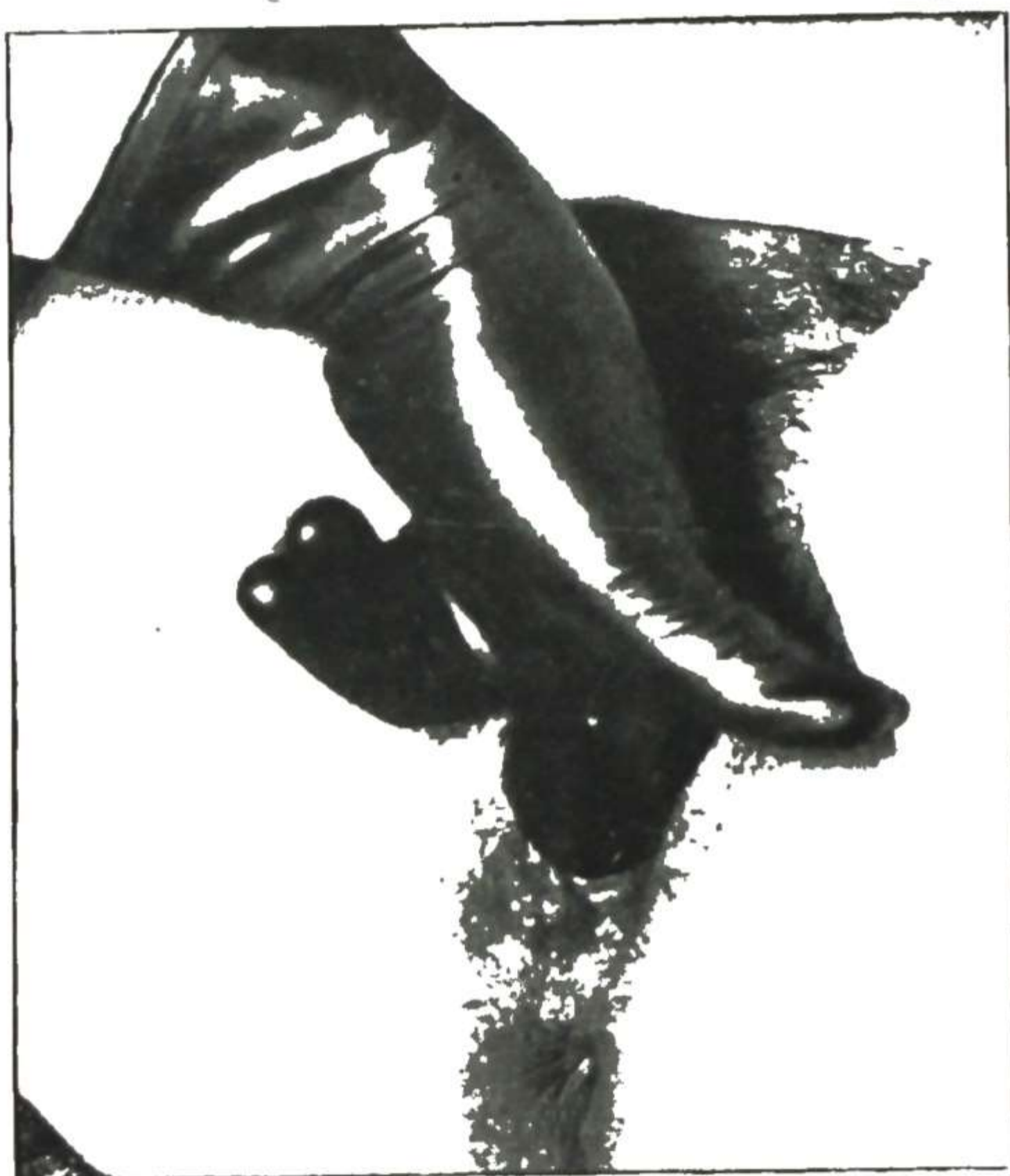


Fig. 195.



Fig. 196.

Fig. 195.—Testing the pelvic floor. The vaginal fingers are separated widely, as explained in Fig. 196, and pressed downward.

Fig. 196.—Showing the relative position of the fingers when in the vagina, while testing the pelvic floor.



Fig. 197.



Fig. 198.

Fig. 197.—Testing the pelvic floor, especially the left sulcus.

Fig. 198.—Testing the pelvic floor by two fingers introduced into the vagina and then separated.

pelvic floor is the musculofibrous sling formed by the levator ani muscles and fibrous sheaths. The perineal body is of secondary importance, hence a relaxed vaginal opening does not necessarily mean relaxation of the supporting floor, though it usually accompanies such relaxation. Methods of testing the pelvic floor are shown in Figs. 195 to 198.

When there has been **laceration of the sphincter ani muscle**, the torn ends are drawn apart, their location being indicated by a small dimpled scar at each side of the anus. The appearance in relaxation of the pelvic floor and also in laceration of the sphincter ani muscle is shown in the illustrations in the chapter dealing with that subject (Chapter V).

### VAGINOABDOMINAL EXAMINATION (BIMANUAL)

The vaginoabdominal examination is, as its name implies, an examination from the vagina and the abdomen at the same time. The pelvic structures are caught between the fingers in the vagina and the fingers over the abdomen, and carefully examined by indirect touch (Figs. 199, 200). By it the body of

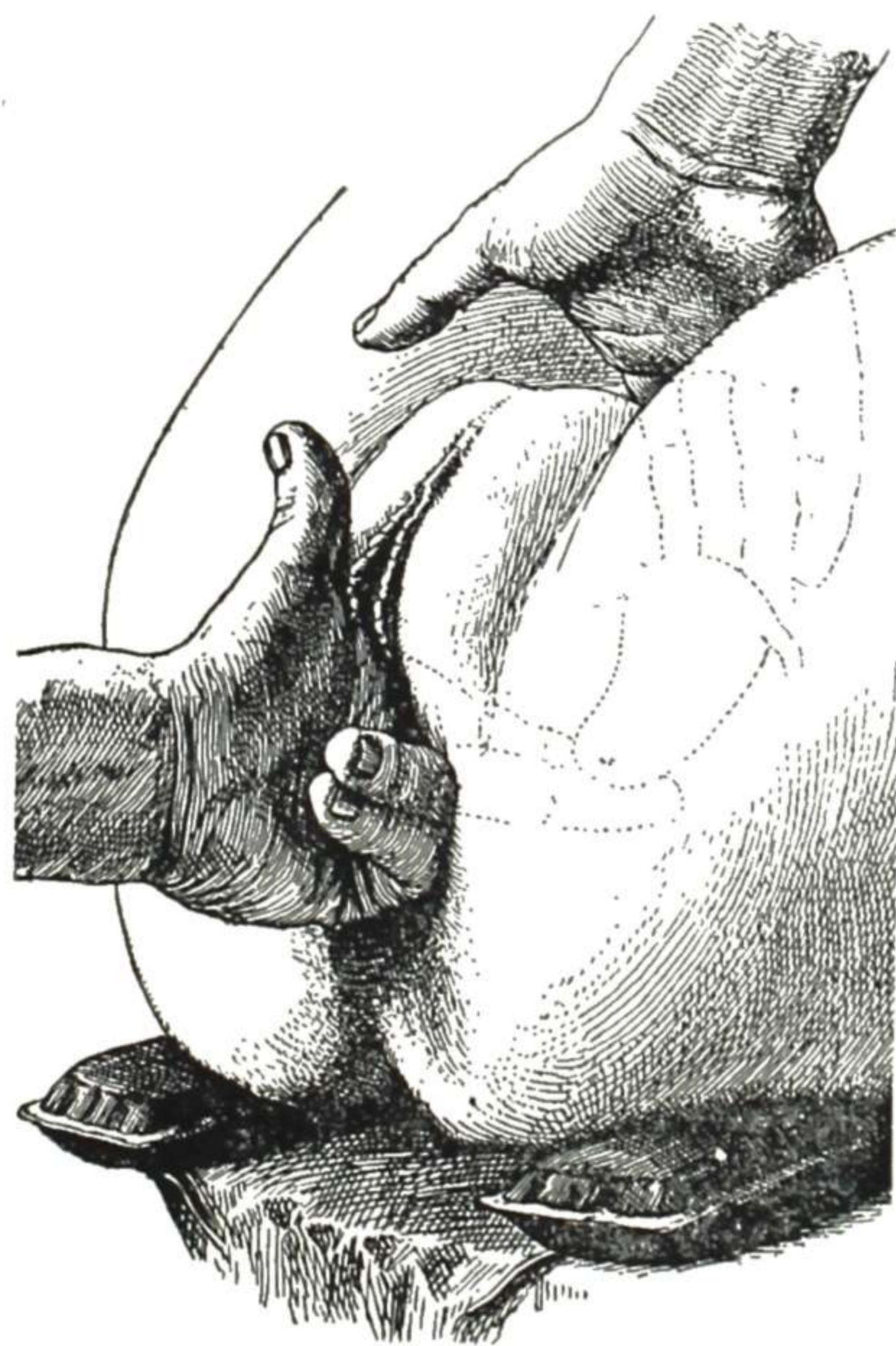


Fig. 199.

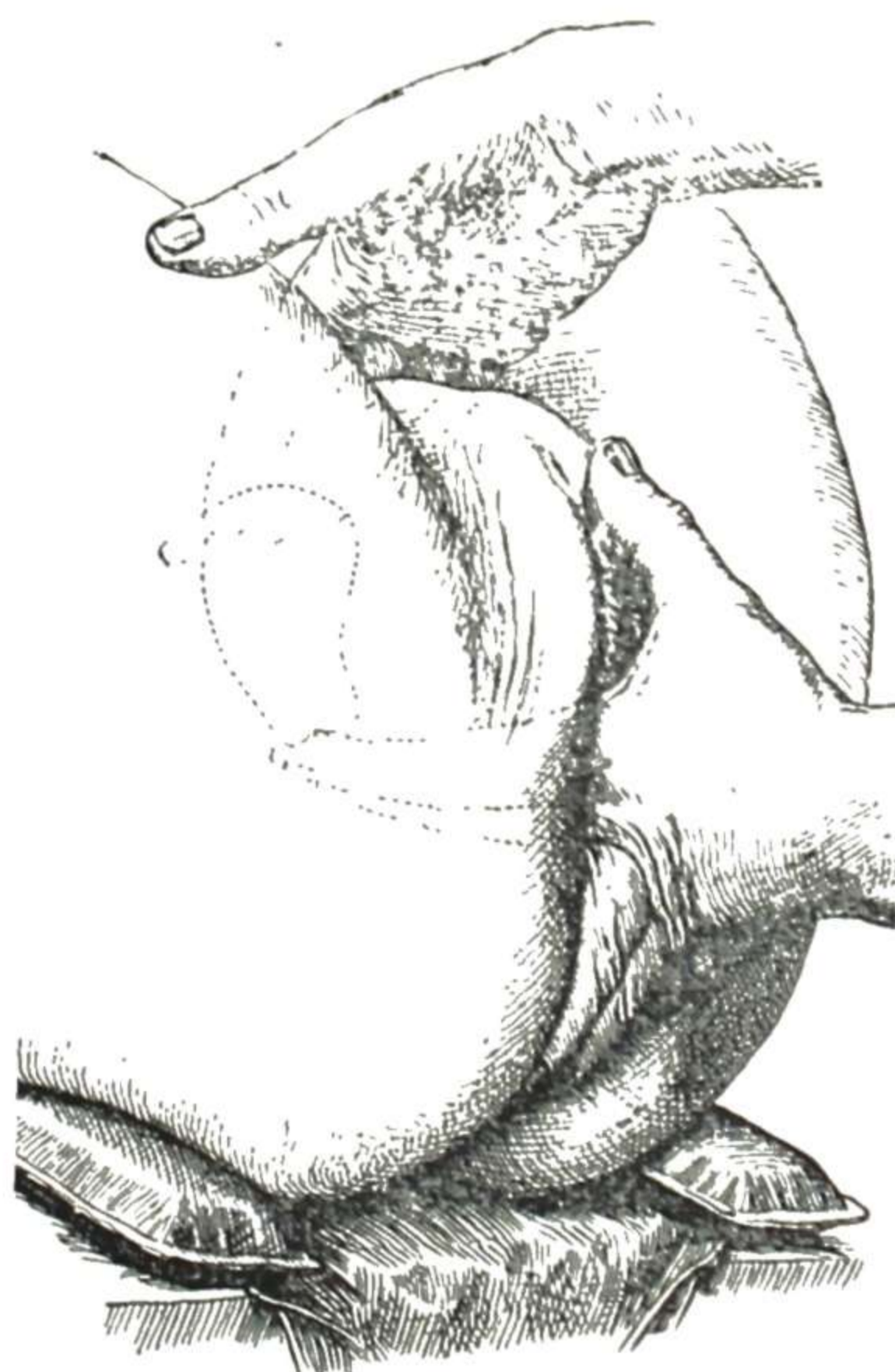


Fig. 200.

Fig. 199.—Bimanual examination, showing also the disposition of outside fingers and left thumb. (Kelly—*Operative Gynecology*.)

Fig. 200.—Showing the other disposition of third and fourth fingers along the gluteal crease. This allows deeper penetration of the examining fingers in certain exceptional cases, particularly in very stout patients. (Kelly—*Operative Gynecology*.)

the uterus is located and outlined. The region to each side of the uterus is palpated and also the space back of the uterus. It is determined whether there is any abnormal mass in the pelvis or whether there is any area of marked tenderness.

To the beginner in gynecologic work this important bimanual examination is often unsatisfactory. He has heard a great deal about tubal and ovarian disease, and he expects to feel the tube and ovary at once. He examines a

patient, or several patients, and can feel neither tube nor ovary if they are normal. Then he is discouraged, and thinks that he has learned nothing from the examinations. And probably he has not learned much, for the simple reason that he was feeling for something that he could not feel, and did not know the significance of what he did feel. Close attention to the details of the examination will prevent this unprofitable experience.

The information concerning the Bimanual Examination may be divided as follows:

**Palpation of Uterus**—Position, Size, Shape, Consistency, Tenderness, Mobility, Attachments.

**Palpation of Lateral Regions of Pelvis**—Tubes and Ovaries, Mass, Induration, Tenderness.

**Palpation of Other Regions**—Mass, Induration, Tenderness.

**Trained Touch**

### PALPATION OF BODY OF UTERUS

#### Position, Size, Shape, Consistency, Tenderness, Mobility, Attachments

##### LOCATING THE CORPUS UTERI

**Steps.**—The locating of the corpus uteri will be much facilitated by proceeding as follows:

1. With two fingers in the vagina, locate the cervix and then push the cervix backward and upward. This tends to tip the fundus forward, as indicated by the dotted line in Fig. 201.

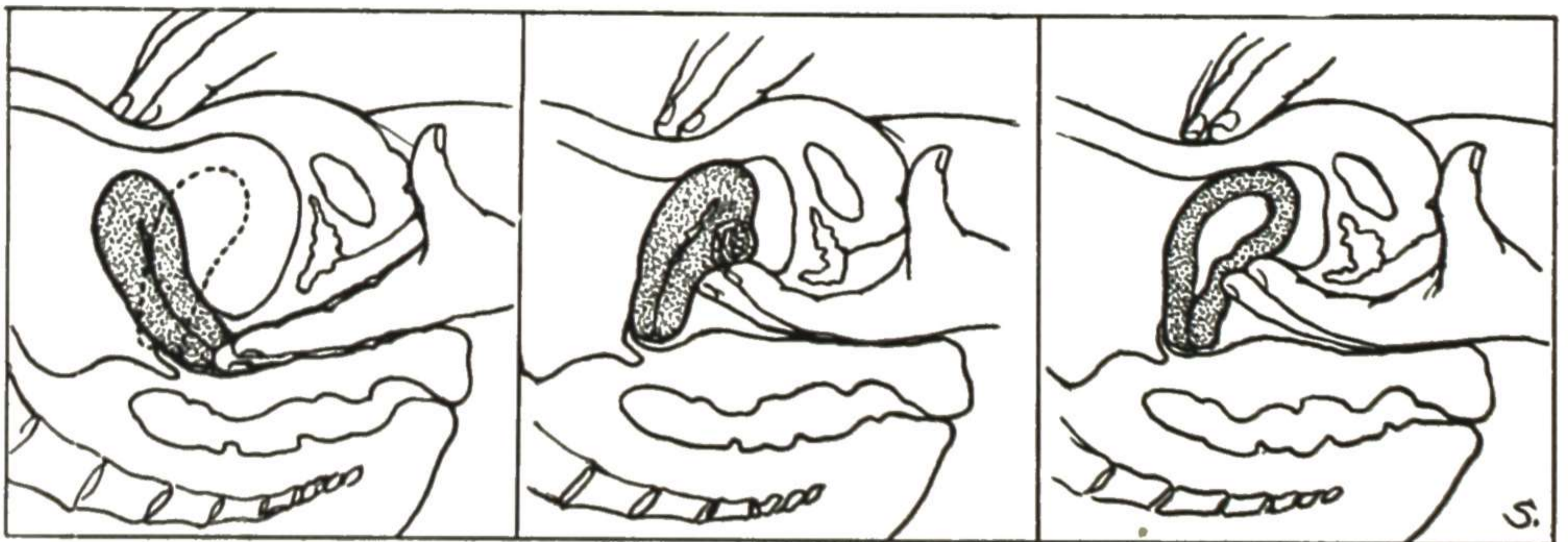


Fig. 201.

Fig. 202.

Fig. 203.

Fig. 201.—Pushing the cervix back and upward, so as to tip the corpus uteri forward within reach of the abdominal fingers.

Fig. 202.—Palpating a nodule on the anterior surface of the corpus uteri.

Fig. 203.—Palpating softening or fluid in the corpus uteri.

2. Then, with the fingers of the abdominal hand depressing the abdominal wall into the depth of the pelvis back of the uterus, bring the fundus uteri well forward.

3. Then, with the pressure still maintained in the direction indicated, slip the vaginal fingers in front of the cervix. The body of the uterus is thus caught firmly between the fingers below and above, and may be clearly felt and outlined (Figs. 202, 203).



Fig. 203A.—First maneuver in outlining the corpus uteri. Pushing the cervix back and upward, thus tipping the fundus forward so that the abdominal fingers can get back of it. (Netter—Sharp & Dohme Seminar, February, 1943.)

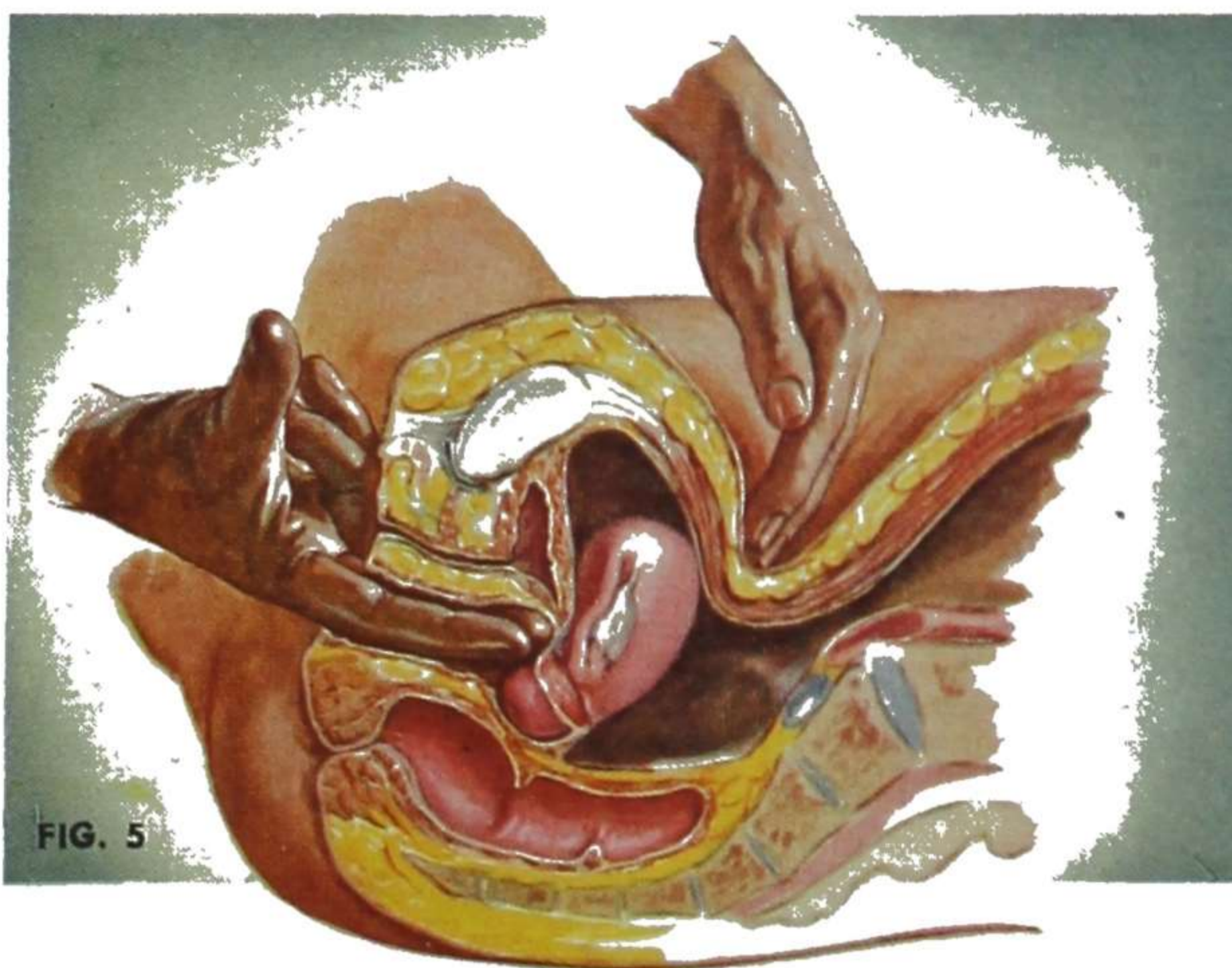


Fig. 203B.—Second maneuver. Slipping the vaginal fingers up the front of the corpus, to palpate its anterior surface as in Figs. 202 and 203 while the corpus is held forward by the abdominal fingers. (Netter—Sharp & Dohme Seminar.)

**Three Common Errors.**—The following errors are made so often that the authors think it advisable to call particular attention to them.

**Error 1. Examining With Partly Filled Bladder** (Fig. 204).—If the body of the uterus is not felt in front and still the abdominal fingers cannot be brought well together, have the patient empty the bladder and then examine again. A partly filled bladder is not felt as a distinct mass, and yet there may be half a pint or more of urine—enough to make the palpation very unsatis-

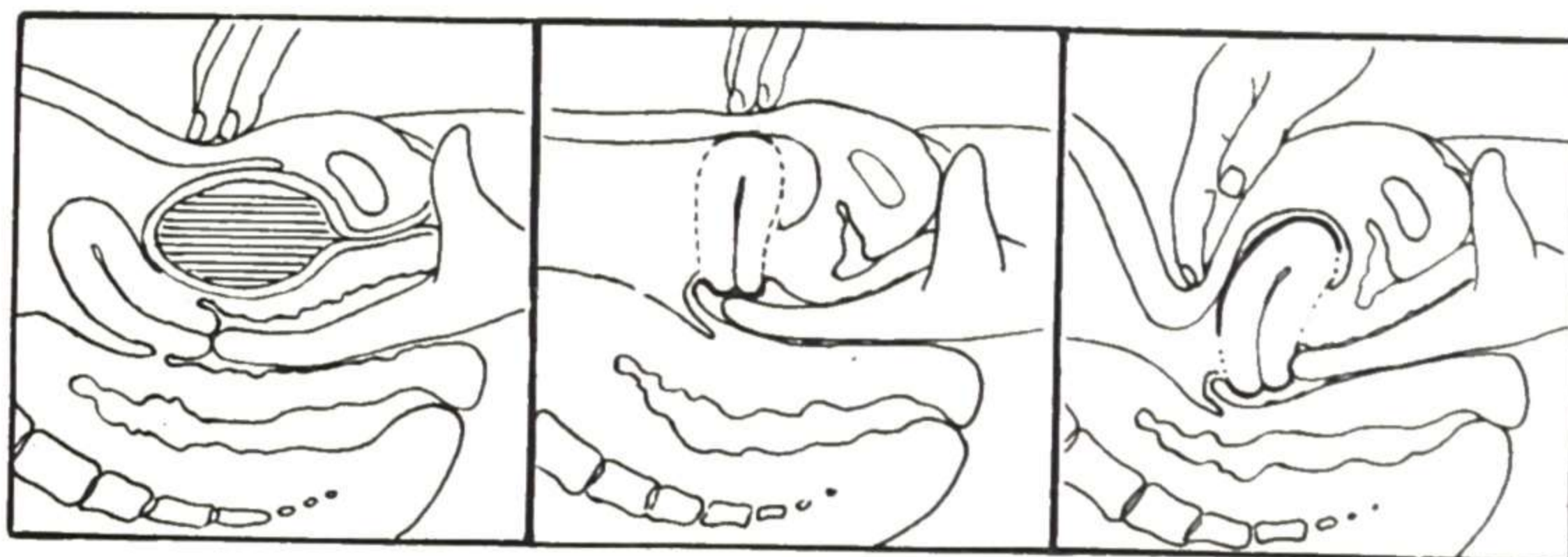


Fig. 204.

Fig. 205.

Fig. 206.

Fig. 204.—Bimanual examination. Uterus displaced backward by a full bladder, interfering with deep palpation.

Fig. 205.—Bimanual examination. Difficult case in which the uterus cannot be accurately outlined.

Fig. 206.—Bimanual examination. Uterus forward, and easily outlined.



Fig. 207.

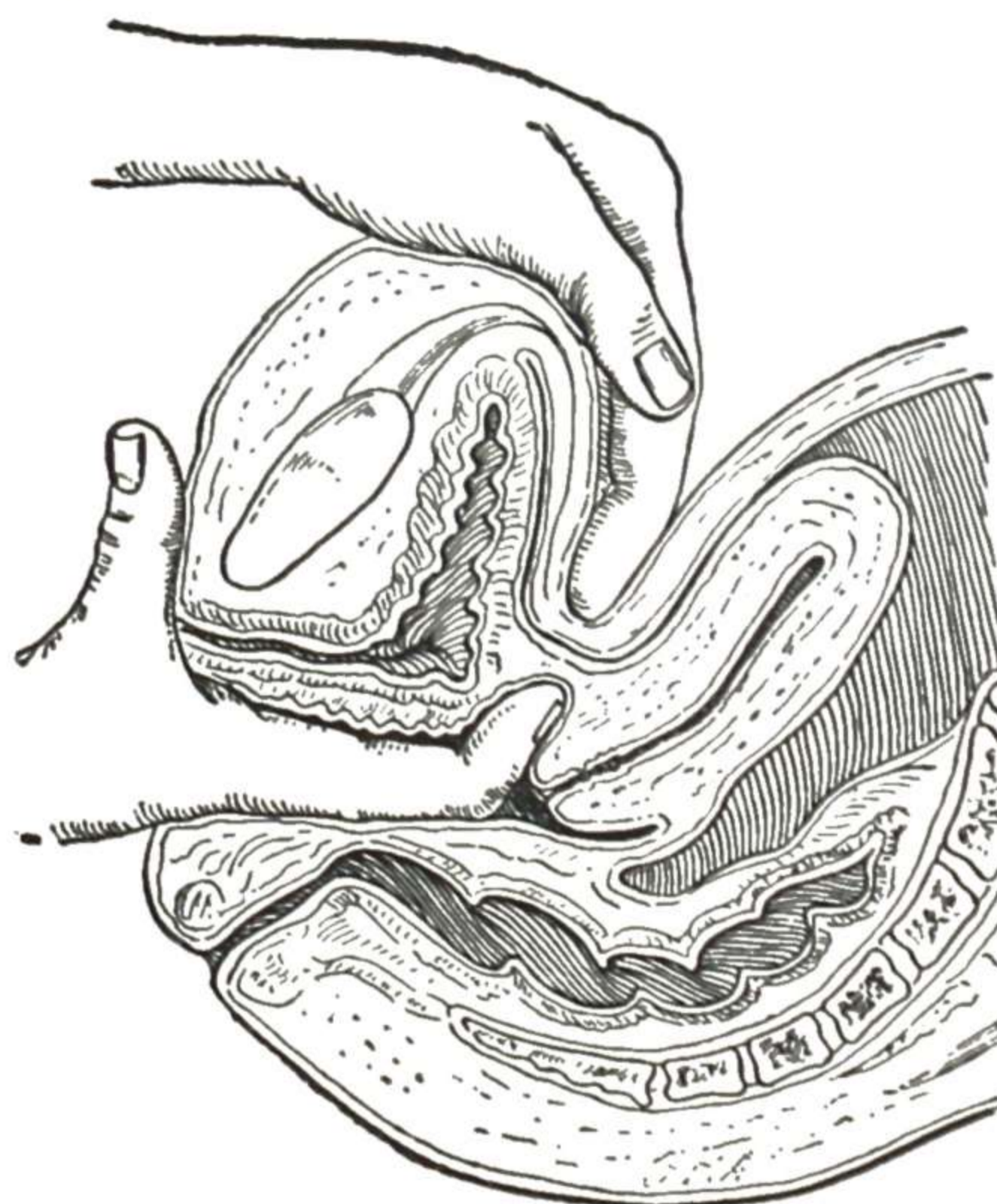


Fig. 208.

Fig. 207.—Depression of abdominal wall too close to the pubes. Outside view.

Fig. 208.—Depression of the abdominal wall too close to pubes. Sectional view. (Ashton—*Practice of Gynecology*, W. B. Saunders Company.)

factory. The peculiar thing about this condition is that there is nothing to indicate it, except the difficulty in locating the body of the uterus in deep palpation. No mass is felt and the tissues are all soft and yielding, and there is no particular pain. The fingers seem to sink into the pelvic tissues well, but for some unaccountable reason the uterus is difficult to feel. It seems too far back in the pelvis and yet when you try to bring the fingers together in

front of it, they do not come together well. When such a condition is encountered in an apparently normal abdomen (no marked obesity or muscular tension), it is probably due to a collection of urine in the bladder or to intestinal coils in the pelvis. If it does not disappear after the bladder is evacuated, then elevate the patient's hips, to get the tympanitic intestinal coils out of the pelvis.

To avoid this error have the patient empty the bladder shortly before the gynecologic examination. If she cannot urinate she may be catheterized if conditions are found sufficiently doubtful to warrant it.

**Error 2. Frequent Shifting of the Position of the Abdominal Fingers.**—Some students gouge about in the lower abdomen in various directions in an effort to feel the fundus uteri with the abdominal fingers. This is likely to



Fig. 209.

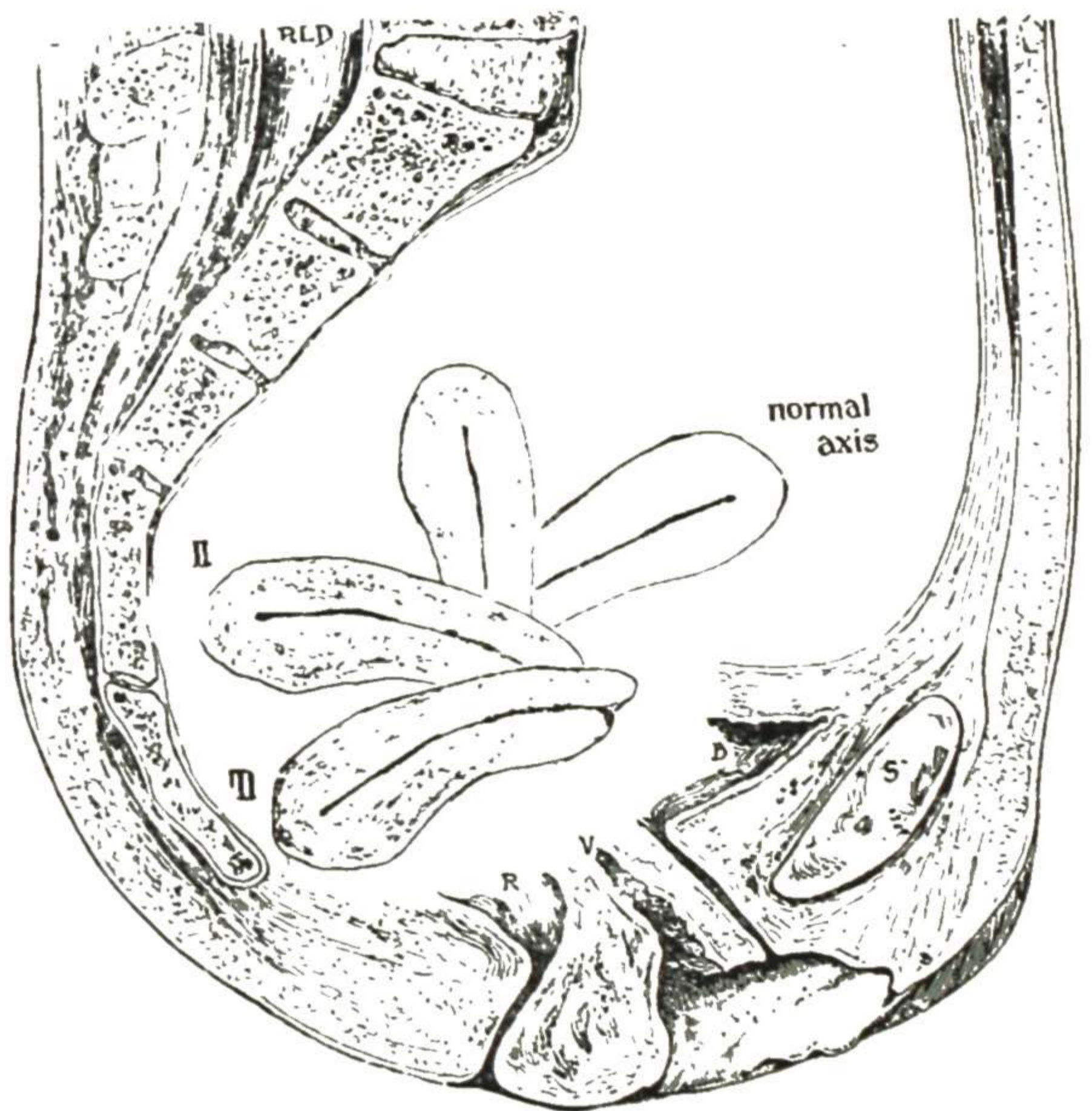


Fig. 210.

Fig. 209.—Showing the third step in the palpation of the uterus. (Montgomery—*Practical Gynecology*, The Blakiston Company.)

Fig. 210.—Retrodisplacement of the uterus, showing the first, second, and third degrees. (Skene—*Diseases of Women*, D. Appleton-Century Company.)

make the examination a failure in a normal case and it is almost certain to do so in a difficult case. Remember that tension of the abdominal wall interferes with the examination and may defeat it entirely. Remember also that the tension is increased by frequent movements of the abdominal fingers, such as placing them in one position after another in rapid succession, and particularly by endeavoring to gouge in forcibly in various parts of the pelvis in an endeavor to overcome the resistance of the wall. Keep in mind that most of the effective palpation is done with the vaginal fingers, the principal function of the abdominal fingers being to bring the body of the uterus within reach of the vaginal fingers and then hold it there while palpation is being carried out. Get clearly in mind just exactly what movements are necessary to palpate the uterus best.

In order to **avoid this error** just mentioned, place the abdominal fingers so that the depression of the wall will be into the back part of the pelvis, and then carry the fingers by steady and continuous pressure toward the desired region. When you have advanced the fingers as far as possible, hold them there steadily and direct the patient to take a deep breath and then to let the breath all out. As expiration takes place, the fingers may be carried deeper into the pelvis—not by any sudden forcing movement, but by strong steady pressure that does not excite muscular contraction and resistance. If still the fingers are not deep enough in the pelvis, the same movements may be repeated several times. Because the uterus is not felt at once, do not cease the pressure there and begin to depress the wall at some other place. Start the fingers in the right direction at first and then keep them going in that direction steadily, firmly, persistently, without relaxing the pressure, until the depth of the pelvis is reached.

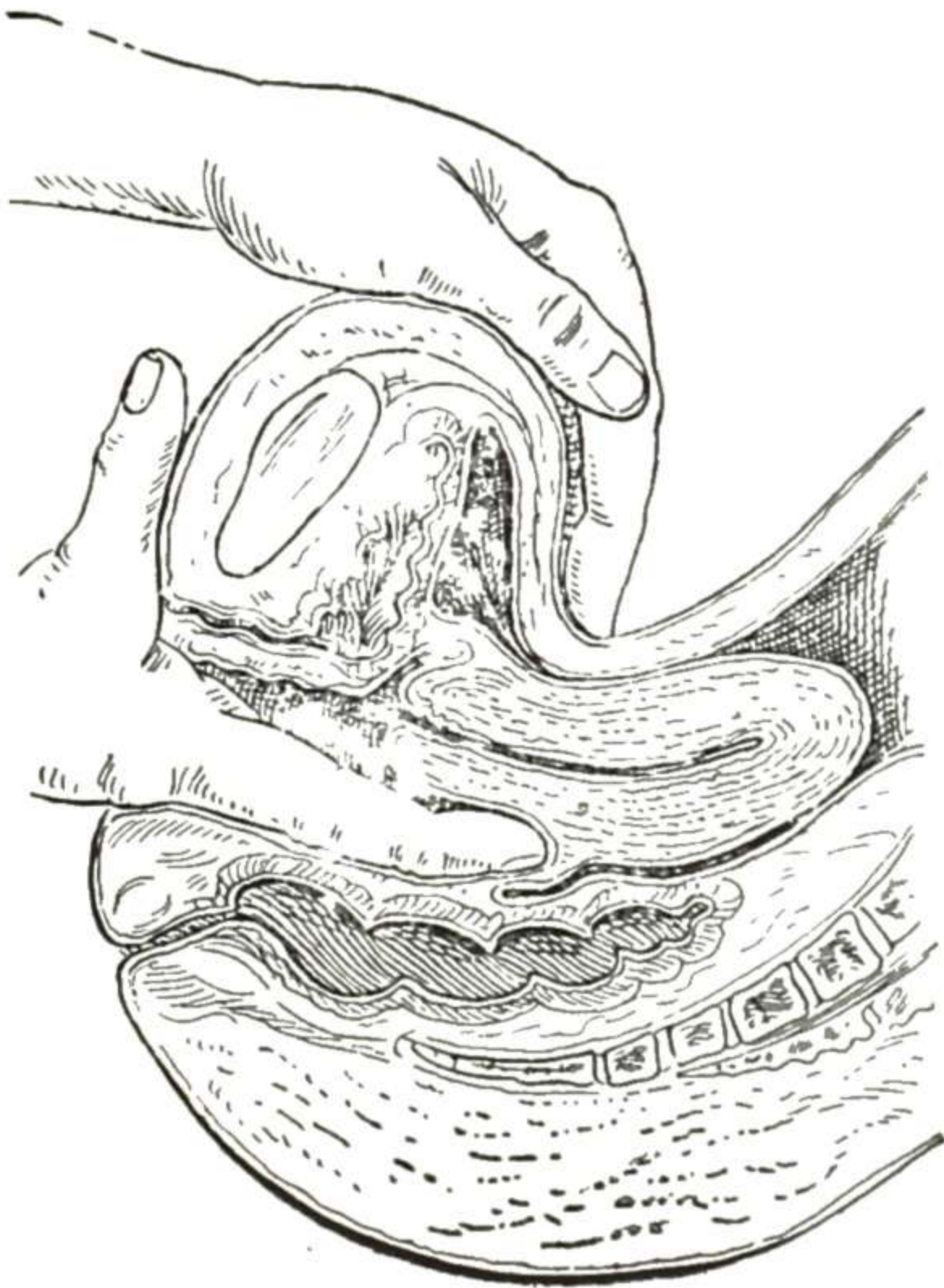


Fig. 211.

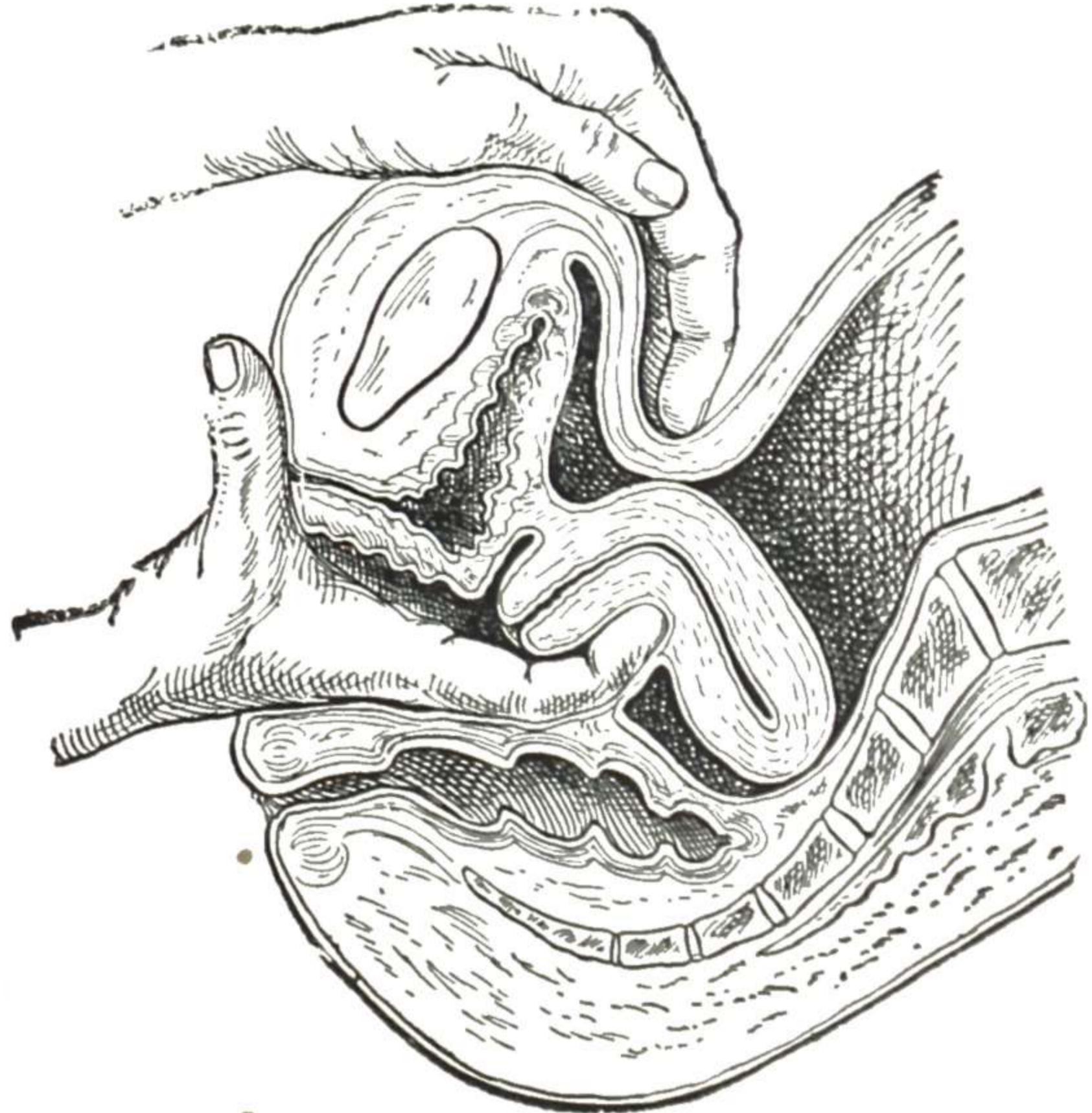


Fig. 212.

Fig. 211.—Search is then made in the posterior part of the pelvis, and the uterus is found in retroversion. (Ashton—*Practice of Gynecology*, W. B. Saunders Company.)

Fig. 212.—Indicating the examination findings when the uterus is in retroflexion. Notice the marked angle which is palpable posteriorly at the junction of the cervix and corpus uteri. (Ashton—*Practice of Gynecology*, W. B. Saunders Company.)

**Error 3. Depression of the Abdominal Wall Too Close to the Pubes** (Figs. 205 to 208).—If the uterus happens to be far forward, this causes no trouble, but if the uterus is very high, as it frequently is from other normal or abnormal cause, the depression of the wall close to the pubes tends to push the uterus backward (Fig. 208). Consequently it is not felt between the examining fingers, though there is no real displacement or was none before the examination was begun.

To **avoid this error**, depress the abdominal wall near the promontory of the sacrum, about midway between the pubes and the umbilicus. In particularly difficult cases it is well to start very high and bring the fingers down upon the sacral promontory, and then allow them to slip over the promontory



into the posterior part of the pelvis. They are then brought forward until the body of the uterus is felt or until the vaginal and abdominal fingers are so closely approximated that the absence of the uterus from that part of the pelvis is demonstrated.

### Facts to Determine

When the body of the uterus has been located, then fix in mind the following facts concerning it:

1. **Position** of the Corpus Uteri. Is it in anterior position, as it should be (Fig. 209) or is it displaced backward or to one side?



Fig. 213.

Fig. 214.

Fig. 215.

Fig. 213.—Digital examination, anteflexion of cervix.

Fig. 214.—Digital examination, enlarged tube in cul-de-sac.

Fig. 215.—Digital examination, retroversion of uterus, with anteflexion of cervix.

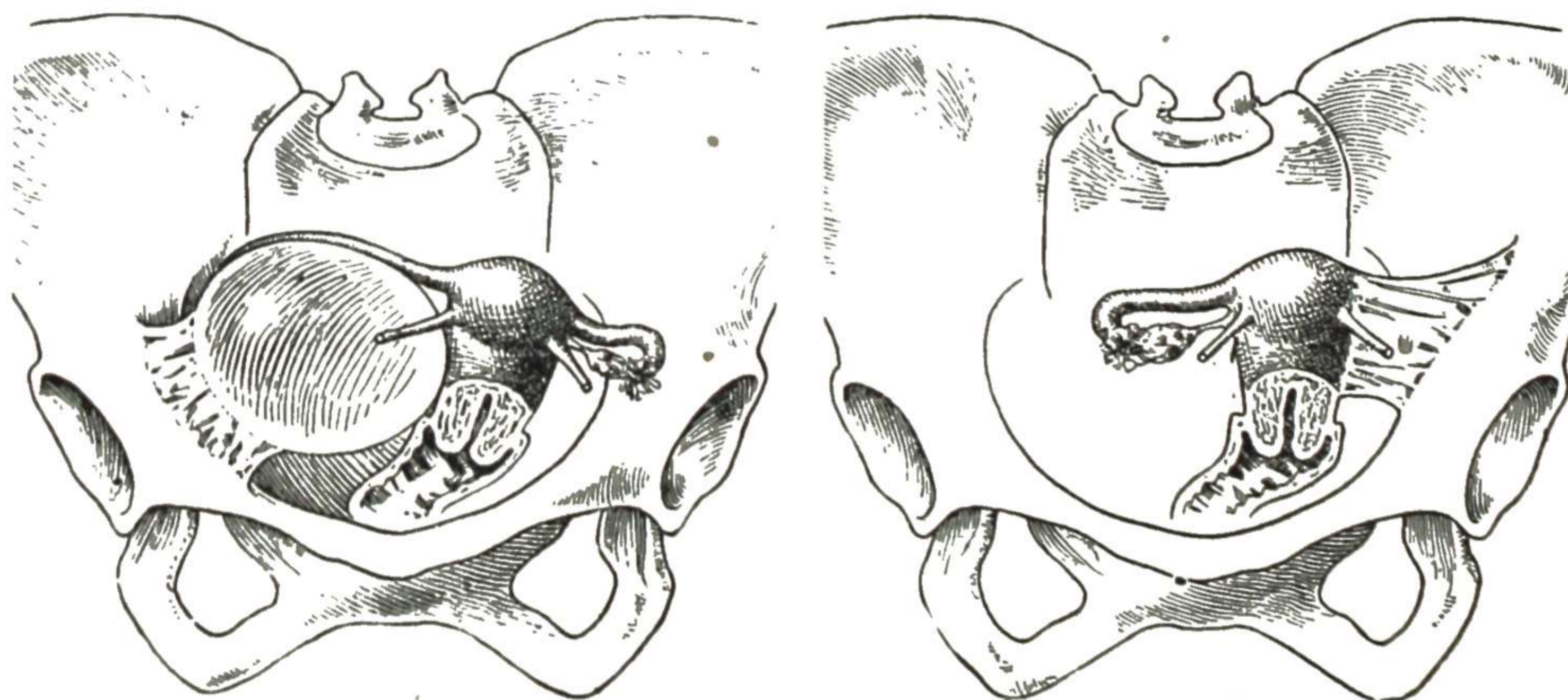


Fig. 216.

Fig. 217.

Fig. 216.—Uterus pushed to the left side by a tumor or inflammatory mass in the opposite side. (Findley—*Diagnosis of Diseases of Women.*)

Fig. 217.—Uterus drawn to the left side by adhesions or infiltration in the same side. (Findley—*Diagnosis of Diseases of Women.*)

If it can be determined that the corpus uteri is in the posterior part of the pelvis, the diagnosis is “retrodisplacement,” and it is well to note also whether first, second, or third degree, as in Fig. 210. Avoid the terms “retroversion” and “retroflexion,” unless it is possible to examine deeply enough to outline the uterus sufficiently for differentiation of types, as in Figs. 211 and 212. The most common type is a combination of version and flexion, as in Fig. 210. Pure

retroversion or pure retroflexion is rare. Occasionally a uterus with anteflexed cervix becomes retroverted, producing a "retrodisplacement of uterus with anteflexion of cervix," as shown in Figs. 213 to 215. The condition back of

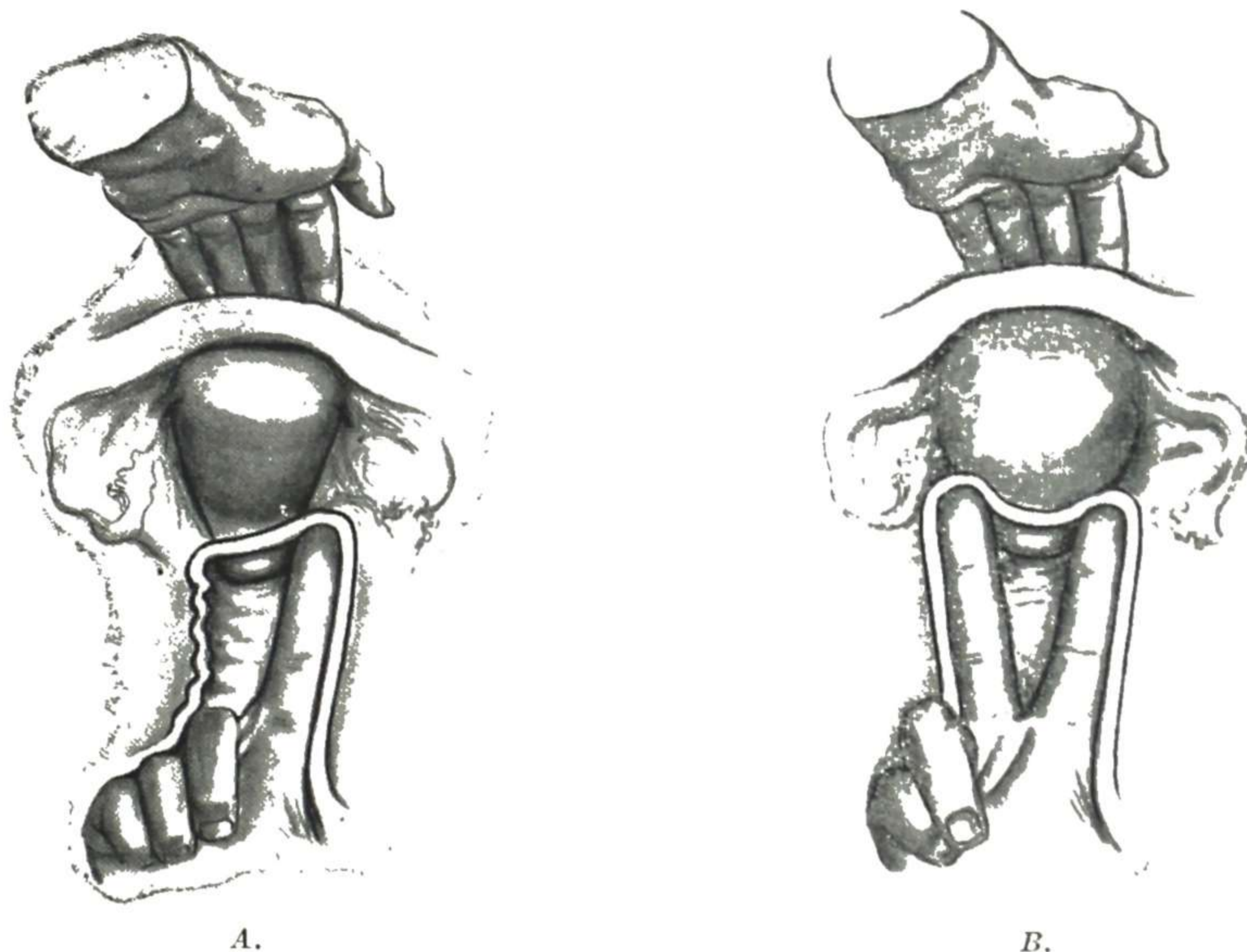


Fig. 218.—*A*, Palpating the margin of the uterus to determine enlargement or irregularity. *B*, Estimating the width of the uterus by separating the vaginal fingers so that one goes to each side of the uterus. (Edgar—*Practice of Obstetrics*, The Blakiston Company.)

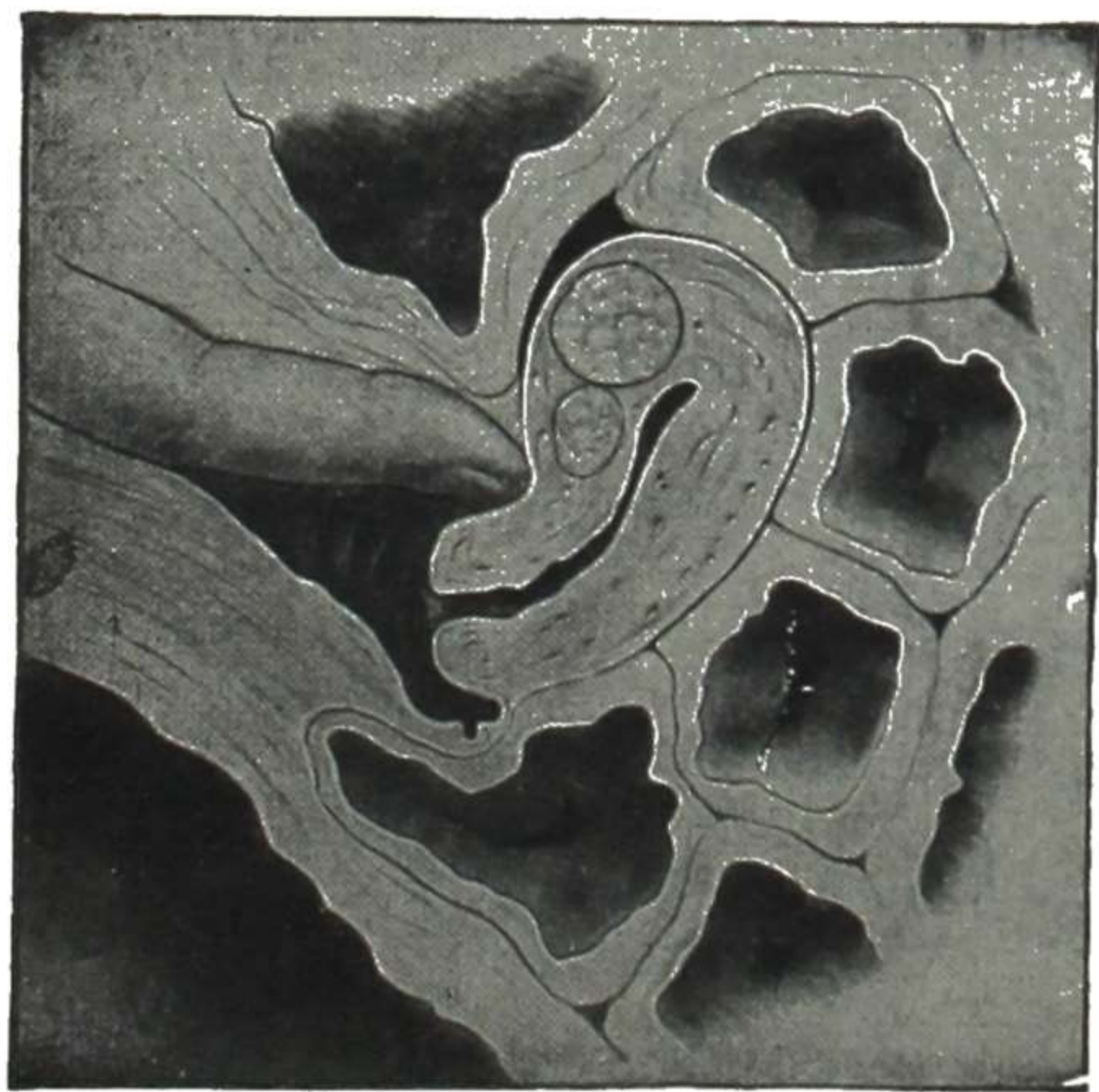


Fig. 219.

Fig. 219.—Hard nodules in the corpus uteri, due to small myomas. (Montgomery—*Practical Gynecology*, The Blakiston Company.)

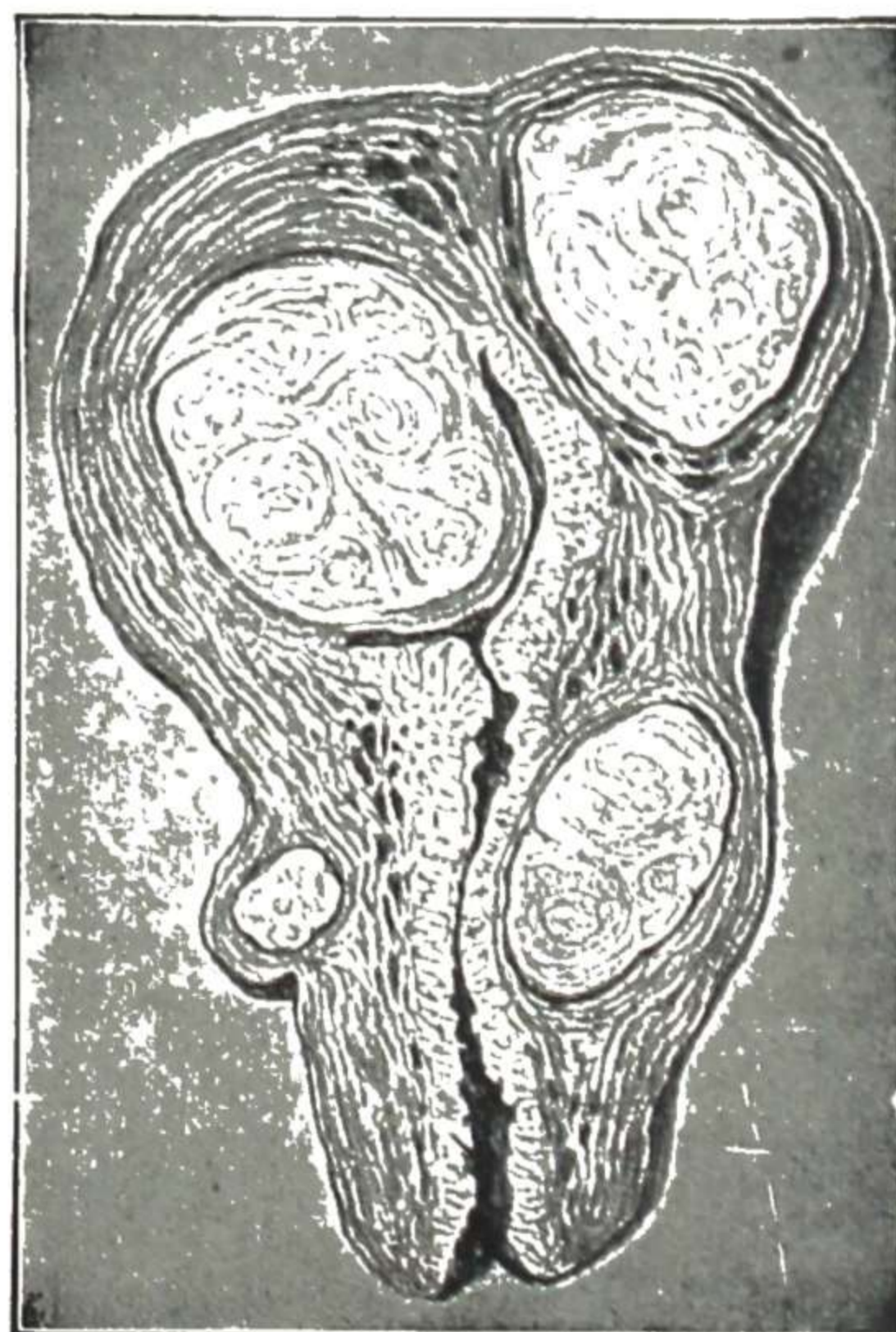


Fig. 220.

Fig. 220.—Larger myomas, in various situations in the uterine wall. (Schaeffer—*Hand-Atlas of Gynecology*.)

the cervix may be difficult to distinguish from a mass in the cul-de-sac (Fig. 214). Lateral displacement of the uterus may be due to a tumor pushing it or to old adhesions pulling it (Figs. 216, 217).

2. **Size of Corpus Uteri.** Is it apparently normal in size (about three inches long) or is it as large as the fist, or as large as a child's head? Fig. 218 indicates the method of palpating the margin of the uterus and also the method of determining its width by separation of the vaginal fingers.

3. **Shape of the Corpus Uteri.** Is it approximately pear-shaped and of regular contour, or is it distorted by myomas or other tumors (Figs. 219 to 224)?

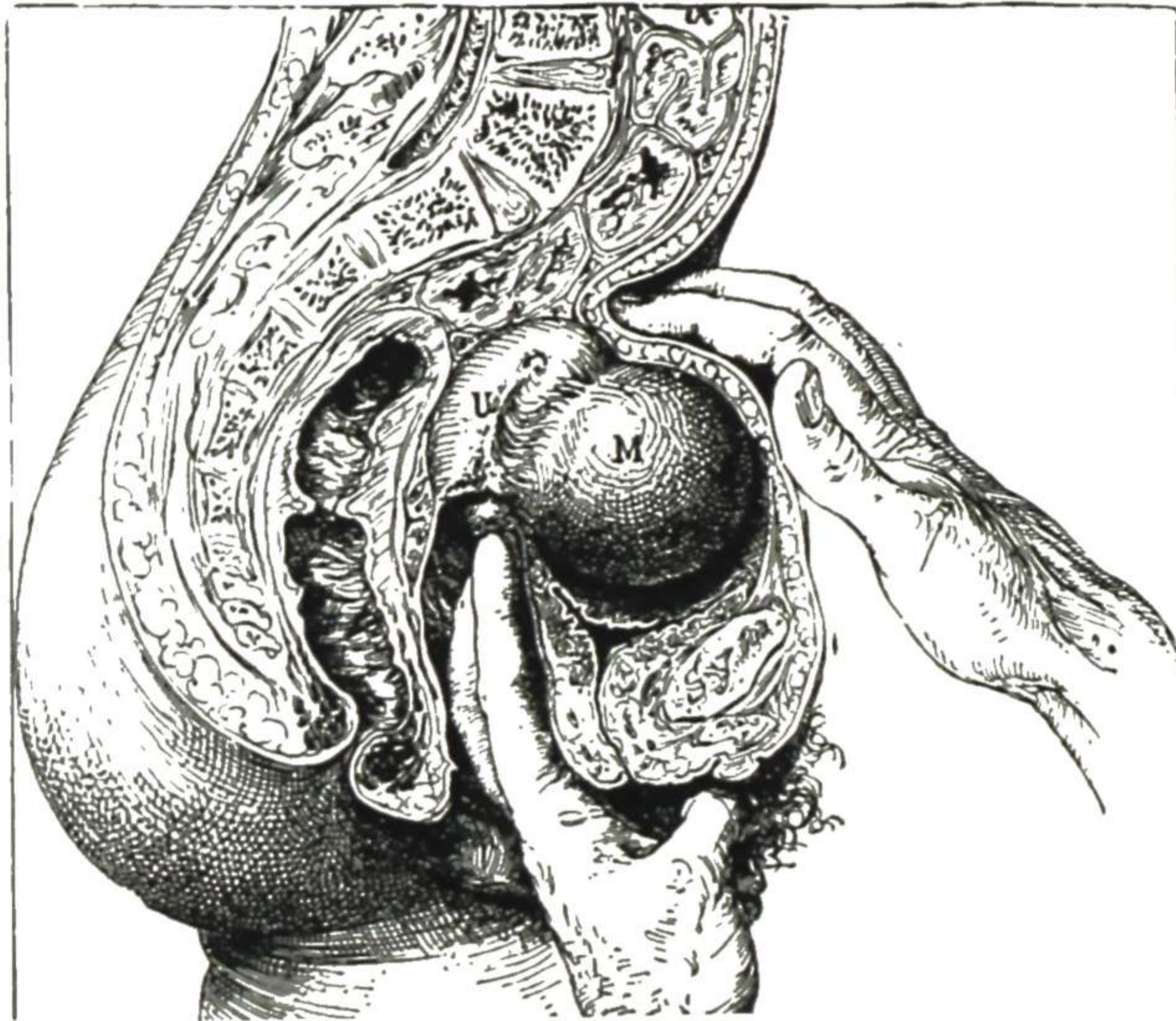


Fig. 221.—Method of determining how intimately a mass is attached to the uterus. Palpating the sulcus between the two. (Kelly—*Operative Gynecology*, D. Appleton-Century Company.)

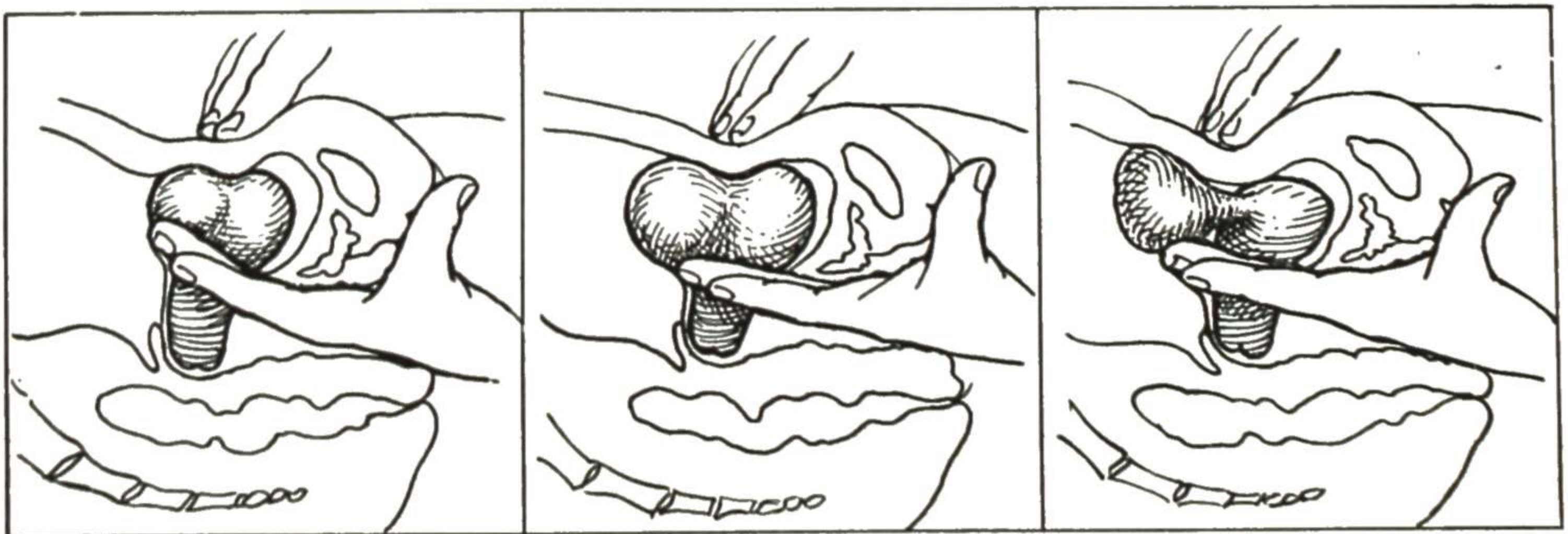


Fig. 222.

Fig. 223.

Fig. 224.

Fig. 222.—Bimanual examination, small nodule high on uterus.

Fig. 223.—Bimanual examination, large nodule high on uterus.

Fig. 224.—Bimanual examination, pediculated nodule high on uterus.

4. **Consistency of Corpus Uteri.** Is it apparently a firm, solid body or does it contain fluid, or are there hard nodules in it, or is there marked softening as in pregnancy (Figs. 225 to 228)?

5. **Tenderness of Corpus Uteri.** Does pressure on the uterus cause pain or does the attempt to move it cause pain?

6. **Mobility of Corpus Uteri.** Can the uterus be moved freely up and down, to right and left, forward and backward, or is it fixed more or less firmly by an inflammatory exudate or by a tumor?



Fig. 224A.—Identifying retrodisplacement of the corpus uteri. The corpus cannot be felt in front, and posteriorly it can be felt as a mass which is continuous with the cervix—that is, the cervix can be traced to the mass and seems to expand into it. (Netter—Sharp & Dohme Seminar.)

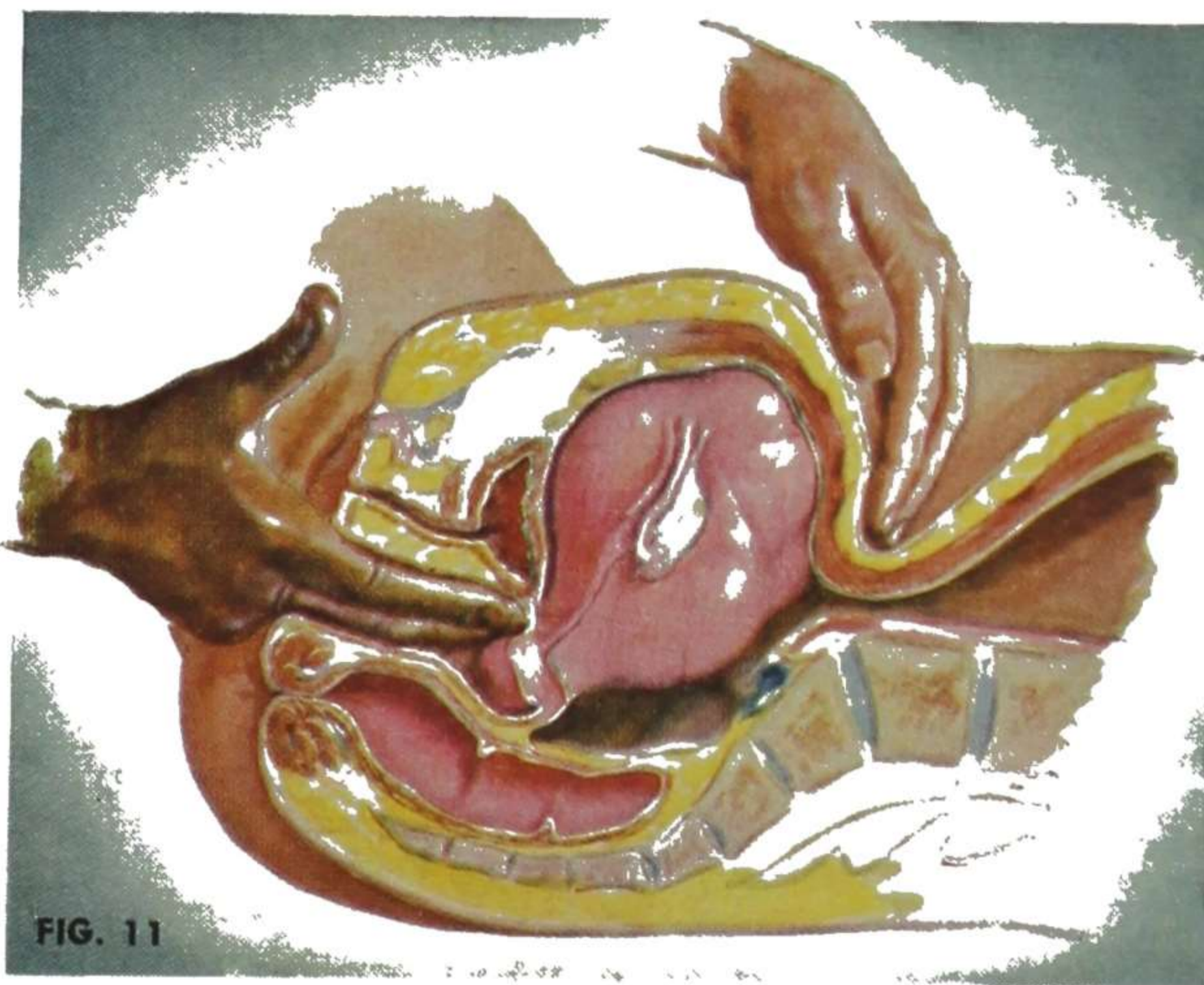


Fig. 224B.—Identifying enlargement of the corpus uteri. By tracing up the cervix as in Fig. 218, in front and at sides and back, the examiner determines that it expands directly into the mass. This identifies the mass as part of the uterus, in contradistinction to an extra-uterine mass. (Netter—Sharp & Dohme Seminar.)



Fig. 225.—A sectional uterus in early pregnancy, showing the two halves and the interior arrangement which gives Hegar's sign. (Edgar, after Pinard—*Practice of Obstetrics*, The Blakiston Company.)

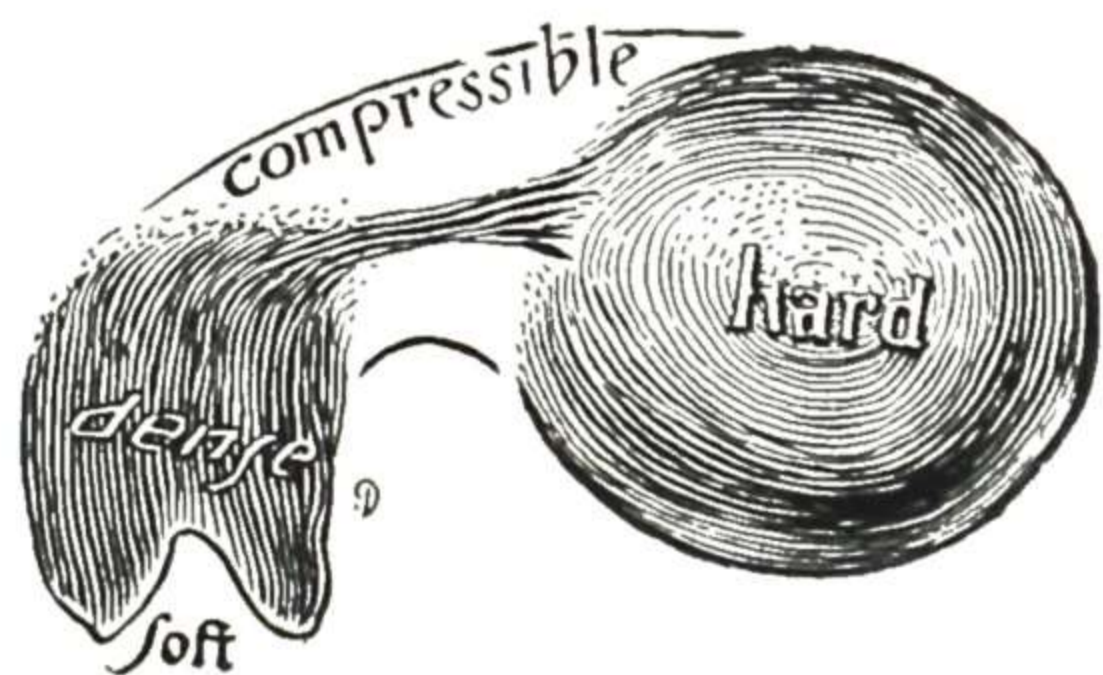


Fig. 226.—Showing the sensations imparted to the examining fingers by different portions of the uterus in early pregnancy, particularly the marked compressibility of the portion just above the internal os (Hegar's sign). (Dickinson—*American Text-book of Obstetrics*, W. B. Saunders Company.)

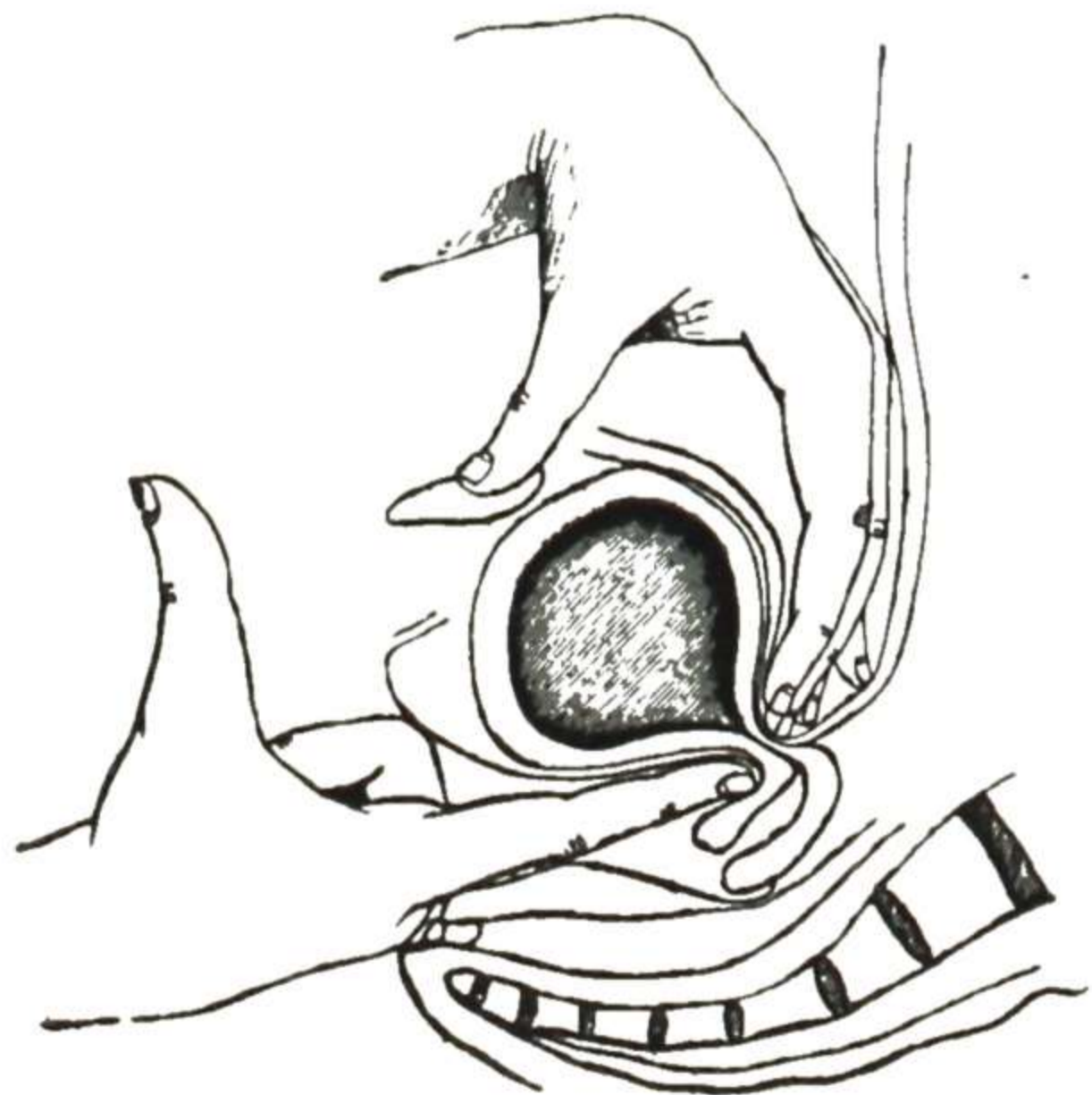


Fig. 227.—Palpating for Hegar's sign, with the uterus forward in the usual position. (Edgar—*Practice of Obstetrics*.)



Fig. 228.—Palpating for Hegar's sign, with the fundus uteri pushed backward, the abdominal fingers being in front and the vaginal fingers back of the cervix. (Williams—*Obstetrics*, D. Appleton-Century Company.)

7. **Attachment of Corpus Uteri.** Does the uterus seem to be attached or fixed to the pelvic wall at some point? If so, where and by what?

In determining the various facts about the uterus, material assistance is given in some cases by separating the fingers laterally, as indicated in Fig. 218, or by separating them anteroposteriorly, placing one finger behind and the other in front of the cervix.

When a mass is found in the vicinity of the uterus, its exact relation to the uterus is to be determined as accurately as possible, particularly whether it is a growth from the uterus or is simply lying against that organ. Fig. 229 indicates the method of determining how intimately a mass is attached to the uterus. When it is impossible to reach the various parts of the uterus sufficiently to obtain the necessary information, the cervix may be caught with a tenaculum forceps and the uterus pulled somewhat downward as shown in Fig. 230.

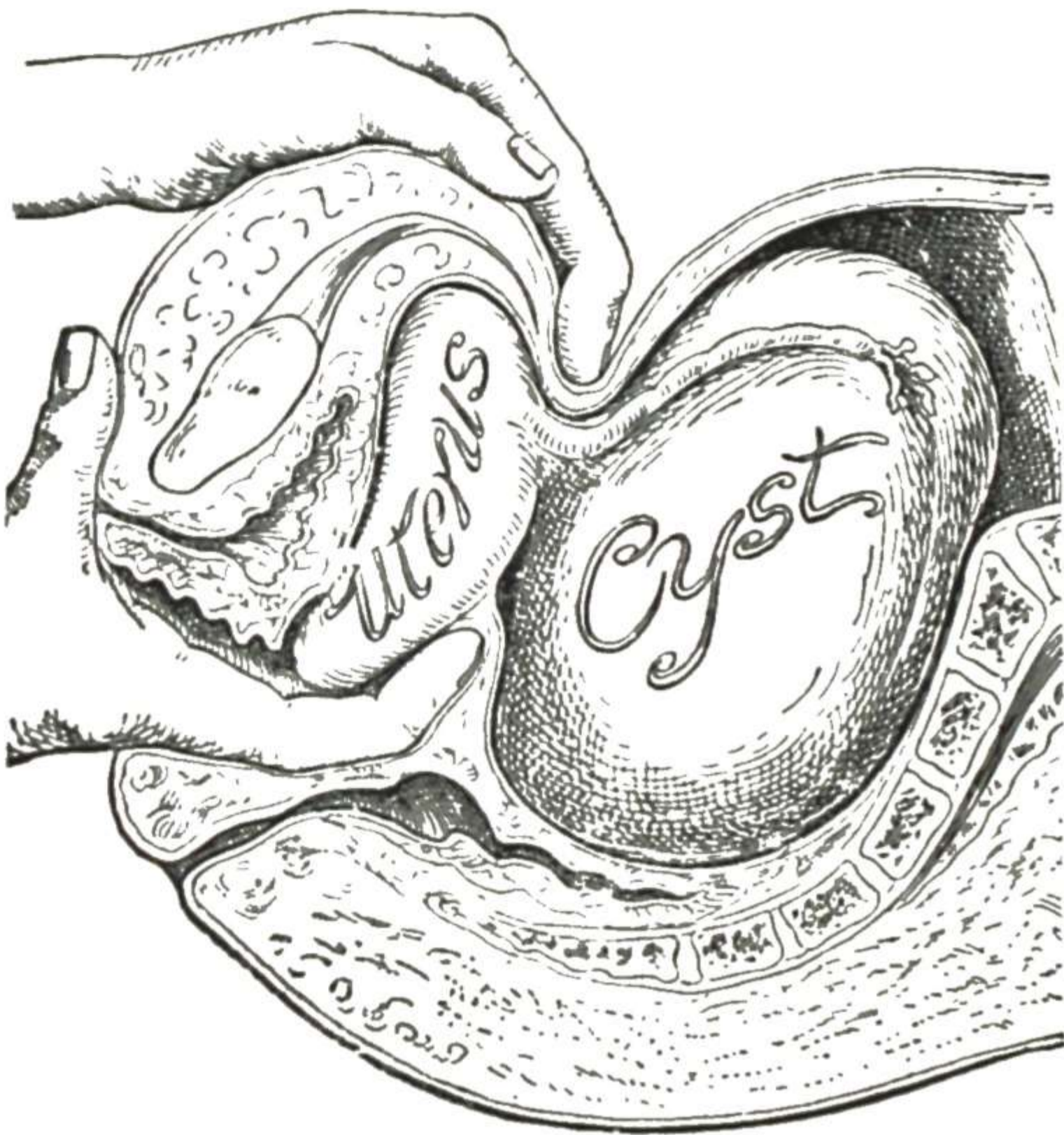


Fig. 229.

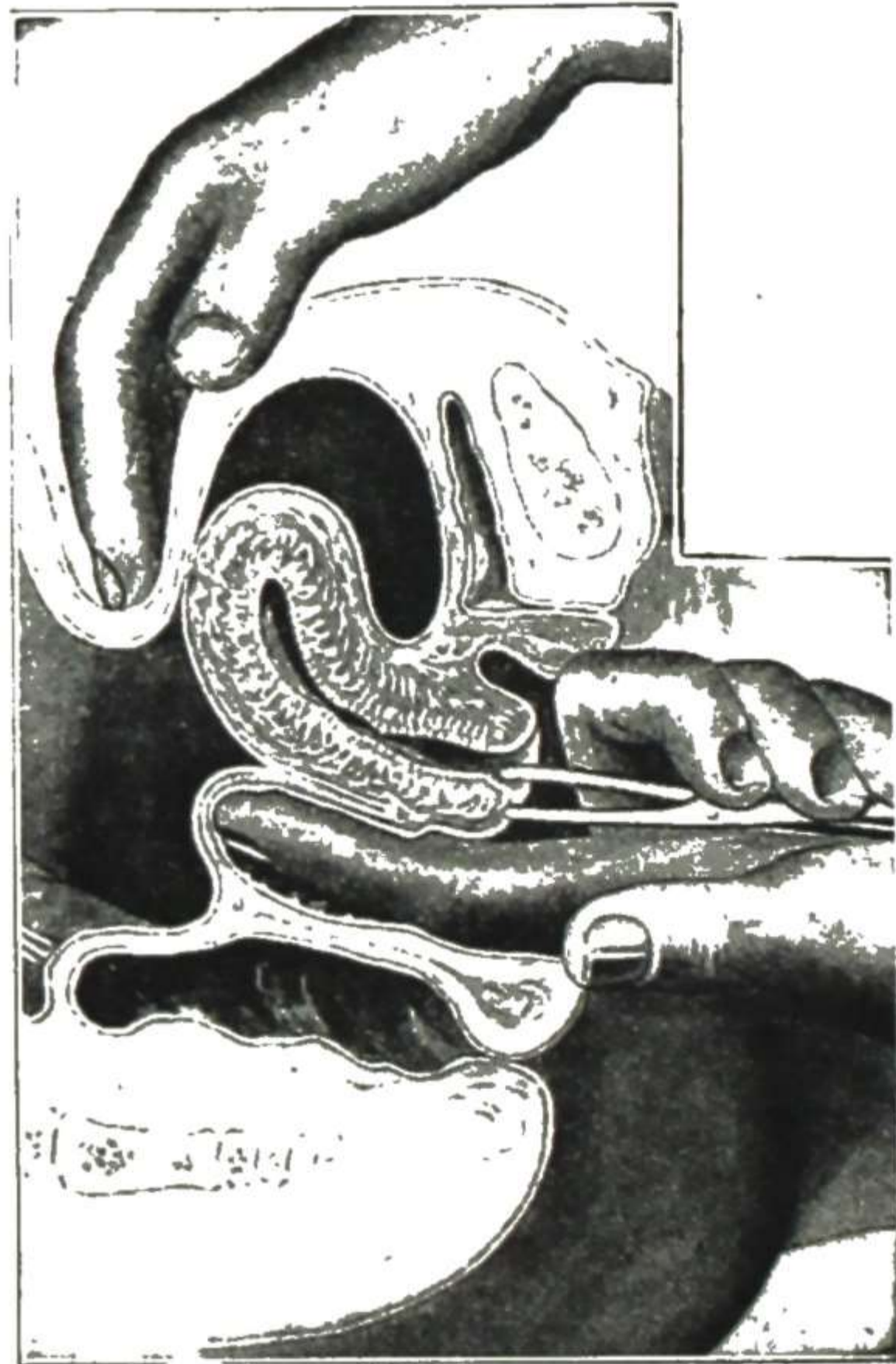


Fig. 230.

Fig. 229.—Determining what attachment there is between the uterus and a mass back of it. The uterus is caught between the hands and brought forward, and the examining fingers are crowded in between the uterus and the mass. (Ashton—*Practice of Gynecology*.)

Fig. 230.—Drawing the uterus down with a tenaculum forceps to bring it within reach of the examining fingers. (Dudley—*Practice of Gynecology*, Lea and Febiger.)

## PALPATION OF LATERAL REGIONS OF PELVIS

### Tubes and Ovaries, Mass, Induration, Tenderness

In this region, on each side, lies the large area of connective tissue, beside the cervix and lower part of the corpus uteri. Here induration from inflammation or other cause is felt at once, low about the cervix, just under the vaginal wall. Higher, beside the uterus, lie the fallopian tube and the ovary. They are near the upper part of the broad ligament and so close together that ordinarily it is impossible to say, simply from the position of a mass there, whether it springs from the tube or from the ovary. Hence the region is

spoken of as the "tuboovarian" region, as both organs lie there. It is also called the "adnexal" region, the tube and ovary of each side being considered the adnexa of the uterus. The method of palpating in different conditions is indicated in Figs. 231 to 233. The tuboovarian region lies high and to palpate it satisfactorily requires special care.

### Steps in Palpation of the Lateral Regions

In palpating the tuboovarian region of either side, proceed as follows:

1. Place the tips of the vaginal fingers to that side of the cervix, and then push them backward and outward and upward as far as possible.

In order to carry the finger tips sufficiently far into the posterior lateral area of the pelvis, it is necessary to push the perineum for some distance into the pelvis. This is best accomplished usually by utilizing the force of the body muscles, transmitted to the elbow either through the knee (Fig. 234), with the foot on a small stool, or through the iliac crest (Fig. 235). This leaves the arm muscles free for the deep delicate manipulation necessary to accurate palpation of the pelvic contents.

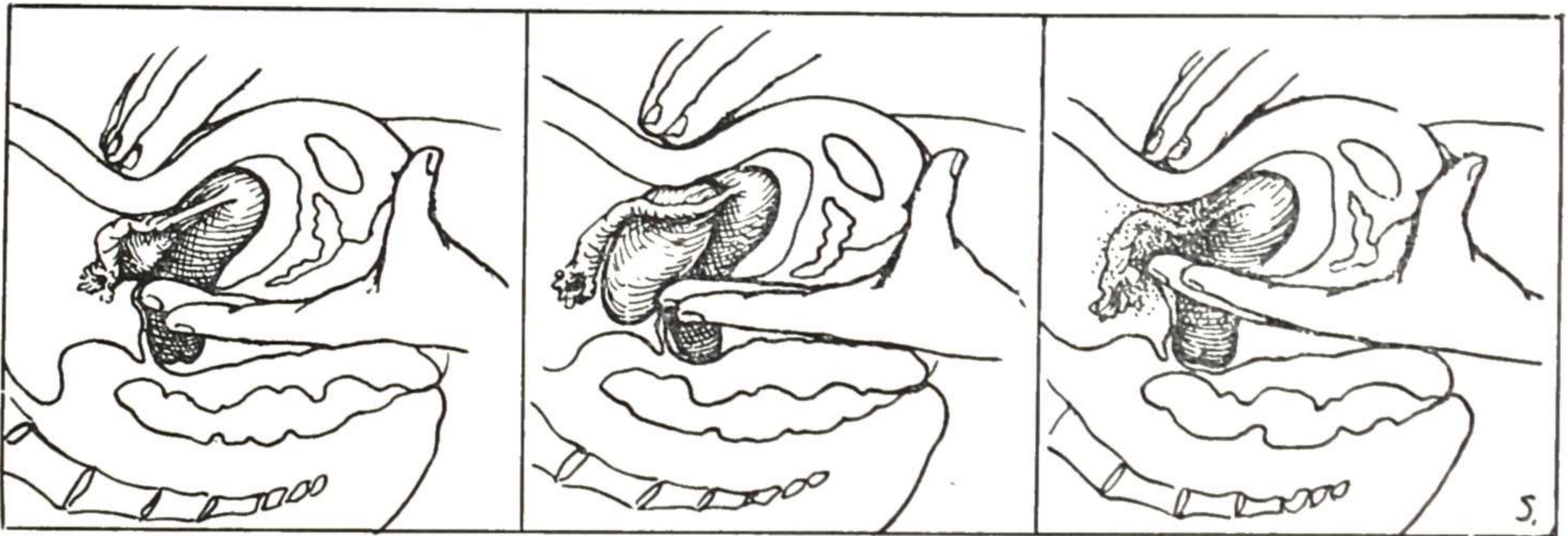


Fig. 231.

Fig. 232.

Fig. 233.

Fig. 231.—Bimanual examination, normal adnexa.

Fig. 232.—Bimanual examination, distinctly outlined adnexal mass.

Fig. 233.—Bimanual examination, adnexal induration from infiltration.

2. With the abdominal fingers locate the anterosuperior spine of the ilium on that side and then bring the fingers directly inward (not downward toward the pubes, but directly inward or slightly upward) toward the median line for about two inches (Fig. 236).

3. Then, at that point, depress the abdominal wall into the posterior part of the side of the pelvis until the tips of the abdominal fingers come close to the tips of the vaginal fingers (Fig. 237). This brings the fingers near to each other **back** of, or at least in the region of, the tube and ovary.

4. If the adnexa are not felt in the back part of the pelvis, then bring the fingers of the two hands, held in the same relation to each other, slowly downward toward the pubes. In this way the tube and the ovary are made to pass between the examining finger tips and may be felt if decidedly enlarged.

In these manipulations the palpation proper is made principally with the vaginal fingers, the abdominal fingers serving simply to push the structures down within reach of the fingers below.



Fig. 234.—Invagination of the perineum and pelvic floor, the force being applied through the knee. The arrow indicates the direction of the force.



Fig. 235.—Another method of invaginating the pelvic floor. The force is transmitted through the iliac crest to the elbow as indicated by the arrow.



A **common error** is to bring the tips of the examining fingers together too close to the pubes (Figs. 238, 239); hence the palpation is of the tissue in front of the tube and ovary, even if they are in normal position. It must be kept in mind also that the tube and ovary are likely to be displaced, especially if diseased, and the displacement is nearly always backward; hence the importance of getting far back in the side of the pelvis when endeavoring to palpate these structures accurately.

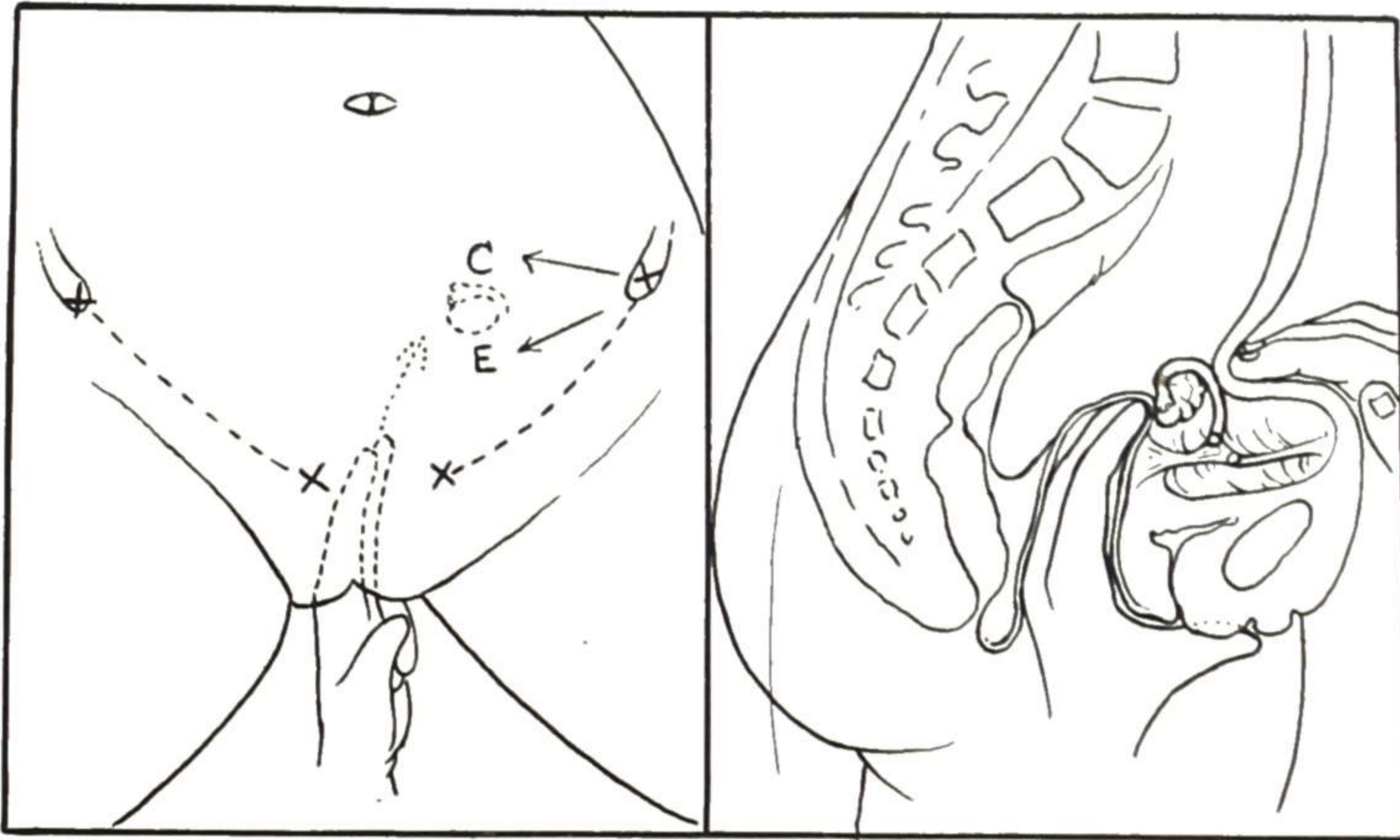


Fig. 236.

Fig. 237.

Fig. 236.—Steps in palpation of the left adnexa. *C* shows the correct starting point for the abdominal fingers, *E* shows erroneous starting position, causing fingers to miss adnexa, as shown in Fig. 239.

Fig. 237.—Bringing fingers together with ovary and tube between them.

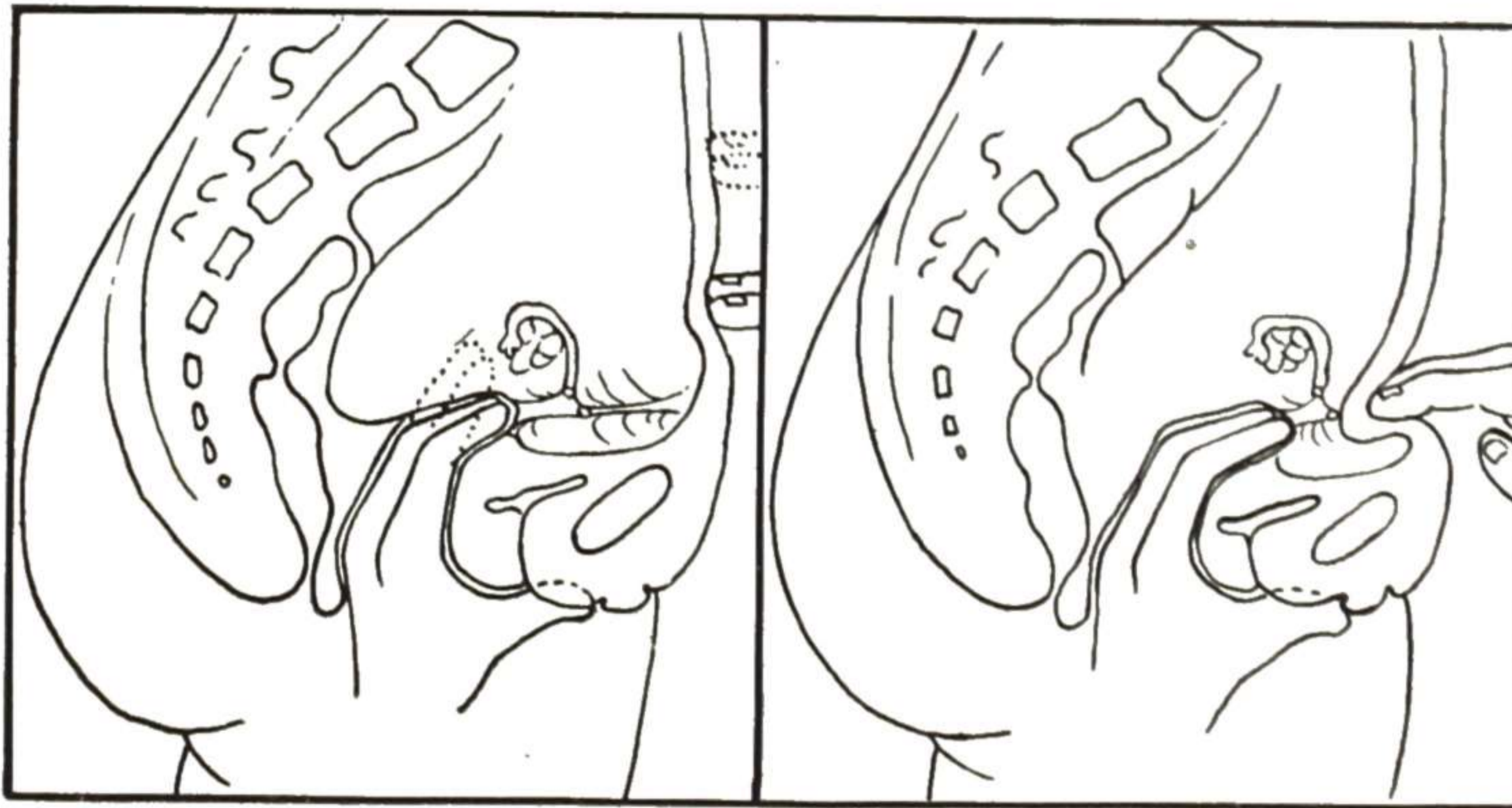


Fig. 238.

Fig. 239.

Fig. 238.—Illustrating common error. Starting abdominal fingers too close to the pubes and in front of the tube and ovary. Correct position of fingers shown in dotted outline.

Fig. 239.—Showing how the fingers come together *in front* of the ovary and hence miss that area.

In order to avoid this error, be certain that the point of depression of the abdominal wall is well above the tuboovarian region, so that when depressed into the pelvis it will lie back of the tube and ovary.

By proceeding gently, so as not to excite contraction of the abdominal muscles, and at the same time steadily pressing the two sets of fingers toward

each other, a little with each expiration, the finger tips may be brought almost together in the various parts of the pelvis. In order to succeed, however, the abdominal wall must be depressed at the right place (Fig. 240) and deeply (Figs. 241 and 242).

### Facts to Determine

In the exploration in the tuboovarian region, take particular care to search for:

**Tube and Ovary**—Usually not felt if normal.

**Abnormal Mass**—Enlarged Tube or Ovary, Exudate, Tumor.

**Induration**—Inflammatory Infiltration or Exudate, Adhesions, Scar Tissue.

**Tender Area**—Normal Sensitiveness of Ovaries, Inflammation, Hyperesthesia, Tenderness from other cause.

**Tube and Ovary.**—In many cases the normal tube and ovary cannot be distinctly felt, even by the experienced examiner, and the inexperienced will find it difficult even in comparatively easy cases. When the tube or ovary is decidedly enlarged, it can be felt to slip between the examining fingers as a distinct thickening or as a small rounded mass.

After locating the adnexa, as above described, it is sometimes advantageous to try to trace the tube out from the uterus. The fundus uteri is located, the examining fingers (vaginal and abdominal making united counterpressure) pass to the upper outer angle, and then feel for the tube as it leaves the uterus and runs along the top of the broad ligament. The best place to locate it usually, when not abnormally indurated, is just beyond the angle of the uterus. It is a much firmer cord here than farther out where the cavity becomes large and the tube soft.

The normal fallopian tube may be felt in a suitable case (thin patient with relaxed abdominal wall and relaxed pelvic floor), in the position indicated, as a small soft cord about the size of a slate pencil. It presents very much the consistency of a piece of rubber tubing. It may, in a suitable case, be traced outward and is then lost in the region of the ampulla, where the tube becomes very soft and the ovary comes into prominence as a soft, rounded, movable body, a trifle larger than the end of the thumb and sensitive to pressure. When the tube is inflamed it is firmer and more easily felt. Usually, however, when the inflammation is at all severe, adhesions or plastic exudate surround the tube and ovary, binding them and the surrounding structures together in one mass and making their separate differentiation impossible.

If on examination the pelvic tissues are all soft and yielding, and no particular pain is caused by the palpation, you may be certain that the tubes and ovaries are not seriously diseased, though you may not have felt them.

**Mass in Lateral Part of Pelvis.**—The pelvic tissues, with the exception of the uterus, are soft and yielding, and any firm body may be felt through them, either a tumor or an inflammatory exudate or a firm blood clot. Fluid blood or serous exudate cannot be felt unless it is encapsulated. If a mass is found to either side of the uterus, determine concerning this mass the same facts that you did concerning the uterus—namely, its position, size, shape, consist-

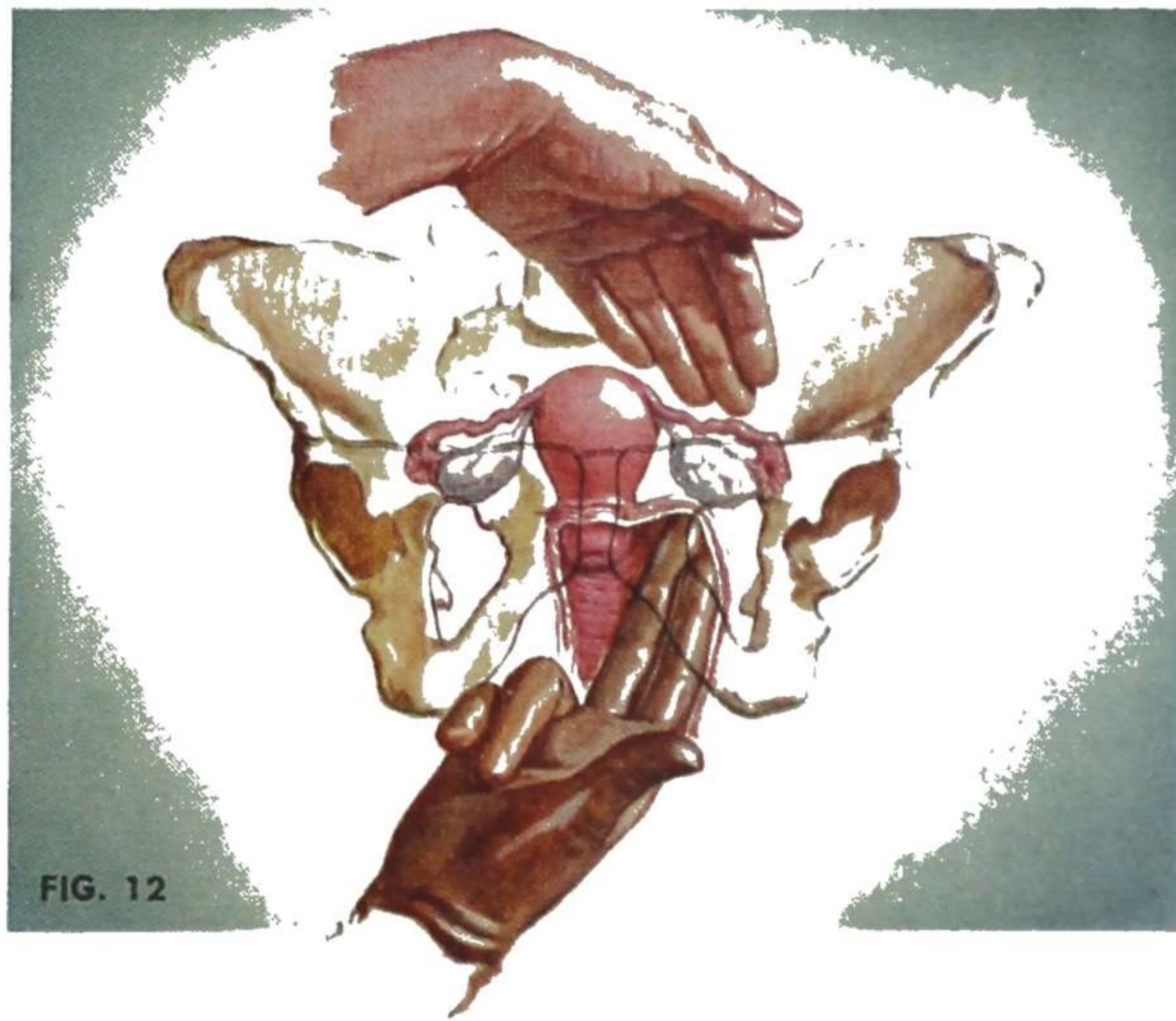


Fig. 239A.—Palpating the adnexal areas. For the detailed steps, see Figs. 234 to 239. It is well to train the fingers of one hand for the difficult inside palpation, so that accuracy may be increased as additional examinations are made. Either hand may be used. Such use of the right hand is illustrated in these colored drawings. The authors of this textbook prefer the left hand, as indicated in the photographs in Figs. 240 to 242. In palpating the lateral areas it may or may not be possible to identify the ovaries definitely, depending on the thickness and tension of the abdominal wall and the size of the ovaries in that patient. (Netter—Sharp & Dohme Seminar.)

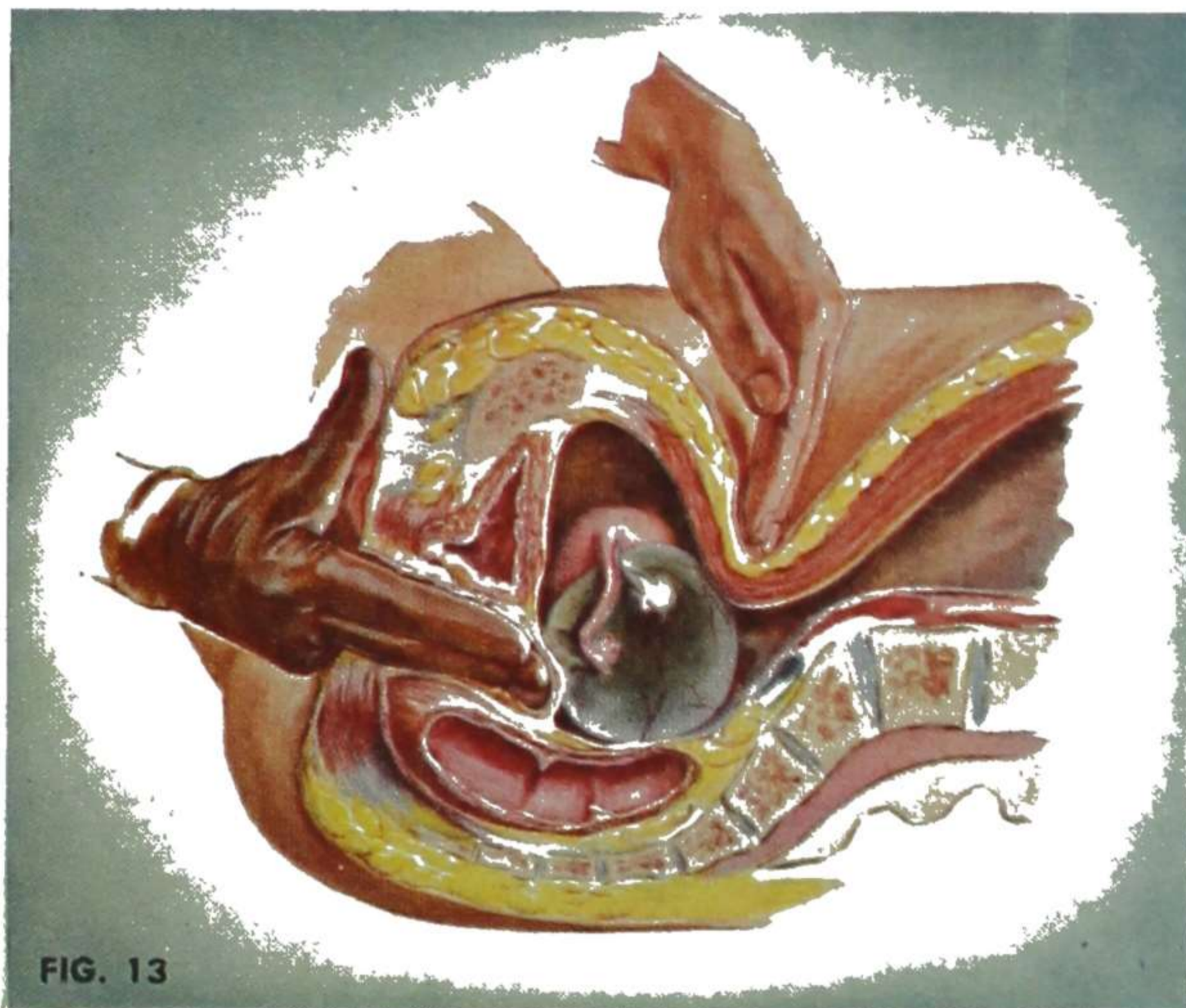


Fig. 239B.—Identifying a cystic tumor in the lateral area of the pelvis. Such a growth is usually from the ovary, but may come from the parovarium. A principal point in identifying a mass as adnexal rather than uterine, is the notch extending up between the mass and the uterus—that is, the cervix does not expand into the mass. (Netter—Sharp & Dohme Seminar.)



Fig. 240.



Fig. 241.

Fig. 240.—Palpation of the left lateral region. Placing the fingers of the abdominal hand. They should be on a level with, or a little above, the anterosuperior spine (indicated by the cross).

Fig. 241.—Palpation of the left lateral region. Depressing the abdominal wall deeply into the pelvis.



Fig. 242.—A view from another direction, showing the marked depression of the abdominal wall necessary in deep pelvic palpation.

ency, tenderness, mobility, and attachments. Determine particularly whether or not it is attached to the uterus, and, if so, whether by a broad attachment or by a narrow one.

**Induration in the Lateral Part of Pelvis.**—In some cases where there is no distinct mass felt, there is a very definite hardening of tissues at some point. Instead of the tissues being soft and pliable, and easily pushed before the examining finger, as they are normally, there is a stiffness and fixation and resistance, as though there were infiltration and thickening, and the structures beyond cannot be satisfactorily palpated. This resistance and fixation of tissue without a well-defined mass is designated by the term "induration." It may be due to infiltration (inflammatory, tuberculous, malignant) of the tissues, to inflammatory exudate on surfaces, to adhesions, to scar tissue, or to a tumor not yet developed far enough to form a distinct mass.

**Tender Area in Lateral Part of Pelvis.**—The ovaries are usually rather sensitive on bimanual palpation, and allowance must be made for this normal sensitiveness when estimating the diagnostic significance of tenderness in this region.

Tenderness on palpation may accompany almost any pathologic condition in the pelvis, but it is especially marked in inflammatory trouble, in peritoneal irritation from blood in the peritoneal cavity and in neuralgic affections of the pelvis.

#### PALPATION OF OTHER REGIONS

In the same way, as already described, careful exploration is made of the following regions:

**Posterior Part of Pelvic Cavity**—Mass, Induration, Tenderness.

**Anterior Part of Pelvic Cavity**—Mass, Induration, Tenderness.

**Ureteral Regions**—Mass, Induration, Tenderness.

**Pelvic Nerve Trunks**—Tenderness.

**Lower Abdomen**—Tension, Tenderness, Mass.

If a mass is found in any of these regions, determine as accurately as possible its position, size, shape, consistency, tenderness, mobility, and attachments. The anterior rectal wall is applied closely to the posterior vaginal wall. Turn the examining fingers so that the palmar surfaces are directed backward, and palpate the rectum. Fecal masses in the lower part of the rectum cause no trouble in diagnosis, for in that location their character is easily recognized. In the upper part of the rectum, however, and in the sigmoid region such a mass may cause confusion in diagnosis, for it may resemble a prolapsed ovary or an inflammatory mass in the cul-de-sac or about the tube.

The distinguishing characteristics of a **fecal mass** are three: (a) it is not particularly tender, (b) it is usually of puttylike consistency and may be dented, the dent remaining, and (c) it may sometimes be pushed along to a different position in the bowel.

The method of determining whether a mass is attached to the posterior surface of the uterus, and, if so, how intimately, is shown in Fig. 229, where the sulcus between the uterus and the mass is being palpated to determine its depth. In the case of a tumor with a long pedicle, it is well to have an assist-

ant hold the tumor up in the abdomen out of the way, while the examiner, by bimanual palpation, feels whether or not there is any connection with the uterus or appendages. Also, the uterus may be caught with a tenaculum forceps and pulled downward (Fig. 230), assisting still further in palpation. Another point is that in the case of a broad attachment to the uterus the mass and uterus move as one body, whereas with a slender attachment the two may be moved separately.

The bladder and other tissues in front of the uterus should be palpated to determine whether there is any mass or any marked tenderness.

The region of the ureter on either side is an interesting area which is usually overlooked in pelvic palpation. The ureter extends on each side from the base of the bladder backward, outward and upward, about half an inch from the cervix uteri. Ordinarily it is not felt. In a suitable case, however,

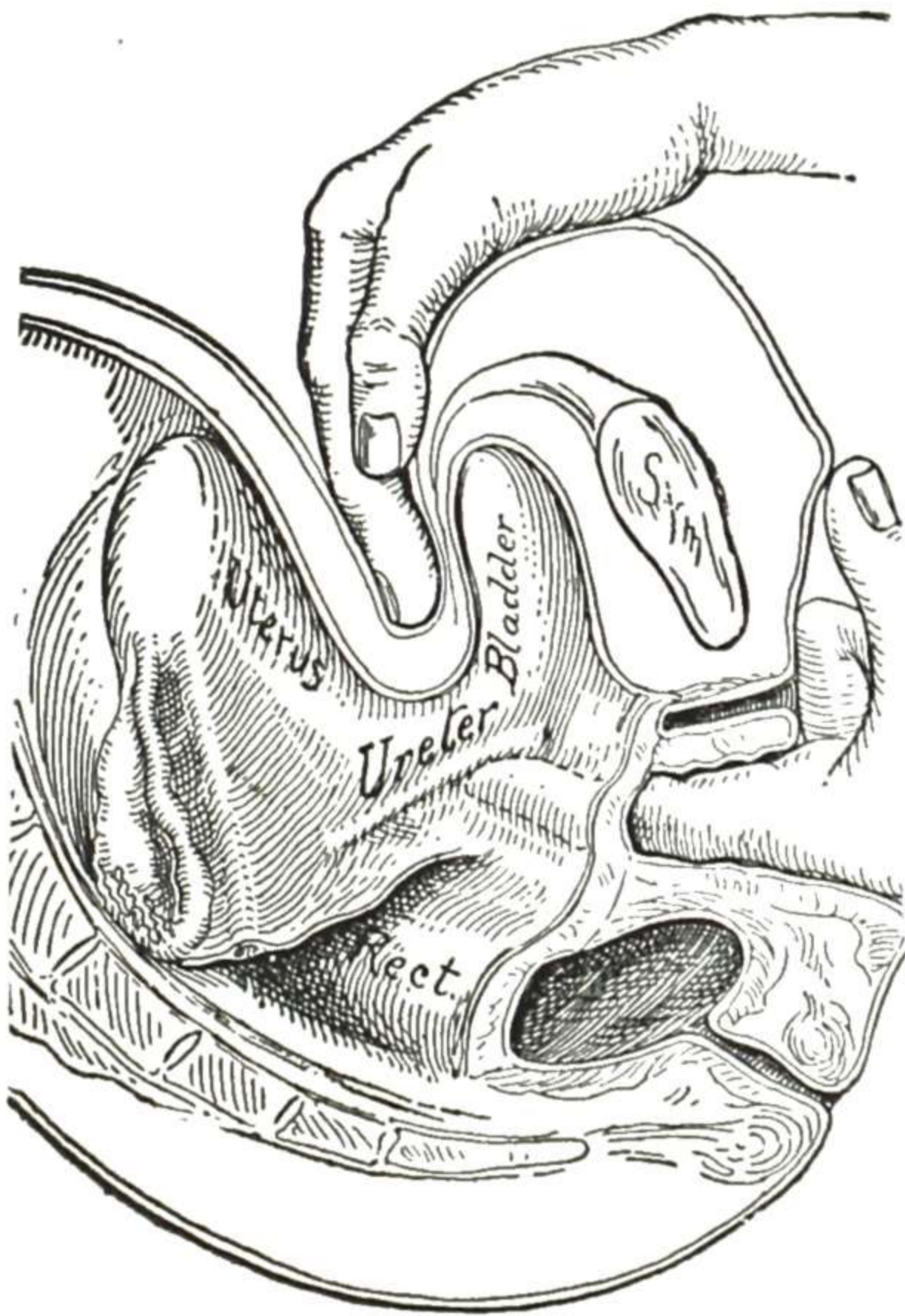


Fig. 243.

Fig. 243.—Palpating the region of the right ureter. (Ashton—*Practice of Gynecology*.)

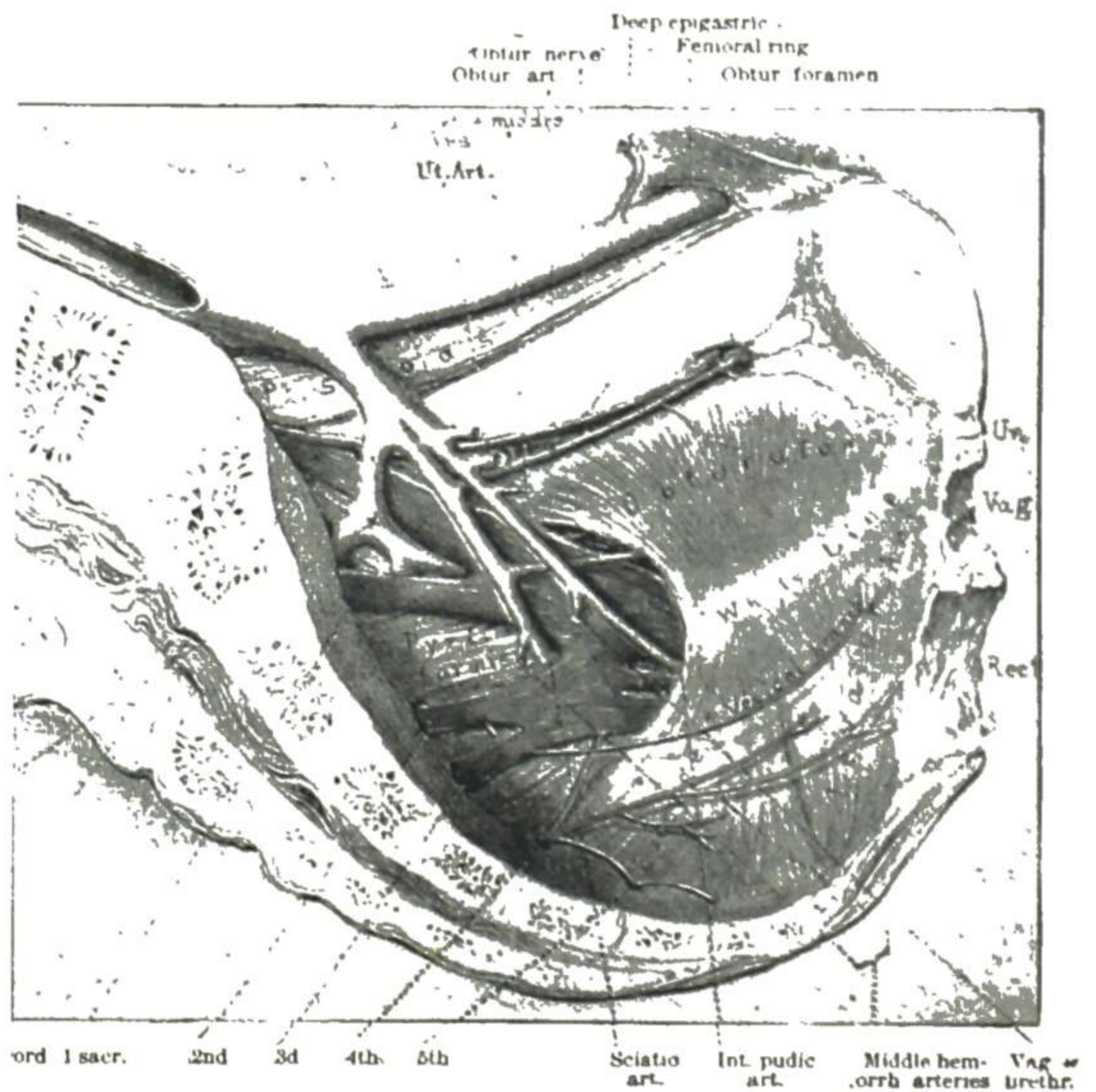


Fig. 244.

Fig. 244.—Showing the exact situation of the large nerve roots in the pelvis. In the illustration they appear a shade darker in color than the other structures. (Kelly—*Operative Gynecology*.)

it may be felt as a rather indefinite cord or line of tension, extending from the base of the bladder in the direction indicated. Fig. 243 indicates the method of palpating this region. If inflamed, the ureter is tender on pressure. If infiltrated and thickened, it is easily felt. If a stone is lodged in the lower portion of the ureter, it may be felt. In this way one of the authors was able to determine that a stone was lodged in the left ureter, a short distance from the bladder, in the case of a pregnant woman with such sudden severe pain and threatening symptoms that it was at first feared that the trouble was a rupture of an extrauterine pregnancy. The patient eventually recovered and carried the child to term.