Hokkaido University granted the degree of Master of Veterinary Medicine to the following 8 graduates of the Graduate School of Veterinary Medicine on 24 March, 1973.

The authors' summaries of their theses are as follows:

STUDIES ON EXPERIMENTAL INFECTION WITH LARVAL *ECHINOCOCCUS MULTILOCULARIS* IN GUINEA PIG

Jun ARAKI

Department of Parasitology
Faculty of Veterinary Medicine
Hokkaido University, Sapporo, Japan

First, the author investigated primary echinococcosis multilocularis in 78 guinea pigs. The animals were killed at 3 to 100 days after the inoculation at regular intervals, but no foci were detected.

As to the second experiment, secondary echinococcosis was investigated and, at the same time, the effect of cortisone was considered. Thirty-two animals were inoculated intraperitoneally by ca 2,000 each of protoscolices of *E. multilocularis* obtained from experimentally infected mice. These animals were divided into 4 groups; 1) a control group without cortisone treatment but saline throughout the experiment, 2) a group with cortisone treatment until 10 days after the inoculation, thereafter saline alone, 3) a group with cortisone until 15 days, then saline, and 4) a group with cortisone throughout the experiment. Cortisone acetate was used, and 2 mg/100 g body weight was injected daily. The treatment was commenced at 5 days before the inoculation, and animals were killed at 5, 10, 15, 35 and 90 days after the inoculation. Echinococcal foci were found usually on the greater omentum, but rarely in the liver and the diaphragm. In the 5-day cases, 4 animals out of 5 showed minute foci, less than 1 mm in size, in which hooks of protoscolex were scattered and histocytes, lymphocytes and eosinophiles accumulated densely. All other cases were positive for echinococcal foci. The focus manifested a nodular one composed of granulomatous tissue, which showed various stages of organization according to the number of days elapsed. The focus was up to 10 mm in diameter, but sometimes less than 1 mm. One or more areas usually established by central necrosed mass, calcareous corpuscles and fragmented cuticles were observed within the focus. These areas were surrounded by granulation tissue accompanied by giant cells, histocytes, lymphocytes and eosinophiles.

Sex resistance was not confirmable. Differences between the control and cortisone-treated groups were not remarkable, but the progress of organization was faster and the accumulation of cell elements was more active in the former.

INDUCTION OF CELLULAR DNA SYNTHESIS AND EVIDENCE OF INCREASING AFFINITY BETWEEN THE NUCLEAR MEMBRANE AND DNA IN THE CELLS INFECTED WITH INFECTIOUS CANINE HEPATITIS VIRUS

Shunichi ETOH

Department of Hygiene and Microbiology
Faculty of Veterinary Medicine
Hokkaido University, Sapporo, Japan

The incorporation of ^{3}H-Thymidine into cellular and viral DNA was estimated in cells during the course of infection with canine hepatitis virus (ICHV), which has been known to be oncogenic to new-born hamsters. The separation of cellular and viral DNA was carried out according to HIRT (1967). In dog kidney cells (DKC) infected with ICHV, cellular DNA synthesis was induced 3 times and a considerable amount of viral DNA (almost equal to the amount of the induced cellular DNA) was synthesized. In hamster embryo cells (HEC) infected with ICHV, cellular DNA synthesis was induced 5 times and a small amount of viral DNA (1/3 of the amount of the induced cellular DNA) was synthesized.

The difference in the amounts of synthesized cellular and viral DNA between DKC and HEC suggest the existence of a newly synthesized factor which regulates the rate of the synthesis. The role of the nuclear membrane in the DNA synthesis was then studied, since it has been reported recently that DNA synthesis was initiated at the nuclear membrane. The nuclear membranes of the infected and uninfected DKC were mixed, in the presence of Mg^{++} K^{+} ATP, with ^{3}H-labelled ICHV- and DKC-DNA. The nuclear membranes of the infected DKC were found to have more affinity with ICHV- and DKC-DNA than those of the uninfected DKC. The increased affinity of the infected DKC leads the author to suppose that the newly synthesized factor appears in the nuclear membrane. A series of protein synthesis which is necessary for the DNA synthesis was found to be completed 10~12 hours after infection by using puromycin. In this period of time, protein synthesis were noticeable in fractions of the nuclear membrane soluble in 0.6 M NaCl and insoluble in 2 M NaCl. The relationship between the protein and its affinity to DNA, however, was not elucidated.