

taken for hydatids. Davies Thomas, of Australia, has tabulated 97 cases, including some of the *cysticercus cellulosæ*. According to his statistics, the cyst is more common on the right than on the left side, and is most frequent in the cerebrum.

The symptoms are very indefinite, as a rule, being those of tumor. Persistent headache, convulsions, either limited or general, and gradually developing blindness have been prominent features in many cases.

Multilocular Echinococcus.—This form merits a brief separate description, as it differs so remarkably from the usual type of the disease. About one hundred instances are on record, the great majority of which have occurred in Bavaria and in Switzerland. Only one case has been reported in the United States.* The patient was a German, who had been in the country five years. For a year previous to his death he was out of health, jaundiced, and somewhat emaciated. A fluctuating tumor was found in the right lumbar and umbilical regions, apparently connected with the liver. This was opened, and death followed from hæmorrhage. About a fourth of the right lobe of the liver was occupied by an irregular cavity with rough, ragged walls, which in places were from one to two inches in thickness and enclosed irregular small cavities. The lamellated cuticula characteristic of the echinococcus cyst was found lining these cavities. In some instances the tumor bears a striking likeness to colloid cancer, as on section it presents a fibrous stroma with cavities containing gelatinous material. They are often sterile—that is, without the hydatid heads or larvæ. This form is almost exclusively confined to the liver, and the symptoms resemble more those of tumor or cirrhosis. The liver is, as a rule, enlarged and smooth, not irregular as in the ordinary echinococcus. Jaundice is a common symptom. The spleen is usually enlarged, there is progressive emaciation, and toward the close hæmorrhages are common.

Treatment of Echinococcus Disease.—Medicines are of no avail. Post-mortem reports show that in a considerable number of cases the parasite dies and the cyst becomes harmless. Operative measures should be resorted to when the cyst is large or troublesome. The simple aspiration of the contents has been successful in a large number of cases, and as it is not in any way dangerous, it may be tried before the more radical procedure of incision and evacuation of the cysts. Suppuration has occasionally followed the puncture. Injections into the sac should not be practised. With modern methods surgeons now open and evacuate the echinococcus cysts with great boldness, and the Australian records, which are the most numerous and important on this subject, show that recovery is the rule in a large proportion of the cases. Suppurative cysts in the liver should be treated as abscess. Naturally the outlook is less favorable. The practical treatment of hydatid disease has been greatly

* Delafield and Prudden, Pathological Anatomy, third edition, page 317.

advanced by Australian surgeons. The recent work of James Graham, of Sydney, may be consulted for interesting details in diagnosis and treatment.

V. PARASITIC ARACHNIDA.

(1) **Pentastomes.**—(a) The *pentastomum tænioides* has a somewhat lancet-shaped body, the female from three to four inches in length, the male about an inch in length. The body is tapering and marked by numerous rings. The adult worm infests the frontal sinuses and nostrils of the dog, more rarely of the horse. The larval form, which is known as the *pentastomum denticulatum*, is found in the internal organs, particularly the liver, but has also been found in the kidney. The adult worm has been found in the nostril of man, but is very rare and seldom occasions any inconvenience. The larvæ are by no means uncommon, particularly in parts of Germany.

(b) The *pentastomum constrictum*, which is about the length of half an inch, with twenty-three rings on the abdomen, was found by Aitken in the liver and lungs of a soldier of a West Indian regiment.

The only case of pentastomes which, so far as I know, has been reported in this country is the one referred to in Flint's Practice of Medicine. From 75 to 100 of the parasites were expectorated. The liver was enlarged and the parasites probably occupied this region. In 1869 I saw a specimen which had been passed in the urine by a patient of James H. Richardson, of Toronto.

(2) **Demodex (Acarus) Folliculorum.**—A minute parasite, from 0.3 millimetre to 0.4 millimetre in length, which lives in the sebaceous follicles, particularly of the face. It is doubtful whether it produces any symptoms. Possibly when in large numbers they may excite inflammation of the follicles, leading to acne.

(3) **Acarus (or Sarcoptes) Scabiei (Itch Insect).**—This is the most important of the arachnid parasites, as it produces troublesome and distressing skin eruptions. The male is .23 millimetre in length, and .19 millimetre in breadth; the female is 0.45 millimetre in length and 0.35 millimetre in width. The female can be seen readily with the naked eye and has a pearly-white color. It is not so common a parasite in the United States and Canada as in Europe.

The insect lives in a small burrow, about one centimetre in length, which it makes for itself in the epidermis. At the end of this burrow the female lives. The male is seldom found. The chief seat of the parasite is in the folds where the skin is most delicate, as in the web between the fingers and toes, the backs of the hands, the axilla, and the front of the abdomen. The head and face are rarely involved. The lesions which result from the presence of the itch insect are very numerous and result largely from the irritation of the scratching. The commonest is a papular

and vesicular rash or, in children, an ecthymatous eruption. The irritation and pustulation which follow the scratching may completely destroy the burrows, but in typical cases there is rarely any doubt as to the diagnosis.

The treatment is simple. It should consist of warm baths with a thorough use of a soft soap, after which the skin should be anointed with sulphur ointment, which in the case of children should be diluted. An ointment of naphthol (drachm to the ounce) is very efficacious.

(4) *Leptus Autumnalis* (*Harvest Bug*).—This reddish-colored parasite, about one half millimetre in size, is often found in large numbers in fields and in gardens. They attach themselves to animals and man with their sharp proboscides, and the hooklets of their legs produce a great deal of irritation. They are most frequently found on the legs. They are readily destroyed by sulphur ointment or corrosive-sublimate lotions.

Several varieties of ticks are occasionally found on man—the *Ixodes ricinus* and the *Ixodes americanus*, which are met with in horses and oxen.

VI. PARASITIC INSECTS.

(1) *Pediculi* (*Phthiriasis*; *Pediculosis*).—There are three varieties of the body louse, which are found only in persons of uncleanly habits.

Pediculus Capitis.—The male is from 1 to 1.5 millimetre in length and the female nearly 2 millimetres in length. The color varies somewhat with the different races of men. It is light gray with a black margin in the European, and very much darker in the negro and Chinese. They are oviparous, and the female lays about sixty eggs, which mature in a week. The ova are attached to the hairs, and can be readily seen as white specks, known popularly as nits. The symptoms are irritation and itching of the scalp. When numerous they may excite an eczema or a pustular dermatitis, which causes crusts and scabs, particularly at the back of the head. In the most extreme cases the hair becomes tangled in these crusts and matted together, forming at the occiput a firm mass which is known as *plica polonica*, as it was not infrequent among the Jewish inhabitants of Poland.

Pediculus Corporis (*Vestimentorum*).—This is considerably larger than the head louse. It lives on the clothing and in sucking the blood causes minute hæmorrhagic specks, which are very common about the neck, back, and abdomen. The irritation of the bites may cause urticaria, and the scratching is usually in linear lines. In long-standing cases, particularly in the old dissipated characters, the skin becomes rough and greatly pigmented, a condition which has been termed the vagabond's disease—*morbis errorum*—and which may be mistaken for the bronzing of Addison's disease.

Pediculus pubis differs somewhat from the other forms, and is found

in the parts of the body covered with short hairs, as the pubes; more rarely the axilla and eyebrows.

The *taches bleuâtres* are stated by French writers to be excited by the irritation of pediculi. They are certainly associated with them in a considerable number of cases, but, if really caused by these parasites, it is difficult to understand why they should only be present with fever.

Treatment.—For the *pediculus capitis*, when the condition is very bad, the hair should be cut short, as it is very difficult to destroy thoroughly all the nits. Repeated saturations of the hair in coal oil or in turpentine are usually efficacious, or with lotions of carbolic acid, one to fifty. Scrupulous cleanliness and care are sufficient to prevent recurrence. In the case of the *pediculus corporis* the clothing should be placed for several hours in a disinfecting oven. To allay the itching a warm bath containing four or five ounces of bicarbonate of soda is useful. The skin may be rubbed with a lotion of carbolic acid, two drachms to the pint, with two ounces of glycerin. For the *pediculus pubis* white precipitate or ordinary mercurial ointment should be used, and the parts should be thoroughly washed two or three times a day with soft soap and water.

(2) *Cimex Lectuarius* (*Common Bed-bug*).—This parasite is from three to four millimetres in length and has a reddish-brown color. It lives in the crevices of the bedstead and in the cracks in the floor and in the walls. It is nocturnal in its habits. The peculiar odor of the insect is caused by the secretion of a special gland. The parasite possesses a long proboscis, with which it sucks the blood. Individuals differ remarkably in the reaction to the bite of this insect; some are not disturbed in the slightest by them, in others the irritation causes hyperæmia and often intense urticaria. Thorough fumigation with sulphur or scouring with corrosive-sublimate solution destroys them.

(3) *Pulex Irritans* (*The Common Flea*).—The male is from 2 to 2.5 millimetres in length, the female from 3 to 4 millimetres. The flea is a transient parasite on man. The bite causes a circular red spot of hyperæmia in the centre of which is a little speck where the boring apparatus has entered. The amount of irritation caused by the bite is variable. Many persons suffer intensely and a diffuse erythema or an irritable urticaria develops; others suffer no inconvenience whatever.

The *pulex penetrans* (*sand-flea*; *jigger*) is found in tropical countries, particularly in the West Indies and South America. It is much smaller than the common flea, and not only penetrates the skin, but burrows and produces an inflammation with pustular or vesicular swelling. It most frequently attacks the feet. It is readily removed with a needle. Where they exist in large numbers the essential oils are used on the feet as a preventive.