


Poultry Science Capital Region Veterinary Science

Penn State

**Poultry Pointers**



Entomology Food Science

Agricultural & Biological Engineering Agricultural Economics

**ARE CHICKENS BABY DINOSAURS?**

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Professor Of Poultry Science

Many of you may have seen a recent Dave Barry column where he asked the following question: "Which of the following is the nearest living relative of the dinosaur, Tyrannosaurus rex?": (a) a chicken, (b) a crocodile, (c) a lizard, (d) an elephant. Barry quoted The New York Times in

announcing the answer — (a) a chicken.

Actually, The New York Times got its information from an article published in Science. In this report, scientists at the University of Wisconsin had the opportunity to examine the structure of young dinosaur bones discovered in Montana.

In order to understand the significance of this report, we need to review some basic concepts of bone growth.

In young growing animals and in man, bone grows by two mechanisms, both of which stop at sexual maturity. The first mechanism causes an increase in bone diameter as the result of the activity of the bone cells, osteoblasts and osteoclasts. Osteoblasts form bone on the outside of the shaft while osteoclasts remove bone from the inside of the bone shaft, making it look like a hollow log.

The second mechanism involves a thin plate of cartilage at the ends of the bones. The cartilage cells in this tissue go through a life cycle (birth, adolescence, maturity, and senility) every 24-48 hours. This process results in increases in bone length. When this process malfunctions, we see developmental deformities such as dwarfism.

The overall development of

growth plate cartilage is similar in birds and mammals. However, the avian growth plate is considerably thicker than the mammalian growth plate, having approximately four times the number of cells. Furthermore, there are some subtle differences in the arrangement of cells.

Back to the dinosaur bones. Until the recent discovery of baby dinosaur bones in Montana, only bones from adults had been examined. Since adults no longer have growth plates, comparing dinosaurs with other species was impossible. Examination of the baby dinosaur bones showed that the structure of the growth plate closely resembled that of the avian species, not of lizards or mammals. These results strongly support a theory that there is a close evolutionary relationship between avians and dinosaurs.

These results provide thoughts on the future of our poultry industry. Most people associated with this industry recognize the tremendous progress that has been made in selecting broilers and turkeys for rapid growth rate and feed consumption. Will the poultry geneticists eventually breed a chicken that eats cars and lawyers as occurred in "Jurassic Park"?

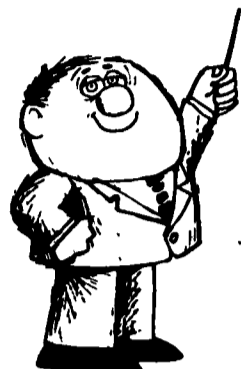
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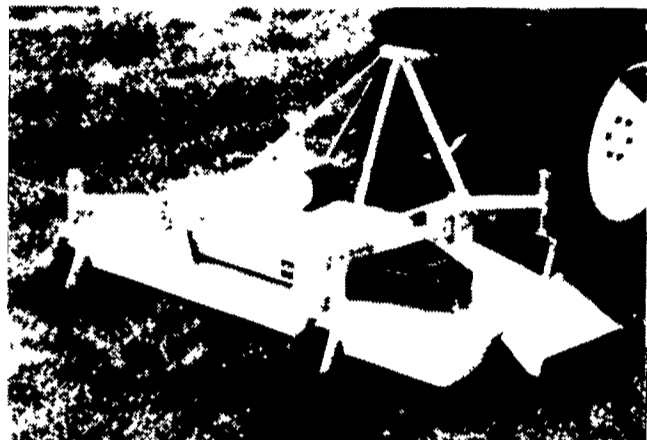
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