(FROM)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

TRANSCRIPT OF PROCEEDINGS

OF THE

INTERAGENCY MEETING ON POLYCHLORINATED BIPHENYLS (PCBs)

Thursday, August 5, 1971

Dr. Dale R. Lindsay, *Associate Commissioner for Science*,
Food and Drug Administration
Chairman

MONS 030184

to bring in someone from outside the agency that was either working under their funding or about whom they know and what they thought should be here.

We brought two people in. Their names both begin with "H" so, if I go alphabetically, I guess I have to go to the second letter -- in which case that puts Dr. Harris in front of Dr. Hoopingarner. Dr. Harris, from North Carolina State University, was one of the people that we were looking to quite early in the episode of the Holly Farms chickens.

Dr. Harris, could you tell us a little about that -- and anything else?

DR. HARRIS: Thank you Mr. Chairman.

We became interested in Aroclor when the inspection service began to pick up residues in poultry meat, after the New York fiasco. We had some tests underway to determine the toxic effects on poultry.

On June the 9th, 1971, a condition in two-week old broiler chickens with symptoms similar to chick edema disease as described by Schmittle and Sanger was seen.

The most common symptoms were gasping and incoordination of the head and neck just prior to death. The most severely affected birds emitted a squeaking sound. The mortality ran to 50 percent and the remainder were stunted to the point that they were destroyed. The condition occurred in several broiler flocks from one day's feed production and no further cases developed.

On postmortem examination, most birds had a severe hydropericardium with sufficient fluid in the peritoneal cavity to cause distention. A greenish yellow gelatinous-like fluid was found under the skin of some of the birds. The livers showed varying degrees of degeneration, with a mottled to a roughened appearance resembling cirrhosis. The kidneys were swollen

and pale with small hemorrhages. Some of the birds had white caseous-like material, resembling a bacterial infection over the heart and the liver. There was inflammation of the intestinal tract but no extensive enteritis. The digestive tract was usually empty.

Becuase of the sporadic nature of the condition and the resemblance of chick edema disease or crotalaria poisoning, a toxic substance in the feed was suspected. Feed from houses with affected chickens was collected for analysis and a feeding experiment.

Forty one-day old broiler chicks from the same parent flock were equally divided and placed in a battery brooder. Twenty were given free access to the suspect feed and twenty to a known non-toxic feed that is routinely fed in the Department. The chicks were observed daily as to appearance, feed and water consumption. At ten days of age, the chicks on the suspect feed were not very active and would huddle close to the source of heat. Feathers were ruffled and some of the birds were gasping. At fourteen days, half of the birds on suspect feed had stopped eating and would not move about in their cages. On the fifteenth day, ten birds died and the remainder were showing symptoms of gasping. The twenty birds on control feed were normal. All the birds on suspect feed were autopsied and had typical lesions, as we had observed in the previous birds dying in the broiler houses. In some of the birds, we were able to withdraw 45 ml of fluid from their pericardial sac and peritoneal cavity.

A sample of the suspect feed was analyzed for chick edema factor, chlorinated hydrocarbon pesticides, crotalaria seed and polychlorinated biphenyls as McCune and Flick have described the latter as producing symptoms and lesions as we had observed. The North Carolina Department of

Agriculture's seed laboratory found no crotalaria seed.

Analysis of the suspect feed contained DDE, 1.3 ppm; DDD, 1.42 parts per million; PCB, 148 parts per million; Benzene Hexachloride, 8.8 parts per million, Chick Edema Factor, negative.

The principal toxic ingredient in the feed was considered to be PCB. The only common denominator we had was fishmeal coming from the Port of Wilmington. We alerted the feed company as to the toxic effects they were having with their feed and the cause. We then notified the Department of Agriculture, who has this in their jurisdiction.

The gross pathology has been described in the literature by McCune, and we feel that based on his work, there is a synergistic effect between the benzene hexachloride we found and PCB.

The main problem experienced by the poultry industry was the effects on hatchability. Breeder flocks that produce the broiler chickens previously were hatching 88 percent and some went down to as low as five percent.

We did some analysis of PCB on chicken embryos. These were 14 one-day old dead embryos. They contained .35 parts per million PCB. The yolk of fertile eggs contained .97 parts per million, and the fresh yolk material from eggs prior to being placed in the incubator contained .29 parts per million. These were all from breeder flocks that experienced lowered hatchability.

We are doing the histopathology on the sections collected from these birds, and we'll have reports on this at a later date. I will be glad to entertain any questions that you might have regarding the problems we have in North Carolina.