

## ENTERO-TYPHLITIS OF BROILER CHICKS

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DURING THE FALL of 1963, a condition appeared among flocks of broiler chicks in Alberta which caused a fairly high mortality during the first 16 days after the birds were housed.

The losses occurred on a number of broiler farms in chicks originating from at least three different hatcheries. Mortality in the flocks varied from 3 to 12 per cent with the greatest losses between the twelfth and fifteenth days following hatching. Severe economic loss resulted from stunting of up to 20 per cent recovered birds.

### SIGNS AND LESIONS

The birds had a distended abdomen resulting from an accumulation of gas in the intestinal tract in some cases sufficient to cause respiratory distress. Feed and water consumption was markedly reduced and diarrhoea caused pasting of the vents in a number of the birds. They huddled under the brooders and felt abnormally warm to the touch.

Necropsy of the affected individuals revealed extremely pale distended intestines containing watery frothy ingesta (Figure 1B). The ceca were also distended with gas and contained a yellowish to orange frothy material (Figure 1A). Severe dehydration was also a characteristic. Petechial hemorrhages were observed in the ceca of a few cases. The gizzard and crop were generally empty but occasionally contained shavings.

Histologically there was stretching of the muscularis layers and compression of the villi in the sections of the ceca and the lumens were filled with amorphous necrotic material.

Bacteriological examinations were inconclusive with a variety of organisms isolated. These included *E. coli*, *Pseudomonas* spp., *Proteus* spp., *Staphylococcus* spp., and *Salmonella* spp. No consistent isolations were made.

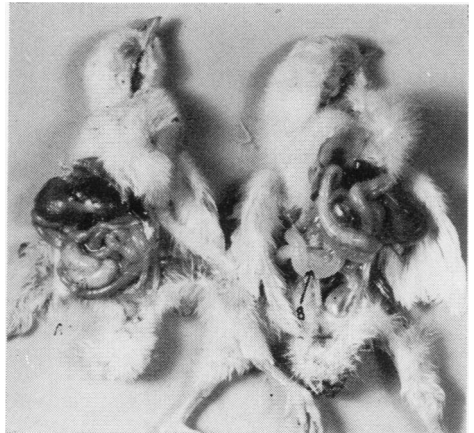


FIGURE 1. Affected chicks, with cadavers opened to reveal (A) ceca distended with gas and yellow-orange frothy material, (B) pale distended intestines containing watery frothy ingesta.

### TRANSMISSION TRIALS

Material from several of the specimens produced a typical death pattern in embryos when filtered through a 0.45 micron Millipore filter and inoculated by

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the yolk sac route into six-day embryonated eggs. Mortality occurred between the third and seventh day post inoculation and the skin of the embryos was extremely congested. First inoculation seldom caused 100 per cent mortality but second and subsequent passages of yolk usually did. Dead embryos were bacteriologically sterile.

Transmission of the disease to day-old chicks was accomplished with intestinal material from affected chicks. Following filtration of gut content through a 0.45 micron filter the typical disease was produced by inoculation of 0.5 ml. into the yolk of day-old chicks through the umbilicus. Transmission was not successful using the embryo lethal agent by the same or other routes.

### DISCUSSION

Transmissible enteritis of turkeys and pheasants has been seen in Alberta since 1961. The condition closely resembles that described by other authors (1, 2). In this disease of broiler chicks, the brooder house mortality, the age of the affected birds, necropsy, lesions, and the embryo mortality pattern is strongly reminiscent of transmissible enteritis of poults. Determination of the exact nature of the etiological agent will require continued study.

### SUMMARY

During the late fall of 1963, an entero-typhlitis appeared in broiler chicks in Alberta. The condition was widely scattered over the province in birds originating from at least three different hatcheries. The signs and lesions were very suggestive of transmissible enteritis of turkey poults which has been observed previously in the province in both turkeys and pheasants.

Bacterial isolations from the birds were not consistent. The agent which appeared to be responsible was easily demonstrated in intestinal content by yolk sac inoculation of six day embryos in which it caused a consistent syndrome. Stunting of recovered birds developed in up to 20 per cent of birds in some flocks. Transmission was accomplished by yolk sac inoculation of intestinal filtrate by the umbilical route in day-old chicks. Filtrations indicate the particle size to be less than 0.45 microns.

### RÉSUMÉ

Vers la fin de l'automne de 1963, une entéro-typhlite apparut en Alberta chez les poulets de rôtisserie. La maladie se répandit dans toute la province parmi les volailles venant d'au moins trois différents établissements d'élevage. Les symptômes et les lésions révélaient assez nettement la présence de l'entérite transmissible des dindonneaux qu'on avait déjà observée dans la province à la fois chez les dindons et les faisans.

L'isolement des microbes pris sur les sujets ne donnait pas de résultats constants. Toutefois, on réussit facilement à découvrir dans le contenu intestinal l'agent qui semblait causer cette maladie; une inoculation dans la membrane

vitelline d'embryons de six jours provoqua un syndrome uniforme. Dans certaines basses-cours, jusqu'à 20 pour cent des sujets guéris étaient frappés d'un arrêt de croissance. On effectua la transmission, par la voie ombilicale, en injectant une colature intestinale dans la membrane de poussins d'un jour. Les filtrats indiquèrent que la taille des particules était inférieure à 0.45 microns.

## ACKNOWLEDGEMENTS

The assistance of Dr. F. E. Graesser in preparing the photograph and examining the histological material is gratefully acknowledged.

## REFERENCES

1. POMEROY, B. S., and SIEBURTH, J. M. Bluecomb disease of turkeys. Proc. Book. Amer. Vet. Med. Assoc., 321, 1953.
2. TRUSCOTT, R. B., CONNELL, M. C., FERGUSON, A. E., and WILLS, C. G. A bacterial agent causing bluecomb disease in turkeys. 1. Isolation and preliminary laboratory investigations. Avian Diseases. 4: 391. 1960.

## ABSTRACT

"An Outbreak of Human Infection Due to *Salmonella Typhimurium*, Phage Type 4, Associated with the Use of Unpasteurized Liquid Egg". A. J. Essex-Carter, D. M. Jones, and F. Swindell. J. Hyg. 61: 323. 1963.

*Salmonella typhimurium* is the most common salmonella serotype associated with food poisoning in England and Wales. In 1962 sporadic cases of this type of poisoning occurred throughout south-east Lancashire. The pattern was similar to that observed elsewhere in the United Kingdom. Epidemiological and bacteriological investigations utilizing phage-typing conducted during the year finally revealed that much of this sporadic infection was related to, and emanated from, a single source of unpasteurized liquid egg. Seventy-two incidents due to *S. typhimurium* occurred during the year and 27 of these were found to be due to phage type 4. Incidents due to this type comprised 32 cases and 12 symptomless excretors. More than half the clinical cases were in children but only one of the symptomless excretors was a child. No single incident accounted for more than three cases, although one family outbreak included two cases and two symptomless carriers, and five symptomless excretors were employees of one infected bakery.

Several bakeries were discovered to be infected as a result of obtaining egg from a common source. The point that emerges is that much of the illness from this source is sporadic in distribution and its epidemiological significance is easily missed. The need is demonstrated for pasteurization of liquid egg before use. *C.M.F.*

## ABSTRACT

"The Acute Oral Toxicity of Reduced Iron". E. M. Boyd and M. N. Shanas. Canad. Med. Assoc. Jour. 89: 171. 1963.

The LD<sub>50</sub> ± S.E. of Reduced Iron, N.F. IX, given orally to albino rats was found to be 98.6 ± 26.7 g. per kg. body weight, or over a hundredfold that of iron given as ferrous sulfate. The clinical and pathological signs of toxicity were somewhat similar to those of ferrous sulfate given under the same conditions. The results indicate that reduced iron could stand re-investigation in respect to its practical value as a therapeutic agent with probably very low toxicity. (*Author's Abstract.*)