

NATURE NOW

# Bird Ancestors Were Reptiles

By LYDIA KING FREHSE  
Special Writer for The Birmingham Eccentric

Some 135 million years ago there came a day when in the Jurassic world of grotesque bulbs and appetites two branches of the reptilian family took to the air.

One of these developed into the pterodactyls, those "flying dragons" which looked like huge bats. These became extinct more than 40 million years ago. The other branch evolved into the parent stock of our modern birds.

Both of these strains sprang from small flesh or insect eating reptiles which were powerful of the larger and more powerful of their kind by climbing into bushes and trees.

Heat they found comparative safety and an uncontented food supply, both prime requisites for survival.

One feather of a very primitive bird was found in a slate quarry near the town of Plover in 1877. The same year suff.

His kind were uncovered to enable scientists to envision this creature. He resembled a bird but retained many of the structural characteristics of a reptile.

HE WAS about the size of a crow but had a body with a large unfeathered head.

He retained his reptilian jaw with widely spaced teeth. His tail had a central axis of 21 vertebrae, each provided with a pair of quill feathers. His feet were adapted to both perching and walking. On his clumsy wings were three long and slender fingers equipped with sharp claws for climbing.

Scientists named him "Archaeopteryx" from the Greek for "Ancient Wings".

About the same time the fossil remains of another "toothed bird" were found in the chalk beds of western Kansas.

His branch of the family took to the water. He was a slender diver about four feet long with undeveloped wings, powerful legs attached well back on the body like ears, and webbed feet.

This creature was named "Hesperornis." He was only one of many species of aquatic birds which adapted themselves to life in the vast inland sea which then lay across western North America.

NOW BACK to the feathers of last week's column.

Perhaps no other single adaptation had as great an evolutionary significance to birds as the modification of a scale into a feather.

No one knows to a certainty how this was accomplished. However, the theory is borne out in the structure of today's bald and golden eagle where similar germ buds on the tarsus of the former produce scales and on the latter feathers.

Because of their protective warmth and their impetus to flight, feathers enabled the first birds to leave the competitive and crowded land existence of the reptiles, to live in trees and to travel their range to the cooler highlands. Here they found an uncontented food supply and here their naked and cold blooded competitors could not follow.

Feathers led to a second evolutionary development of great importance, the control of body heat.

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Fossil remains attest to the number and variety of bird species which emerged in the last 135 million years and their adaptation to varying conditions.

Among these was the last of the flightless now extinct birds, the *Alo* of Madagascar which was alive 300 years ago.

HE RESEMBLED a ten-foot ostrich. The female laid eggs with a capacity of over two gallons, shells of which were used by natives as water jars.

Our modern birds still show great adaptation. The ostrich which has abandoned flight to stride over the earth with powerful legs; the flightless hoac or "stink" bird of New Zealand which has no wings and whose young retain two claw-tipped, free fingers on each wing with which to climb trees; the penguin which has taken to the water and whose wings are mere flippers and our chorus of song birds whose small and brilliant bodies are lost in the tops of the highest trees.

In some such fashion has nature molded our avia fauna during the last 135 million years until we can stand on a summer's day to observe the majestic stance of an eagle, the brightness of a blue bird, the grace of a swallow's flight.

THUS FAR this important organ had advanced no further than the three-chambered heart of the crocodile. Now with flight and warm bloodiness achieved, birds had a tremendous advantage over reptiles.

Other important steps in bird evolution were the modification of the forelimbs into wings; the development of a hollow air-filled skeleton; the conversion of a toothed jaw into a horny beak (which performs many of the functions of a hand) and the much pointed tail into the modern fan style, adaptable to swift flight.

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