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7 days and 2.5°C for 47 days.

1) The urine volume did not always increase during the cold exposure. Four of the eight rabbits, exposed to 2.5°C, decreased their urine volume during the cold exposure, while two of them increased.

2) The decrease of their urine continued for 47 days.

3) The urine sodium content was increased during the exposure to 10°C.

4) The urine potassium content did not fluctuate with the increase in cold exposure.

5) The inorganic phosphorus in the urine did not increase during the exposure to 10°C, but increased when exposure to 2.5°C.

6) I found it necessary to set up control groups parallel to the exposed groups in the cold exposure and seasonal variation experiments because the urine volume and, sodium-, potassium-, and phosphorus-excretion fluctuated even at a constant environmental temperature.

ON THE PATHOLOGICAL FEATURES OF OSMOSE POISONING IN A COW

—NEUROPATHOLOGICAL OBSERVATIONS—

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(Summary of Masters thesis written under direction of Dr. Y. FUJIMOTO)

A one-year old crossbred-Holstein which died, about 4 days after the onset of symptoms, of Osmose poisoning was histopathologically investigated from general viewpoints and with special consideration of neuropathology. A complementary experiment was carried out in mice with orally administered Osmose.

Approximately common changes seen in both of the cow and mice were taken into consideration, and the principal changes seen in the cow were abstracted as follows: 1) Multiple hemorrhages extending over the whole body, 2) Microvascular alteration (edematous loosening and swelling of the walls of the small blood vessels), 3) Polyneuropathy, 4) Cerebral edema and degeneration of nerve cells in the C.N.S., 5) Fatty degeneration of the liver and edema of the gall bladder, 6) Destruction (karyorrhexis) of lymphocytes in the lymphoid organs, 7) Ulceration in the forestomach and abomasum, and 8) Decrease in number of cellular elements in the bone marrow.

Chemical and histochemical examinations for detection of arsenic and fluorine were unable to indicate positive results in both of the cow and mice.

The following pathological features were inferred as "predisposing factors" in the morphological sense: 1) A considerable part of the process of nervous disturbances (polyneuropathy), 2) A considerable part of the process of microvascular alteration, and 3) A part of the ulceration in the forestomach and abomasum and a part of the myopathic process in the striated and smooth muscles.

A view of such "predisposing factors" may give a certain suggestion to the interpretation of pathological features in naturally occurring cases of various poisonings.

**IMMUNOLOGICAL STUDY OF AVIAN MYCOPLASMA,
ESPECIALLY IDENTIFICATION OF
MYCOPLASMS AGAR GEL DIFFUSION TEST**

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I used tube agglutination, growth inhibition and gel diffusion test to determine the serological relationships between *Mycoplasma gallisepticum* (strain S 6), *M. gallinarum* (GP 16), *M. iners* (PG 30), *M. laidlawii* A (PG 8) and *M. laidlawii* B (PG 10). In addition, I classified 30 strains of mycoplasma by using their biological and serological characteristics. These strains were isolated from diseased chickens showing clinical signs of CRD and reacting positively to the slide agglutination test.

The following is a summary of the results of my study:

1) *M. gallisepticum* was distinct from other mycoplasmas in serological characteristics.

2) *M. gallinarum* and *M. iners* showed unilateral cross reaction in agglutination and growth inhibition tests, and they had two common precipitation lines. However, they were distinguishable in their biological characteristics by their ability to reduce tetrazolium.

3) I observed no serological relationships between *M. laidlawii* (A & B) and other types of mycoplasma employed in this study.

4) On the other hand, the two types of *M. laidlawii* (A & B) have close bilateral cross reactions in their agglutination and growth inhibition tests, at