

Mysteries about dinosaurs

by Kevin Stewart

Most scientific articles focus on what is already known. But science is more concerned with the questions than the answers. The answers create more questions and knowledge accumulates. At a recent lecture, Dr. Phil Currie of the Tyrrell

to be two unrelated orders of reptiles. That view has changed drastically. Dinosaurs may be up to four related orders, possibly including pterosaurs and birds.

Are birds dinosaurs? At a lecture on the subject, Currie concluded that birds were probably dinosaurs.

saurs. *Deinonychus* might be a bird.

So birds are dinosaurs, are dinosaurs reptiles? That depends on whether or not the class Reptilia is abandoned. Dr. Robert Bakker, among others, would like to see it disbanded because it is a dumping ground for animals of uncertain classification.

How many kinds of dinosaurs are there?

Dinosaurs lived for at least 140 million years, on all continents, and evolved rapidly. There must be a lot of species. Currie noted gaps in the fossil record in the middle Jurassic and in tropical areas. One of the goals of the much published Alberta/China Dinosaur Project is to help fill some of the gaps.

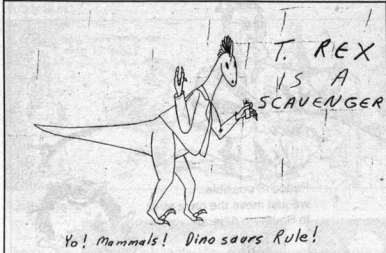
An excellent example of a large gap is Antarctica. Until recently no dinosaurs were known from Antarctica. The first, an ankylosaur, was found only a couple years ago. The Antarctic may have extremely rich fossil deposits, but there is that darn ice cap in the way. It will be a long time before we learn about

fragile and sometimes inaccessible. As a result, sometimes all palaeontologists get to see are line drawings and poor quality photos of distorted bone fragments.

The *Apatosaurus* provides a great example of the problems this

it is impossible to make even a rough estimate as to the number of dinosaur species.

What color were they? Color is very rarely preserved in fossils. A few insects and a recently found turtle are the only fossils that

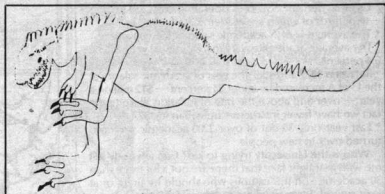


Museum said that there is very little known about dinosaurs and other prehistoric lifeforms. This article is about the mysteries of these wonderful beasts.

First of all, what is a dinosaur? Dinosaurs were once considered

but a recently discovered fossil *Protoavis* has added new confusion to the argument just as it was thought to have been resolved.

Then there is *Deinonychus* the dinosaur that revived the idea of birds as descendants of the dino-



All little kids love dinosaurs. Here is Ian's idea of one...

causes. When it was first reconstructed, it was given the wrong head. The mistake was not corrected for close to 100 years, when John McIntosh and David Berman proved that it had the wrong head. It was also named twice, first *Apatosaurus* by the rules of taxonomy its correct name, and the more commonly known *Brontosaurus*.

show color. Color serves many functions, mating displays and camouflage for example. Several dinosaurs show structures such as crests, and frills, that color must have been needed to help show off.

Unless some extremely well preserved fossil are found or the if Mokele-Mbebe, believed to be a dinosaur living in the Congo River, is found, we may never know.

What was their physiology like?

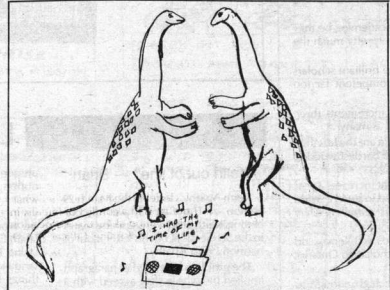
A dozen articles could easily be written on what is not known about dinosaur physiology, — there is warm-bloodedness, hearts, lungs, digestive systems, sex, birth, etc. etc. So, I will deal with only a couple of questions.

Last year, Robert Bakker suggested that brontosaurus gave live birth. They have the pelvis structure for it, but direct evidence, such as a fossil embryo in its mother, is needed.

Sauropods filled their stomachs with hard stones to aid digestion. These stones, called gastroliths, have been found a significant distance from their source. When dealing with human ancestors, rocks found out of context are used as evidence of tool use. Using the same reasoning, could we say that brontosaurus were tool users?

What caused their extinction? So far this year I have heard three new theories on the Cretaceous/Tertiary dinosaur extinction. The Cameron Library just received a bibliography of articles on mass extinction published since 1979. There are close to 300 articles, most on the dinosaur extinction. That is more than one article every two weeks.

Some of the theories sound like bad fictitious science fiction movies. Tidal wave killed them, 30 percent



Possible mating dance of the sauropods

the Antarctic dinosaurs.

Another problem is poorly preserved, fragmentary fossils that make identification and reconstruction very difficult. Fossils are large,

saurus.

Until we have explored and excavated a lot more fossil deposits and find a more efficient way of transmitting the data on the fossils,

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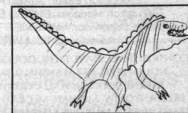
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...and Cristin's conception of another atmospheric oxygen killed them, aliens killed them. The best theory seems to be Robert Bakker's death by diarrhea, referring to an influx of parasites and other diseases that occurred when populations from different continents mixed.

What would have happened if they had not gone extinct? After some careful speculation, Dale Russell from the National Museum of Canada, came up with a hypothetical dinosaurid, a big-brained dinosaur. If times had been different there could have been dinosaurid yuppies. They would probably sit out on their lawn, decorated with pink *Kakurus* ornaments, and, while sipping on their wine coolers, and talk about why the mammals were an evolutionary dead end.