

eggs may be conveyed to the intermediate host in several ways, but the commonest is for it to be taken into the alimentary canal along with food to which it may have adhered or with water in which it was suspended.

Once the egg reaches the stomach the firm shell is dissolved by the gastric juice or rendered so brittle that the embryo readily escapes by the movement of its hooks. After spending a longer or shorter time in the stomach or intestine the embryo or proscœlex proceeds to perforate the walls of these organs by means of active boring motions. Its next locality is usually a bloodvessel and most frequently a branch of the portal vein. They have often been found there by various observers and their presence explains the great frequency of infection of the liver. Some of the embryos penetrate the intestinal wall and reach the peritoneal cavity in which they can wander freely until they find a suitable spot in the mesentery, omentum or parietal peritoneum in which to undergo further development. Their final resting place may be in the liver, the lungs, the brain, the eye, in muscular or connective tissue or indeed in any part of the body, even bone. The liver is the most frequent site; containing hydatids, probably more often than all other organs combined. Authors generally state that the lungs is next to the liver in frequency of infection, but the experience of the Winnipeg physicians would place the peritoneal cavity as the site most commonly effected after the liver.

Having found a resting place they begin to develop and grow so rapidly that only a few days are required to make them visible to the naked eye when examining the infected organ. Like any other foreign body the embryo causes a proliferation of cells which in time forms a connective tissue, sheath or cover. This is Nature's effort to hem in the embryo and prevent it from doing further harm to the organism. Within this sac provided by the host, the parasite proceeds to develop. The central cells of the embryo enlarge and liquefy, forming a quantity of clear, colorless serous fluid. From other cells is formed a bladder with

very thin laminated walls and a cellular lining smooth as a serous membrane.* An hydatid tumor then in its simplest form consists of a connective tissue sac lined with a thin membranous cyst filled with a watery fluid. It was the large quantity and clear watery appearance of the fluid which gave rise to the name Hydatid.

French in his work on "The Liver" describes this tumor so clearly that I venture to copy it in full: "The hydatid "consists externally of a firm fibrous "capsule of a white or yellowish tint, "intimately adherent to the surrounding "glandular tissue and abundantly supplied "with arborescent branches of the hepatic "artery and vena porta. Within this "capsule and completely filling it is a "gelatinous translucent gray bladder com- "posed of numerous concentric hyaline "layers—the so-called mother-sac of the "echinococcus. That is to say the embryo "which has increased to a remarkable "extent. This sac contains a clear watery "fluid with numerous large and small "vesicles floating loosely in it, some of "which and particularly the smallest are "adherent to the wall of the mother sac. "Their size varies from a millet seed to "that of a goose egg, their number not "infrequently amounts to several hundreds "and even thousands. The larger vesicles "sometimes contain smaller ones of the "third generation and occasionally the "latter in their turn contain others of the "fourth generation. It can readily be "understood how the size of the mothersac "must increase according to the number and "size of the daughter vesicles and in pro- "portion to the quantity of contained "fluid. On closer examination a number "of delicate white particles may be ob- "served on the inner surface of the sac "which are usually aggregated in groups "and may be seen from without through "the thin walls of the cyst. They are "also present in the fluid which is "rendered slightly opaque by them: These "are the scolices or heads of the Taenia "Echinococcus in various stages of "development. Hydatids are met with "which contain no scolices forming the "Acephalocysts of Laenura. The fluid "is of low specific gravity, 1005-1013, "neutral or slightly alkaline and contains