

The *Uncinaria americana* or its European equivalent (*Anchylostoma duodenale*) is recognized most easily by the identification of its eggs in the stools. These eggs are characteristic (see Plate II.), and "the only thing liable to be confounded with them is the ovum of *Ascaris lumbricoides* stripped of its heavy, bile-stained outer shell (see Plate II.); but this has a double contour and contains a shapeless mass of granular matter not differentiated" (as most uncinaria eggs are) "into clear segments."<sup>1</sup> The greater

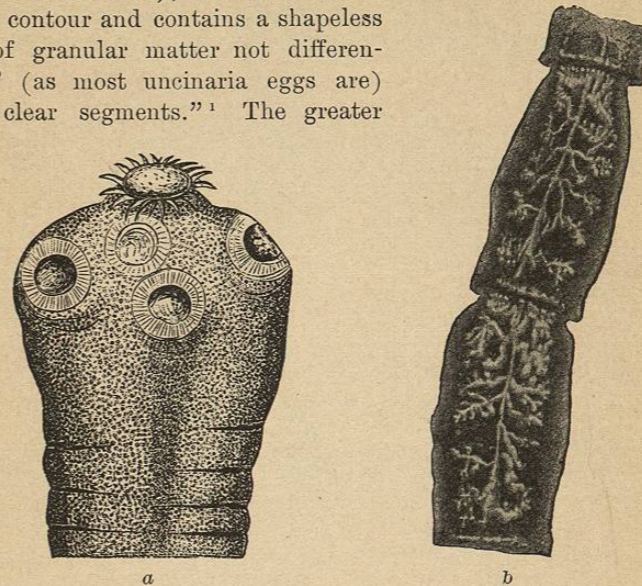


FIG. 184.—a, Head of *Taenia solium* (note crown of hooks); b, uterine canal in two segments. Only five to seven branches on each side.

size of the American hook-worm's egg compared to that of the European worm is shown in Plate II. "Free embryos are rarely if ever found in intestine. When free (worm-like) embryos are seen in the stools, they are generally those of the *Strongyloides intestinalis*" (see Fig. 187).

<sup>1</sup> All the quotations in this section are from the "Report of the Commission for the Study and Treatment of Anæmia in Porto Rico," by Ashford, King, and Igaravidez (December 1st, 1904), a study of 5,490 cases.

The ova of uncinaria catch the eye in a rapid examination, first, because they are "not generally bile-stained, but clear, whereas those of the commonly associated intestinal parasites are of a yellow to deep amber or brown color."

They are distributed quite evenly throughout the entire faecal mass; hence, in searching for them, the following method is advisable:

*Technique of Microscopic Examination.*—"A bit of faeces the size of a match head is removed with a toothpick and placed on a glass slide. Upon this is placed a cover glass and pressed down so as to give a clear

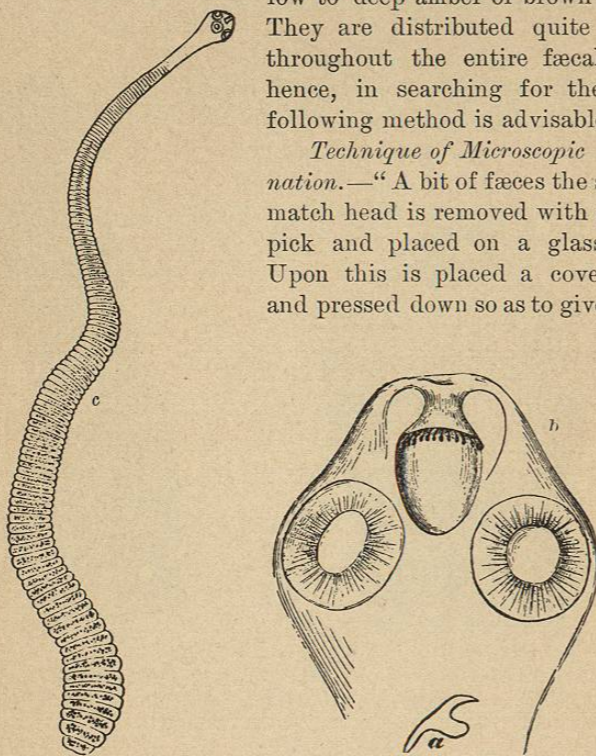


FIG. 185.—*Taenia nana* (Dwarf Tape-worm). *a*, Hooklet; *b*, head, greatly enlarged; *c*, whole worm, magnified about 10 times.

centre to the specimen. Do not add water. Examine with a one-third to two-thirds objective, a No. 4 ocular, and a partially closed diaphragm. If too much light is admitted the delicate ovum will be passed over."

The following interesting table (from the studies of Ashford, King, and Igaravidez in Porto Rico) shows, roughly, the relative frequency (in a tropical climate) of the common intestinal parasites

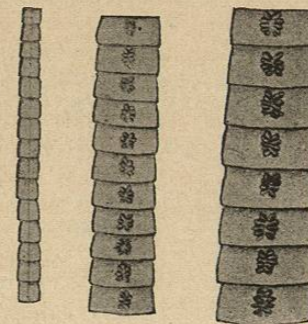


FIG. 186.—Segments of the *Dibothriocephalus latus* (Fish Tape-worm). Note the rosette-shaped uterine marking.

recognizable by their eggs. In the examination of the stools of 5,490 cases of uncinariasis they found as well:

<i>Ascaris lumbricoides</i> in . . . . .	1,408 (many others seen but not noted).
<i>Trichuris trichiura</i> in . . . . .	326 (many others seen but not noted).
<i>Strongyloides intestinalis</i> in . . . . .	36 (the embryo worms, not eggs).
<i>Bilharzia hæmatobium</i> in . . . . .	21 (frequently no careful search was made for this egg).
<i>Balantidium coli</i> in . . . . .	14
<i>Oxyuris vermicularis</i> in . . . . .	3
<i>Amœba coli</i> in . . . . .	3
<i>Taenia saginata</i> in . . . . .	2
<i>Taenia solium</i> in . . . . .	2

*Ascaris lumbricoides* has usually a thick, wavy ("mammillated") shell; but this is not always seen, and in its absence the egg is distinguishable from *Uncinaria americana* chiefly by the absence of the segmentation usually seen in the egg of the latter (see Plate II., *b*).

*Trichuris trichiura* (also called *Tricocephalus dispar*) has a thick shell, very dark-stained, and apparently pointed and perforated at

each end, instead of curving evenly over as the uncinaria egg does (see Plate II., c).

*Bilharzia* eggs are not at all uncommon in the fæces, though more often described in the urine, in connection with hæmaturia. The terminal spine at one end is their most characteristic feature (see Plate II., d).

The other eggs are briefly described in the explanatory text accompanying Plate II.

THE SPLEEN.

*Diseases of the spleen* (abscess, malignant disease) are almost never recognized during life. It is for evidence of splenic enlargement as a factor in the diagnosis of diseases originating elsewhere that we investigate the splenic region as part of the routine of abdominal examinations.

*Splenic enlargement* is detected chiefly by palpation. Percussion plays a minor rôle in the determination of the organ's size, and should never be relied on in the absence of palpable evidence. Palpation is easy, provided the organ is enlarged sufficiently to project beyond the ribs without forced respiration, but much practice is needed when the enlargement is slight, as in, for example, most cases of typhoid fever.

*Palpation of the Spleen.*

The co-operative action of both hands is as essential as in vaginal examination, and each hand must do the right thing at the right

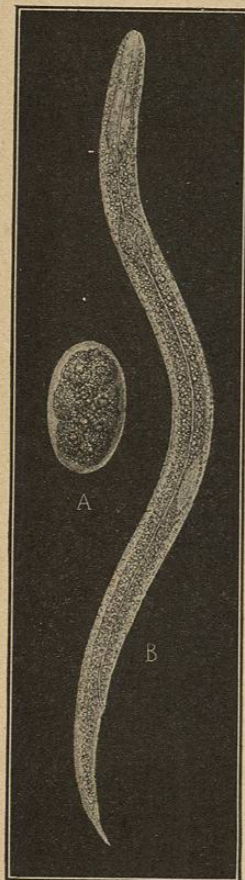
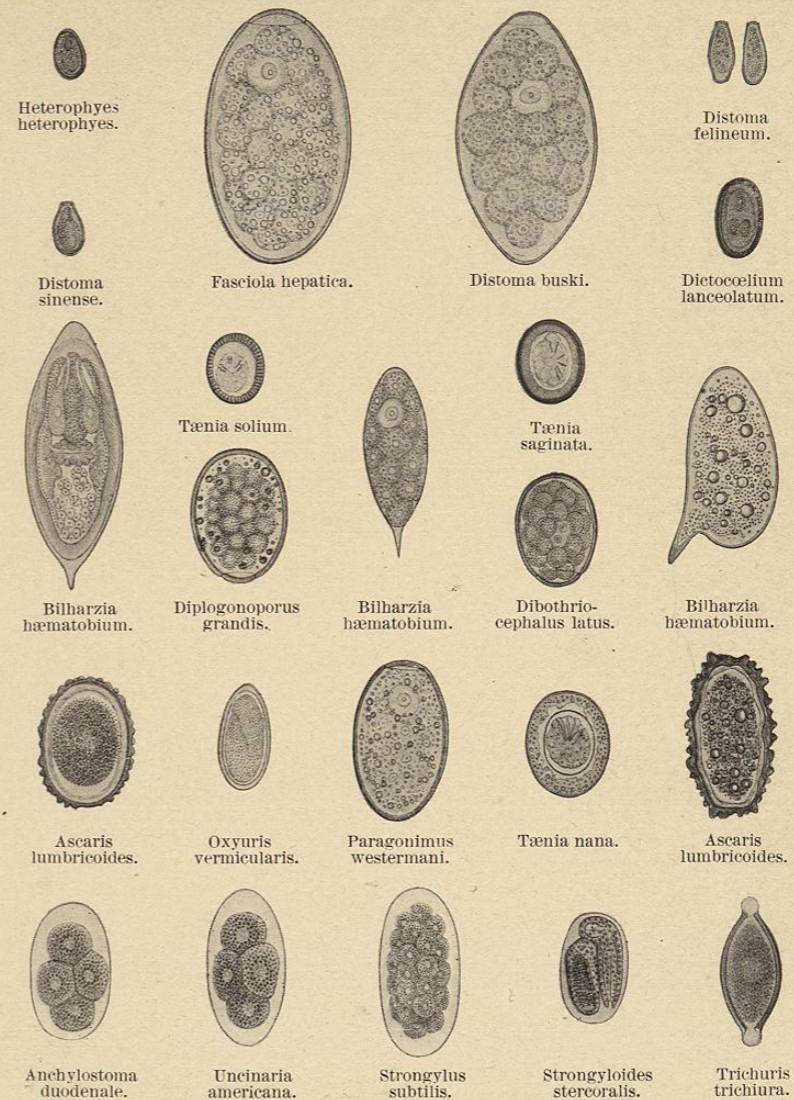


FIG. 187.—*Strongyloides stercoralis*. Magnified about 250 diameters. (After Thayer.)

CABOT—PHYSICAL DIAGNOSIS.

PLATE III.



DRAWINGS OF EGGS OF INTESTINAL PARASITES. All are magnified 250. (After Looss).

moment. The patient should be on his back, his head comfortably supported and his knees drawn up. The left hand, placed over the normal situation of the spleen, (*a*) draws the whole splenic region downward and inward toward the expectant finger-tips of the right hand; (*b*) at the same time the left hand should slide the skin and

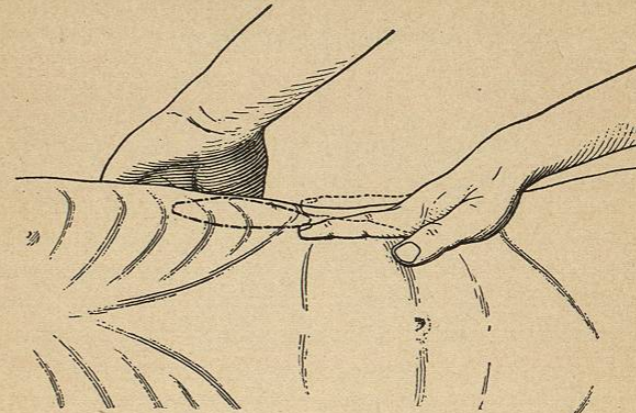


FIG. 188.—Position of the Hands in Palpation of the Spleen.

subcutaneous tissues over the ribs and toward the right hand (see Fig. 188), so as to leave a loose fold of skin along the margin of the ribs and give the palpating fingers a slack rather than a taut covering to feel through.

The right hand lies on the abdominal wall just below the margin of the ribs, and the fingers should point straight up the path down which the spleen is to move, *i.e.*, obliquely toward the left hypochondrium. With the hands in this position ask the patient to draw a full breath. Keep the hands still and do not expect to feel anything until near the end of inspiration. Then draw the hands slightly toward each other and dip in a little with the right finger-tips, so that if the spleen issues from beneath the ribs its edge will meet the finger-tips for an instant and spring over them as they rise from diving into the soft tissues (see Fig. 188).

Some physicians have the patient lie on the right side, and,

standing behind him, hook their fingers over the ribs in the left hypochondrium. In this way we may be able to feel the spleen at the end of a long inspiration, but I have never found this position as useful as that described above.

A hard, fibrous spleen (malaria) is much easier to feel than a soft one (typhoid).

*Percussion of the Spleen.*

Only when the edge of the spleen has been felt is it worth while to try to define its upper border by percussion. Normally there is dulness in the midaxillary line from the ninth to the eleventh ribs, corresponding to that part of the spleen that is most superficial. Its lower and posterior borders cannot be defined; its anterior edge is approximately in the midaxillary line (see Fig. 38). If this small area of dulness is enlarged upward and forward, and if the edge has been felt below the ribs, it is probable that the increased area of dulness corresponds to an enlargement of the organ.

*Causes of Splenic Enlargement.*

Slight enlargement of the spleen can often be detected in:

1. Rickets and other debilitating conditions of childhood with or without anæmia.
2. Malaria.
3. Typhoid fever.

In other acute infections slight enlargement can usually be made out post mortem, but not during life.

Marked enlargement (chronic) occurs in:

1. Chronic malaria—8 per cent of my series.
2. Hepatic cirrhosis—30 per cent of my series.
3. "Splenic anæmia"—4 per cent of my series.
4. Leukæmia (of any type)—35 per cent of my series.
5. Hodgkin's disease—6 per cent of my series.
6. Amyloid—1 per cent of my series.
7. Without known cause ("primary" or "idiopathic" splenomegaly)—12 per cent of my cases.

Rare causes are abscess, tuberculosis, malignant disease, perni-

cious anæmia, polycythæmia, hydatid, and Leishman-Donovan disease—all of these together make 4 per cent of my series.

*Differences Between a Large Spleen and Tumors* (of the kidney or other organs).—A large spleen is easily recognized after a little practice. *As it enlarges it keeps its shape* and advances obliquely across the belly toward the navel or (in marked cases) beyond it.

It is always *hard* and *smooth* of surface, although the edge nearest the epigastrium shows one or more *notches* which are very characteristic. The *edge is sharp*, never rounded, and the whole organ is very *superficial*, being covered only by the belly walls, so that if we inflate the *colon* (by forcing air into the rectum with a Davidson syringe), it *passes behind the spleen* and does not obliterate its dulness.

Tumors of the kidney fill out the flank, and an impulse can be transmitted to the lumbar region by bimanual palpation. They have no sharp edge or notches, are often irregular of surface, and not so superficial. The inflated colon passes in front of a tumor of the kidney and obliterates the dulness due to it.

All these differences hold for any other tumors likely to be confused with an enlarged spleen.

*Differential Diagnosis of the Various Causes of Splenic Enlargement.*

In *children* splenic enlargement without fever or leukæmic blood changes is to be classed as a manifestation of general debility. It has no special connection with any type of anæmia, though anæmia is often seen with it.

In *typhoid* the fever and the Widal reaction are generally sufficient to make clear the cause of the splenic enlargement; in active *malaria* the blood parasites are always demonstrable, and in chronic cases the history and the locality are significant.

*Hepatic cirrhosis* (and Banti's disease) should show evidences of portal stasis (ascites, jaundice, hæmatemesis).

*Splenic anæmia* means simply an anæmia of unknown origin associated with an enlarged spleen.

*Leukæmic* enlargement of the spleen is easily recognized by the characteristic blood picture.

*Hodgkin's disease* shows glandular enlargements in the neck, axillæ, and groins, with normal blood. Histological examination of an excised gland is necessary for diagnosis.

*Amyloid* can be suspected (never positively diagnosed) as the cause of an enlarged spleen, if there is a history of syphilis or chronic suppuration (hip abscess, phthisis, etc.).

## DISEASES OF THE KIDNEY.

*Incidence of Renal Disease (Massachusetts General Hospital, 1870-1905).*

Acute nephritis.....	200
Chronic glomerulo-nephritis.....	417
Chronic interstitial nephritis.....	250 <sup>1</sup>
Amyloid nephritis.....	9
Floating kidney.....	227
Stone in the kidney ..	145
Malignant disease.....	42
Tuberculous kidney.....	41
Pyonephrosis and abscess.....	54
Perinephritic abscess.....	35
Hydronephrosis.....	19
Cystic kidneys.....	10
Total.....	1,449

We get evidence of diseases of the kidney in three ways:

1. By external examination of the region of the kidney.
2. By examination of the urine.
3. By study of the etiology and of the more indirect constitutional effects of the renal trouble—fever, leucocytosis, emaciation, anæmia, uræmia, dropsy, cardiac hypertrophy.

*Local examination* acquaints us with the presence of tenderness and tumor.

(a) *Tenderness* is present usually in abscess of the kidney (tuberculous or non-tuberculous) and in perinephritic abscess, less often in connection with nephrolithiasis, occasionally in hydrone-

<sup>1</sup> Seven hundred and seventy-five other cases of "nephritis" not further specified.

phrosis and malignant disease. A floating kidney has usually an exquisite and peculiar sensitiveness to pressure, which differs from ordinary tenderness.

(b) *Tumor* in the kidney region may occur in *abscess* in or around the kidney (including tuberculosis of the kidney and pyonephrosis), *malignant disease*, *hydronephrosis*, and *cystic kidney*. The latter members of this list afford examples of the largest tumors associated with the kidney.

*Characteristics Common to Most Tumors of the Kidney.*

Renal tumors are best felt bimanually, one hand in the hypochondrium and the other in the region of the kidney behind, with the patient in the recumbent position. In this way the tumor may often be grasped and an impulse transmitted from hand to hand. It is usually round and smooth, often very hard, less often fluctuating. It descends slightly with inspiration. If the colon is inflated by forcing air into the rectum with a Davidson syringe, resonance appears in front of the tumor; this serves to distinguish it from tumors of the spleen which are pushed forward by the inflated colon as it passes behind them. Tumors of the kidney never present a thin and sharp edge, like that of the spleen. Occasionally they are irregular and nodulated—a condition almost never found in the spleen.

(a) *Malignant disease of the kidney*, which is usually sarcoma, is much commoner in children than in adults, and makes up the great bulk of the large abdominal tumors occurring in childhood. The characteristics of the tumor are those already described, except that in advanced stages the tumor pushes forward from its position in the loin until it may reach the umbilicus or even fill the abdomen. Nodular irregularities can usually be felt. There may be emaciation and anæmia, sometimes leucocytosis, and often hæmaturia. Fragments of the tumor are very rarely found in the urine.

(b) *Hydronephrosis and cystic kidney* may be indistinguishable from each other unless the hydronephrosis is intermittent and disappears with a great gush of urine, or unless the cystic kidney is bilateral—as, indeed, is usually the case. In both diseases a smooth,

round tumor forms in the loin and hypochondrium, usually without much constitutional disturbance and very frequently with a urine like that of chronic interstitial nephritis (see below) (see Fig. 189). Pain and tenderness are slight. The tumor may be astonishingly hard and often gives no sign of fluctuation. With cystic kidney it may be coarsely lobulated. Like other tumors of the kidney it descends slightly on inspiration. Cystic kidneys are often congenital, but usually produce no symptoms until they have attained a considerable size, and hence are often overlooked or discovered accidentally. In hydronephrosis the diagnosis may be assisted by etiological



FIG. 189.—Left Hydronephrosis.

hints, such as an abnormal degree of mobility of the kidney on the affected side, a history of renal colic with or without hæmaturia, or a prostatic obstruction.

(c) *Perinephritic abscess* usually works its way to the surface in the back, between the crest of the ilium and the twelfth rib. This was the situation of the external tumor in 25 out of 35 cases recorded at the Massachusetts General Hospital. A tender swelling appears at the point just described, sometimes with redness and heat, and almost always with fever, chills, leucocytosis, and some emaciation. The urine may show nothing abnormal or may show the evidence of cystitis, of concomitant nephritis, or,

rarely, of an abscess within the kidney itself. Perinephritic abscess often remains latent for weeks or months, and the amount of pus accumulated may be a quart or more.

(d) *Abscess of the kidney*, including tuberculous, suppurating kidneys and pyonephrosis, usually produces a smooth, round tumor in the hypochondrium and loin. It has the characteristics common to most renal tumors (see last page), but is usually distinguishable by:

1. The etiology (cystitis, stone in the kidney, tuberculosis elsewhere).
2. The presence of renal pyuria (see below, page 421).
3. The presence of fever, leucocytosis, and the usual constitutional signs of an infectious process.

(e) *Floating Kidney; Displaced and Movable Kidney*.—The tip of the right kidney is palpable in most thin persons with loose belly walls. If the whole organ is palpable but not movable, we speak of it as *displaced*. If the range of mobility is relatively great we call it *floating*; if relatively slight we call it *movable*. With bimanual palpation (as described above) we exert pressure just at the end of a deep inspiration and maintain it. During expiration something smooth and round may then be felt to slip upward between our hands toward the ribs. If the kidney “hides” behind the ribs, have the patient sit up, cough, and breathe deeply; then repeat the bimanual palpation as he lies on his back. Very movable or floating kidneys may be found far from their normal home, and are then recognized by: 1. Their size, shape, and “greasy” feel. 2. The sickening pain produced by pressure. 3. The possibility of replacing them.

#### *Renal Colic and Other Renal Pain.*

Typical *renal colic* is *paroxysmal*, like all colics; that is, an attack begins suddenly, ends suddenly, and lasts but a few hours or less. The pain usually begins in the back, over the kidney, and follows the course of the ureter to the groin. During an attack the testicle on the affected side may be tender and drawn up tightly by contraction of the cremaster.

When associated with hæmaturia or pyuria, with or without sudden stoppage of water during an attack and without any general or constitutional symptoms between attacks, renal colic is strongly suggestive of stone in the pelvis of the kidney; but similar attacks may occur with other surgical diseases of the kidney, with tuberculosis, with kinking of the ureter, and occasionally without any cause discoverable at operation.

From *biliary colic* it may be distinguished by the (a) different