of non-fixation of the cæco-colon. The relevant embryological aspects are discussed. Certain acquired factors are mentioned, and an attempt is made to elucidate the various forces which actually produce the torsion of the mobile cæcum as well as those which permit its occurrence.

4. The acute type appears essentially as an obscure and uncommon form of acute intestinal obstruction. Correct diagnosis is very unlikely, apart from the operative or autopsy findings. The recurrent variety occurs in the form of repeated attacks of abdominal symptoms which vary considerably in different individuals and at different times. It would seem that the diagnosis has never been established before a case has terminated in an attack of the acute type, when retrospect permits a more intelligent analysis of the history.

5. It is pointed out that it is both possible and probable that many cases of recurrent symptoms referred to the right lower quadrant of the abdomen, and usually carelessly classified as "chronic appendicitis", are really examples of temporary or partial volvulus of the cæcum. Certain points of value in differentiating such mechanical conditions from those with an inflammatory basis are mentioned. These cases merit a searching history, with special consideration of every aspect of their attacks in order to seek a true diagnosis. Where operation is performed, and such findings as a normal appendix with a saccular non-fixed cæcum leave room for doubt, the advisability of diminishing and/or fixing the cæcum deserves thought.

6. Treatment must be operative in either type. It must be early in the acute variety and adjusted to the needs and recuperative powers of the particular patient. The after-care is also important.

I wish to gratefully acknowledge the kind permission of Dr. M. G. Peever to give the details of Case 2, which was under his care.

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ACARIASIS OF THE URINARY TRACT CAUSED BY HISTOGASTER

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THE ordinary textbook description of cystitis rarely mentions mites as a cause. In the more specialized books on urology mention is made of parasites in the bladder but little space is given to any parasite other than Bilharzia.

Finding numerous mites in the urine of the case I am here reporting led me to search the literature of the last few years without success for case reports of a similar nature.

Chandler,[1] however, states in his textbook, "There are records of mites which are not normally parasitic at all, living and multiplying in the human bladder . . . Cases of parasitism of the intestine and urinary tract with mites of the family of Tyroglyphidæ and Tarsonemidæ are not infrequent."

The case I am reporting is as follows.

Miss C., aged 11, was brought to the office complaining of frequent desire to pass water. This had been present for the last three weeks. At times this desire would be every few minutes and the urge to urinate would still be present after the act. At other times she would be free for half a day or more. Lately she had had fewer periods of freedom and two miserable days forced her to consult the doctor.

Examination revealed a normally developed girl with no constitutional disturbance. In fact, she looked extremely well as she had just come back from a winter in Florida. The throat, chest and abdomen were negative. The urethral opening showed no signs of inflammation. A sample of urine was collected and she was given a simple potassium citrate mixture and told to return for further investigation the following day. Urinalysis showed a neutral urine with no sugar or albumin. Microscopic examination of a centrifuged sample showed epithelial cells in abundance and many pus cells. Several little mites about the size of scabiei were seen swimming around in the urine. The

drawings made of these are reproduced here. On the following day a very careful examination was made of the external parts for any trace of parasites, but none was found. A catheter specimen was taken and the living parasites were again easily demonstrated in the urine. A diagnosis of cystitis due to these parasites was made.

The girl was treated by thorough irrigation with boracic solution and one ounce of 5 per cent aqueous solution of mercurochrome was left in the bladder.

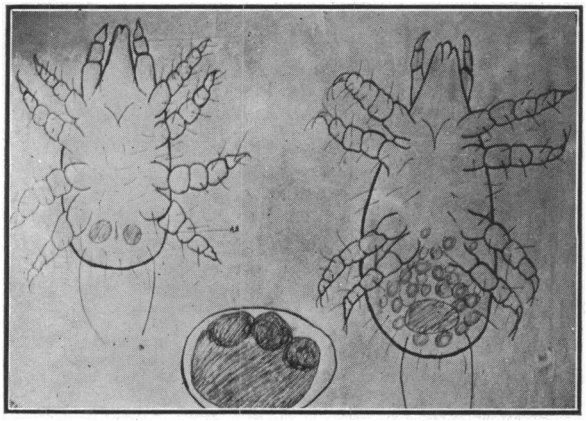

Fig. 1.—Male and female mite and mature ovum. Two round anal suckers are seen near the anus in the male. Many immature ova were present in abdomen of female.

After the first treatment there was almost complete cessation of symptoms. She was given three other treatments with one-day interval, and then kept under observation. No more parasites or ova were ever found in the urine and the patient has been completely cured.

With the aid of some friends in the Department of Biology the mite was classified as follows:

Phylum.—Arthropoda (jointed limbs).

Group.—Acarina (4 pairs of legs, 3 parts of body coalesced).

Family.—Tyroglyphidæ (no eyes, no trachea, 5 segments in legs, pedipalpi 3 segments).

Genus.—Histogaster (males have suctorial pores in abdomen).

Just how the mites got into the urinary bladder is difficult to understand. As the Tyroglyphidæ are found in cheese and all cereals their presence in the intestinal tract is easily explained. Patton[2] suggests that the mites burrow from the rectum to the bladder. This does not seem to me a reasonable explanation in the case of the female where the rectum is separated from the bladder by the uterus and broad ligament. It is much more reasonable to believe that the mites have a tendency to wander into cavities, and that they migrated from the anus to bladder and there reproduced.

My first impression on seeing this mite was that the cystitis was caused by bites or wounds made by the parasite, similar to the burrows of *Sarcoptes scabiei.* Chandler suggests that the irritation is caused by a specific poison secreted by the mite rather than by any wound it produces. The ease with which this case was cleared up, strongly supports the latter view.

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MANDELIC ACID IN THE TREATMENT OF PYURIA*

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A SURVEY of the literature on the treatment of pyelitis or pyuria during the past twenty years reveals that the methods employed were usually conservative and the drugs used were numerous. The drug therapy has consisted in the administration of alkalies, acids, acids alternating with alkalies, dyes, such as gentian violet and pyridine, urinary antiseptics, high vitamin diet, autogenous vaccines, and bacteriophages. Surgical procedures have consisted of pelvic lavage and ureteral drainage. Clinically, it is recognized that the patient is cured when there are no fever or urinary symptoms, and the urine has become pus-free though not always bacteria-free. With the use of any of the above therapeutic measures it has been possible to cure acute pyuria, but in treating persistent or chronic pyuria, that is, pyuria associated with obstruction in the urinary tract, the results have been indifferent.

It was recognized by Pasteur as early as 1879 that the life of the microbe was influenced by the acidity of the culture media, and in 1881 Koch used alkalies and acids as germicides. In

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