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**SALMONELLA TYPES IN DEAD CHICK EMBRYOS
WITH SPECIAL REFERENCE TO THE
INCIDENCE OF *S. POTSDAM***

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The present workers have been carrying out a *Salmonella* survey in dead chick embryos in Hokkaido since February 1955. The results obtained up to the end of March 1955, with special reference to the occurrence of *S. new brunswick*, were published in the previous paper.⁸⁾ The present report deals with several types of *Salmonella* isolated from the dead chick embryos throughout the hatching season (from February to May) of last year, especially with the occurrence of *S. potsdam*.

S. potsdam is one of the wellknown causative agents of food poisoning, nevertheless its incidence is not very common in either Europe¹⁾ or Japan^{2, 5)}; especially in the U. S. A.¹⁾ no incidence is reported. On the other hand, this type of *Salmonella* was detected in eggs or dried eggs made in U. S. A.^{1, 9-11)} It has been isolated from mesenteric lymph nodes of apparently healthy dogs with a moderate frequency by MURASE et al., HASHIZUME and SAKAZAKI et al.⁷⁾ in Japan. Recently, it was cultivated from gall bladder of slaughtered cattle by SAKAZAKI et al.⁶⁾ in Tokyo.

In 1955, 6 types of *Salmonella* were isolated, by direct cultivation of the yolk sack, from 299 (4%) out of 7,469 eggs, containing dead chick embryos aged 14~21 days of incubation. Those eggs were collected from 17 representative commercial hatcheries in this prefecture from February to May. In detail, *S. gallinarum-pullorum* (dulcitol negative) was cultivated from 178 embryos (2.4%) from 15 hatcheries, *S. senftenberg* from 60 (0.8%) from 8 hatcheries, *S. potsdam* from 28 (0.4%) from 1 hatchery (Y hatchery), *S. new brunswick* from 18 (0.2%) from 2 hatcheries, *S. thompson* from 8 (0.1%) from 4 hatcheries and *S. bareilly* from 7 (0.1%) from 4 hatcheries. Among these 6 types of *Salmonella*, *S. potsdam* seems to have never been previously isolated from dead chick embryos. Consequently, details on the incidence of this type in Y hatchery are given in the following table.

As indicated in the table, *S. potsdam* was isolated in 2.6% (28 strains) of 1,059 dead embryos and *S. gallinarum-pullorum* in 4.2% (44 strains) of them forwarded

TABLE Occurrence of Salmonella at Y Hatchery

| DATE OF CULTIVATION | NUMBER OF DEAD EMBRYOS EMPLOYED | SALMONELLA TYPES ISOLATED | | | |
|---------------------|---------------------------------|---------------------------|-------------------------------|--------|--|
| | | <i>S. potsdam</i> | <i>S. gallinarum-pullorum</i> | Others | |
| 3/III | 103 | 0 | 1 (1.0%) | 0 | |
| 4/III | 186 | 0 | 2 (1.2%) | 0 | |
| 10, 19/III | 197 | 0 | 0 | 0 | |
| 28/III | 78 | 0 | 2 (2.6%) | 0 | |
| 16/IV | 137 | 16 (11.7%) | 4 (2.9%) | 0 | |
| 28/IV | 154 | 2 (1.3%) | 12 (7.8%) | 0 | |
| 21/V | 122 | 5 (4.2%) | 16 (13.1%) | 0 | |
| 30/V | 82 | 5 (6.1%) | 7 (8.5%) | 0 | |
| Total | 1059 | 28 (2.6%) | 44 (4.2%) | 0 | |

from Y hatchery. It is noteworthy that *S. potsdam* was detected repeatedly with considerably high frequency only at the later stage of this hatching season and that the incidence of this type predominated over those of *S. gallinarum-pullorum* in only one instance. However, it remains uncertain whether the eggs were infected in the incubator or prior to the incubation, especially whether from the hens. In any case, it would seem to be one of the agents responsible for the occurrence of dead-in-shell-chicks.

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Erratum for Vol. 3, No. 2

Page 112, References 3) for KATO, K. read KATO, H.