Lancaster Farming, Saturday, December 27, 1997-A23

# PENN STATE POULTRY \* POINTERS DULTRY SCIENCE + CAPITAL REBKIN + VETERINARY SCIENCE OOD SCIENCE + AGRICULTURAL ECONOMICS + AGRICULTURAL & BKOLOGICAL ENGINEERING + ENTOMOLOGY

#### ARE CHICKENS BABY **DINOSAURS - PART 3** Roland M. Leach, Jr. **Professor**

In some previous articles I have used skeletal development to explore the potential relationship between chickens and dinosaurs. Now I would like to discuss some aspects of reproduction in the continuing debate on whether dinosaurs are closer to reptiles or birds.

Like alligators, crocodiles, and birds, dinosaurs laid eggs with calcified shells. Recent studies on the ultrastructure of these shells by scientists in Scotland showed many similarities among these

Therefore these results, although interesting, did not shed much light on the continuing debate. Although crocodiles and birds lay eggs with similar shell structure, they differ considerably with regard to the number of functional ovaries and oviducts. Birds such as our commonly used Leghorns have only one functional

ovary and oviduct. There are two of each in early embryonic development, but by the time the chick hatches, there is only one ovary and oviduct which become functional at sexual maturity. Under natural conditions, birds lay one egg at a time and incubate eggs directly with body heat.

In contrast, crocodiles have two functional oviducts and lay two eggs at a time which are deposited in large clutches to incubate in mounds of vegetation.

Recent discoveries of dinosaur egg clutches in Montana has led to a re-examination of the reproductive activity of TROODON FORMOMUS, a 100 pound egglaying dinosaur. By studying the nest and position and proximity of eggs in the nest, scientists have been able to reconstruct the reproductive behavior of this species. It's a tain't -- tain't crocodile,

tain't bird. It shares features with

The nest of dinosaur eggs contained asymmetrically shaped eggs (like birds) standing narrow end down. Analysis of the egg spacing indicated a paired arrangement of the eggs, implying that there are two functional reproductive tracts with two eggs laid at one or several-day intervals (like crocodiles). However, the nest differed significantly from the vegetation mounds typical of crocodiles, suggesting brooding behavior similar to birds.

From these observations, the authors concluded that this species of dinosaur shared features found with both birds and dinosaurs. The size of the nest and pairing of the eggs suggested that there were two oviducts and ovaries similar to the crocodile. However, other features of the eggs and nests indicated that these animals had an incubation behavior similar to birds resulting in synchronous hatch-After constructing a map outlining reproductive traits, the authors concluded that this species of dinosaur was a very close relative of birds.

## Local Junior Joins In Lean Beef Production

HAMBURG (Berks Co.) -Kirsty Dietrich of Hamburg has joined juniors across the nation in production and promotion of lean Limousin beef by recently becoming a member of the North American Limousin Junior Association (NALJA), the group of youth interested and involved in the Limousin cattle breed. The breed enjoys a world-wide reputation for production of lean, tasty beef.

Limousin beef serves both consumer demand for leaner meat and beef producers' demand of superior genetic traits. The number of producers using Limousin genetics in their herds has expanded dramatically over the years.

Similarly, the membership of NALJA has grown steadily, keeping pace with breed growth. Established in 1971, NALJA is an organization of youth under 21 interested in Limousin cattle. The 3,000-plus membership of NALJA is governed by a 10member junior board of directors. Events and activities open to NALJA members include the National Junior Limousin Show and Congress held annually, and various awards, scholarships, field days, programs and class-

For more information about being a member of NALJA, contact the North American Limousin Foundation office at (303) 220-1693 or stop by the website at www.nalf.org.

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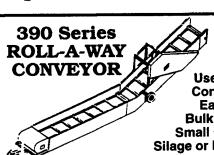
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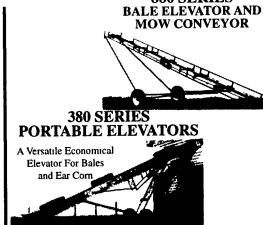


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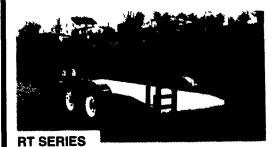
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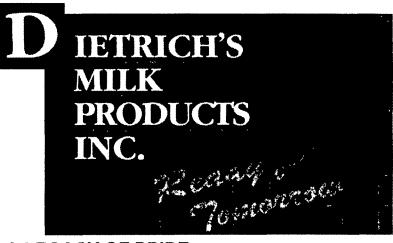
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