

## Turkey Poult from Unfertilized Egg Hatched at USDA Research Center

WASHINGTON — (USDA) — A turkey poult, hatched from an unfertilized egg on March 10, is creating a new chapter in poultry history at USDA's Agricultural Research Center at Beltsville, Md. The poult is the first of known parthenogenetic origin to hatch and live for more than a few hours.

Dr. Marlow W. Olsen and S. J. Marsden, ARS poultry husbandmen, discovered parthenogenesis in turkey eggs four years ago. The most serious problems facing the turkey industry are fertility and hatchability of eggs. The discovery of parthenogenesis has given research workers a new and important tool with which to investigate these problems.

### 13,000 Eggs Tested

In continuing investigations of the phenomenon, Dr. Olsen in the last three years has placed more than 13,000 infertile eggs under incubation. (Dr. Olsen is one of nine American scientists who recently received the Borden award of \$1,000 and a gold medal. His award cited his achievements in the investigations of parthenogenesis and several other fields of poultry research.)

In the experiments at Beltsville, a large number of embryos have formed, but only a few developed to final stages before dying in the shell, and only four have pipped their shells and hatched alive. Of these, one bird hatched two years ago from among 5,000 infertile eggs lived for 18 hours. Three parthenogenetic birds have been hatched in experiments this year with some 3,000 infertile eggs. Of the three, one

lived 8 hours, the second only 5 hours. The third still was alive (March 22) after 12 days.

### May Be Used As Breeder

The scientists hope to grow the poult to maturity so that it can be used as a breeder to test, against normal breeders, the incidence of the phenomenon and whether it is hereditary.

Parthenogenesis is a natural function in many lower forms of life such as bees and aphids. It has been induced in eggs of such animal organisms as star fish, sea urchins, and frogs, but until Dr. Olsen's and Mr. Marsden's discovery, it had never been known to occur in higher animals.

Discovery came through incubation of turkey eggs to make certain that turkey hens to be used later in a fertility test were not then producing fertile eggs. The hens were to be mated with male birds in moult to determine the effects of moult on fertility and hatchability. Approximately 20 percent of these eggs showed development long after ordinary fertility could possibly have existed.

### Only Males Can Be Produced

Dr. Olsen suspected parthenogenesis and began tests to prove his point. These incubation tests were conducted with eggs produced by unmated females held under lock and key, without possible physical contact with male birds.

In reply to the inevitable question, "Is there any chance that males could get into the female pens during these tests?" Dr. Olsen points to three significant facts. First, during the test periods he assumed full respon-



Dr. Harlow V. Olsen, poultry scientist of the U. S. Department of Agriculture, feeds a turkey poult, hatched from an unfertilized egg at the Agricultural Research Center, Beltsville, Md. The poult is the first of known parthenogenetic origin to hatch and live more than a few hours. Dr.

Olsen is one of nine American scientists who recently received the Borden award of \$1,000 and a gold medal. His award cites his achievements in investigation of parthenogenesis and other aspects of poultry fertility. (USDA Photo).

## Accidentally Discovered



Dr. Olsen finds this parthenogenetic turkey poult weak and underweight when 4 1-2 days old. Dr. Olsen and his associates hope to raise the poult to maturity. If they succeed, the turkey will be used as a breeder to test against normal breeders to determine the incidence of parthenogenesis and whether it is hereditary (USDA Photo).

sibility for control of the birds, gathering eggs and placing them in incubation. Second, he found that parthenogenetic embryos are always delayed three or four days in starting development. Thus the hatching period, normally about 27 days for Beltsville Small White turkeys, is extended to 30 days or more in the case of parthenogenetic embryos. Third, he found that all embryos developing far enough for identification have been males. In birds the sex chromosomes are such that it is probable only males can be produced parthenogenetically.

### Slower Rate Of Gain

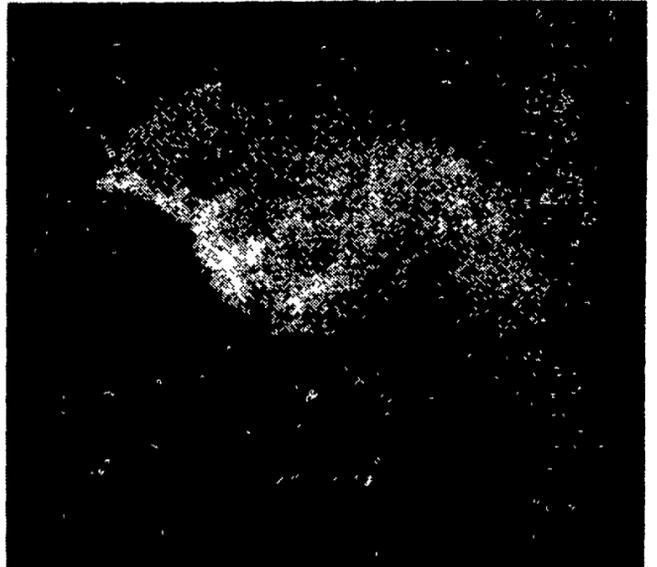
Beltsville's newest and only living example of parthenogenetic origin required 30 days to hatch. He weighed 30 grams (28 grams equal 1 ounce) at hatching against 45 to 50 grams for a normal poult. He now weighs about 45 grams, indicating a much slower rate of gain than

is expected of a normal poult. This is in spite of the fact that Dr. Olsen is feeding his charge meals of crumbled hard-boiled egg yolk and cottage cheese 4 to 5 times a day, plus special vitamins and minerals.

Dr. Olsen believes incidence of parthenogenesis may be greatest in domesticated birds that are not long removed from the wild. He has found a relatively high incidence in the Beltsville Small White breed de-

veloped a few years ago at Beltsville and having some wild turkey blood in its ancestry. Other breeds of turkeys show the condition but to a lesser degree. Save for a slight incidence in the eggs of Cornish breeds of chickens, among the closest of all domesticated chickens to wild ancestors, functional parthenogenesis is not known to develop in eggs of other breeds of domestic chickens.

## New Chapter in History



This turkey poult is the survivor of three, hatched from unfertilized eggs at the USDA Research Center, Beltsville, Md. Dr. Olsen and S. J. Marsden, poultry scientists, accidentally discovered parthenogenesis in turkeys four years ago, while incubating eggs to ascertain that turkey hens to be used later in a fertility test were not then producing fertile eggs. In continuing investigations of the phenomenon, Dr. Olsen has assured that the tests were conducted with eggs produced by unmated females held under lock and key and without possible physical contact with male birds. (USDA Photo).

## Long Bow and Arrow Legal in Taking Carp

HARRISBURG, Pa. — The long bow and arrow is now a legal device for taking carp in Pennsylvania. The announcement was made by William Voigt, Jr., Executive Director of the Pennsylvania Fish Commission.

The signature of Governor George Leader to the "Archery-Carp" Bill amends Section 50, clause (d) of the Fish Code by adding — "Nothing in this section shall prohibit the use of long bows and arrows for taking or killing carp."

The bill had the support of the Pennsylvania Federation of Sportmen's Clubs. Its enactment provides an additional means of recreation. It is also looked upon as a possible means of helping in the control of a species of fish that is not a totally desirable tenant of many of the Commonwealth's waters. With the passage of the bill, Pennsylvania became the 25th State to legalize taking carp a-la-Robin Hood.

In addition to explaining that a fishing license is required to engage in the sport, Voigt cautioned that the March 14-April 15 fishing ban on waters of the State stocked with trout extends to bow and arrow fishing.

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