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OCCURRENCE OF *SALMONELLA NEW BRUNSWICK* IN DEAD CHICK EMBRYOS

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Salmonella infection of hatching eggs or baby chicks seems to be an important cause of the losses in hatcheries. In this country, several types of *Salmonella*, such as *S. bareilly*, *S. thompson* and *S. senftenberg* besides *S. gallinarum-pullorum*, have been isolated from dead chick embryos in hatcheries by HAMADA, ONO et al. and WATANABE et al. Recently, HAMADA et al. reported the first isolation of *S. new brunswick* from some apparently healthy baby chicks in Japan and KATO detected the same organism from heart blood of 2 hens. Furthermore, many strains of *S. new brunswick* originating from animals in America are confined largely to poultry as pointed out by HAMADA et al. From the above mentioned facts, *S. new brunswick* seems to have an intimate connection with poultry. However, *S. new brunswick* has not yet been isolated from dead chick embryos in Japan and in other countries.

The present workers isolated 122 cultures of *Salmonella* in the course of a bacteriological survey in dead chick embryos collected from 16 representative hatcheries in Hokkaido. Among these 122 cultures, 64 cultures derived from 13 hatcheries were identified as *S. gallinarum-pullorum*, 37 cultures from 7 hatcheries as *S. senftenberg*, 7 cultures from 3 hatcheries as *S. thompson*, 12 cultures from 2 hatcheries as *S. new brunswick* and 2 cultures from 1 hatchery as *S. bareilly*. As is indicated in the table, no *Salmonella* strain other than 9 strains of *S. new brunswick* was found in 285 dead chick embryos in total from K hatchery up to the end of March. From the other F hatchery, 3 strains of *S. gallinarum-pullorum* and 3 of *S. new brunswick* were obtained in the same period.

In 1953, HAMADA pointed out "it is noticeable that the *Salmonella* types other than *S. gallinarum-pullorum* are more frequently discovered in dead baby chicks compared with those in dead-in-shell-chicks".

The present experimental results seem to suggest that *S. new brunswick* is

TABLE. Occurrence of *Salmonella* at K and F Hatcheries

HATCHERY NAME	DATE	SALMONELLA		
		<i>new brunswick</i>	<i>gallinarum- pullorum</i>	other
K	8/III	4/ 99 (4.0%)	0	0
	15/III	5/ 68 (7.4%)	0	0
	26/III	0/118	0	0
F	8/III	0/156	1/156 (0.6%)	0
	12/III	3/123 (2.4%)	2/123 (1.6%)	0

Note: Numerator indicates number of dead chick embryos from which *Salmonella* organism was isolated and denominator the number of embryos examined.

possibly responsible for the occurrence of dead-in-shell-chick like other *Salmonella* types such as *S. senftenberg*, *S. thompson* and *S. bareilly* that were recently detected in dead chick embryos besides *S. gallinarum-pullorum* by several Japanese workers. Moreover, it is a noteworthy fact that *S. new brunswick*, in some instances, was the exclusive or a prominent invader so far as *Salmonella* organism was concerned.

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