

Tapeworms of Chickens and Turkeys

J. L. GARDINER

AT LEAST ten different species of tapeworms may exist in chickens in the United States. About a dozen species are found in turkeys and a half dozen in ducks. Geese, guinea fowl, peafowl, and pigeons also harbor a few species.

The total number of kinds of tapeworms infesting American poultry is smaller than the figures might indicate, however, because in most instances a given species lives in more than one kind of host. Tapeworms of poultry are less important than roundworms or protozoans. Nevertheless, should any of them be present in sufficient numbers, particularly in young birds, they will make their presence felt—to the detriment of both the bird and its owner.

Tapeworms are parasites in the true sense. Most of the creatures that we call parasites are, strictly speaking, micropredators—they attack and eat their victim, just as a weasel attacks and eats its prey. The weasel, like most so-called parasites, prefers to confine its feeding to certain favored portions of its kill.

Tapeworms, however, do not eat their host. They live within it and partake of its food, thus robbing it of nourishment. If many of them are present, they cause the host to lose weight and appetite and to become droopy and unthrifty. Intestinal catarrh and diarrhea frequently are linked with the presence of tapeworms.

Young birds are affected more seriously by tapeworms than are older birds.

The most serious tapeworm parasite of poultry throughout the United States probably is the small chicken tapeworm, *Davainea proglottina*. It occurs in the small intestine, and particularly favors the duodenum (the horseshoe-shaped part of the small

intestine immediately behind the gizzard) as the site of its activities. It is one of the smallest species infesting poultry and can be seen only by careful examination. Mature worms are about one-sixth inch long and consist usually of two to five segments, although there may be as many as nine.

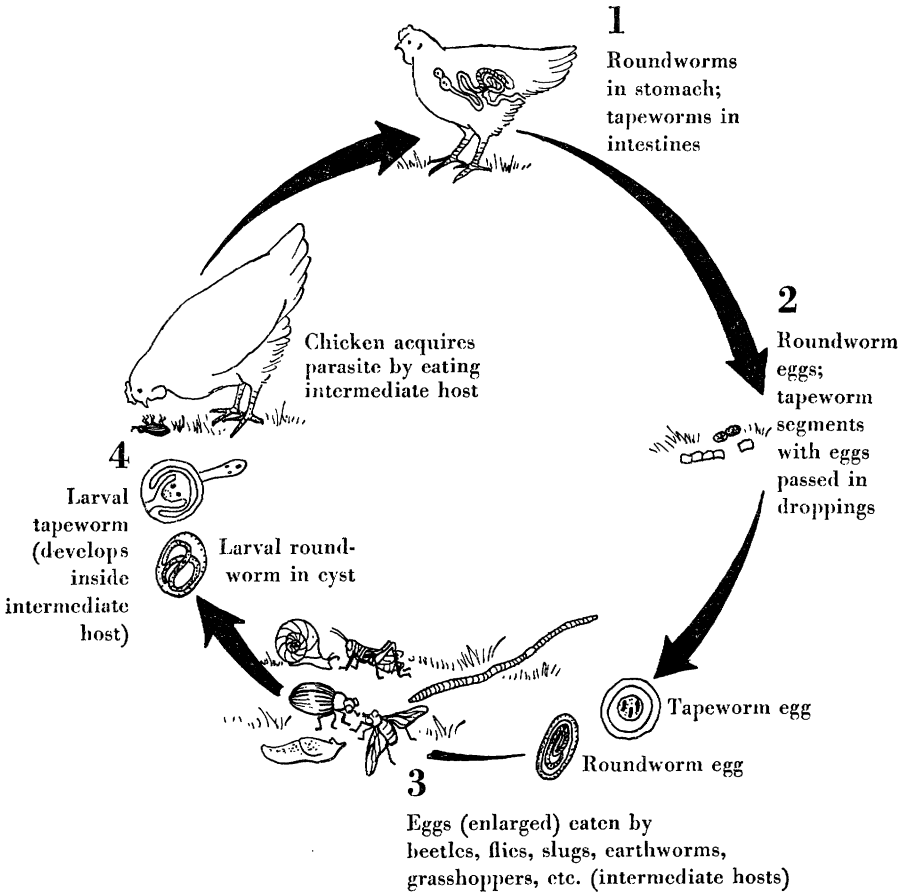
Poultry kept in damp areas are most likely to harbor the small chicken tapeworm, which is understandable enough, as its intermediate hosts are several kinds of snails and slugs.

The small chicken tapeworm occasionally occurs in turkeys, which also play host to another species of the same genus, *Davainea meleagridis*. Neither has been reported as doing any harm to turkeys.

The nodular tapeworm, *Raillietina echinobothrida*, is one of the largest of poultry tapeworms. It may become several inches long. It is distributed widely through the country, but it is less common than some other species. Ants are its intermediate host. The adult tapeworms infest chickens, turkeys, and occasionally pigeons, and produce bumps, or nodules, in the lower third of the small intestine wherever they attach themselves to the intestinal wall. The nodules are like the nodules caused by tuberculosis and may fool the poultryman into thinking his flock has that disease.

Ants also are the intermediate hosts of the related *Raillietina tetragona*, a parasite of chickens, turkeys, guinea fowl, and peafowl.

The broad-headed tapeworm, *Raillietina cesticillus*, is common in chickens, turkeys, and guinea fowl. Its name describes it. It generally locates itself in the front and middle parts of the small intestine of its host. Two dozen or more species of beetles may be its intermediate hosts. Among them are



The various stages in an indirect life history of a tapeworm and a roundworm of poultry.

the common meal-beetles that infest poultry feeds.

Domesticated fowls harbor a number of other species of tapeworms, but none seems to be important.

Seven species of *Hymenolepis* occur in ducks and geese. Two other species of that genus are parasites of chickens and turkeys. The hymenolepids have no common name, but you might call them the fragile tapeworms because of the way in which they break into pieces when they are handled.

Metroliasthes lucida, a common tapeworm of turkeys, also is found in chickens and guinea fowl. *Amoebotaenia sphenoides* is a species primarily parasitic in chickens.

Choanotaenia infundibulum lives in both chickens and turkeys.

The pigeon tapeworm, *Aporina delafondi*, which is confined to the pigeon among domesticated fowl, has been reported occasionally.

No drug has yet been found that will remove all tapeworms in poultry. For the species that do not fasten themselves too deeply in the intestinal wall of the host (such as the broad-headed tapeworm and *Hymenolepis carioca*), butynorate, hexachlorophene, and certain tin compounds have proved effective. The catch to using these drugs is that you have to be sure you are dealing with one of the tapeworms against which they are of value.

The best way to control tapeworms is to attack them at their most vulnerable point—the developing stage in the intermediate host.

If the droppings of the fowls are removed and attended to in such a way that they are not usable as a breeding place or shelter for beetles, ants, flies, earthworms, slugs, or snails, the tapeworm eggs in the droppings cannot reach the intermediate host, which is necessary for their further development, and the tapeworms die.

The droppings may be treated with some substance, such as benzene hexachloride dust, that kills the insects and other invertebrates that are attracted to them.

The fly problem may be greatly reduced by the use of poison baits and

residual sprays. Malathion is a recommended fly poison for use in baits. Several substances, such as DDT, lindane, chlordane, and methoxychlor, make good residual sprays.

Keeping the poultry yards and houses as free as possible of boards, boxes, and trash, which shelter the potential intermediate hosts, is another step in control.

Other helpful measures are the liming of damp places, especially near feed and water containers, and the plowing up of poultry yards and seeding them to low-growing vegetation.

JOHN L. GARDINER, a parasitologist in the Agricultural Research Service, has worked in the field of poultry parasites since 1948.

Roundworms

J. L. GARDINER

MANY kinds of roundworms attack poultry. Two or three of them occur in all parts of the country and are troublemakers everywhere. Several others occasionally cause severe losses. A roundworm that gets out of hand has a great potential for harm.

The digestive tract of the host is the habitat favored by most poultry roundworms, but some roundworms attack the eyes, air sacs, thoracic and abdominal cavities, and the windpipe. Among those that favor the digestive tract are specialists that prefer such an unlikely organ as the gizzard for their base of operations.

Roundworms do damage in two ways: By a direct attack on the tissues of the host, which serve them as food, and by the elimination of toxic substances into the host's system.

Satisfactory treatments have been

worked out for some kinds of roundworms, such as the gapeworm, cecal worm, and large intestinal roundworm, but no drugs have been found that will deal adequately with most of the roundworm parasites of poultry. Prevention is better than cure.

Taking first things first: The location of the poultry runs should be chosen with sanitation in mind. The ideal spot is a gently sloping piece of land with sandy or gravelly soil and the best possible drainage.

It is wise to rotate the runs. The four-yard system is perhaps the most satisfactory. The ground assigned to one kind of fowl (chicken, turkey, or whatever it may be) is divided into four equal lots by cross-fencing. The poultryhouse is placed in the center, with a door opening into each lot. The birds are rotated from one lot to an-