When Birds Had Four Wings ***by Don Burke***

Once upon a time, all birds had FOUR WINGS! What? ….. Well, let‟s go back to the beginning….

Sixty-five million years ago an enormous asteroid struck the Gulf of Mexico near the area of Chicxulub on the Yucatan Peninsula. Seventy-five percent of all plant and animal life on Earth was wiped out.

Almost all species of dinosaurs were killed. Only one small group of dinosaurs survived the holocaust. These were the flying dinosaurs that we call BIRDS. These were the most innovative, mobile, beautiful and SMART members of the entire dinosaur family. But, who are they and how could dinosaurs fly?

Birds are members of the Theropod group of dinosaurs, the most famous of which is Tyrannosaurus rex. Have you ever wondered about the tiny, useless two-fingered front legs on a T. rex? The front legs became useless as these carnivores ran on their hind legs and killed and ate with their enormous jaws.

But nature never wastes anything, so the useless, puny front legs on most of the theropods were redeveloped for sex! The front legs evolved feathers to form fan-like display structures to attract the opposite sex and terrify rival males. But how could dinosaurs have feathers? Dinosaurs evolved 225 million years ago and they reigned for 160 million years. During their 160 million year reign, dinosaurs developed feathers to keep warm and to make sexual displays: long before birds evolved. Feathers began as filaments on dinosaurs and evolved into the amazing three-dimensional structures that we call feathers over many millions of years.

True birds evolved 150 million years ago, but feathers had been around on dinosaurs for tens of millions of years before that. Velociraptor, the turkey-sized theropod dinosaur (as seen in the movie Jurassic Park running around the kitchen) was fully feathered! The movie got it wrong when it portrayed it as naked and scaly. Probably all of the theropod family were feathered to some extent – even if only as babies. And yes, T. rex almost certainly had feathers on its head at the very minimum.

Gradually, feathers were used more and more by the dinosaurs: to keep warm, to mount sexual displays, to frighten off rivals and, most importantly, to aid in locomotion. It is thought that the crude wings were used to flutter a bit, to scamper up trees (much as baby chickens do today) and thus to avoid being eaten by bigger dinosaurs. Most theropods were only small creatures even if they were carnivores. Not all were giants like T. rex.



So the jump to becoming true flying birds was not so big a hurdle. Yes, but it was still a hurdle. Some of the smaller-sized theropods (about the size of crows) scampered up trees and glided to safety, or down on a meal as needed. As modern feathers evolved on their front legs, naturally they also developed on the back legs. Although the front legs were smaller than the back legs and had less digits, their basic skin structure was the same. That is, if the wings were becoming feathered, the feet must also be feathered: this was a basic dictate from their distant past. 15

Even the first bird, Archeopteryx, which flew around 150 million years ago had feathered legs. But could they flap them? No, the pelvis and muscle structure did not permit flapping. Perhaps the rear wings served as gliding aids and/or steerage devices. But how do we know? Most fossils of birds or of anything are only made up of bones: internal organs, skin and hair or feathers do not fossilise.

The breakthrough came when palaeontologists dug up bird and older dinosaur fossils in the Liaoning area of China. The state of preservation was so good that for the first time, details of soft tissues including filaments and feathers are clearly present. Evidence exists that as dinosaurs were turning into birds, all of them had FOUR WINGS. During later evolution, most birds lost all of their feathers from their legs. As the long, bony tail of early birds shrunk to the „Parson‟s nose‟ seen in modern birds, the feathered tail was finally able to provide strong and deft steerage all by itself – without the need for feathered legs.

The all-time classic four-winged bird is the species Microraptor gui. You can argue whether or not it is a true bird or a pre-bird dinosaur, but the evidence is quite clear that it had four wings and that it is typical of the ancestral forms leading to modern birds.

So, feather-footed chickens and pigeons that we breed today are throw-backs to the birds of over 100 million years ago! You can‟t get a more extreme Heritage variety than this! Bantam Belgian d‟Uccles, Silkie chickens, Brahmas and Cochins as well as pigeon varieties such as Swallows, English Trumpeters and Oriental Frills have reverted to the original layout plan for birds. Winged feet also turn up in budgerigars and other bird species. As support for the evolution of leg wings, note that as soon as the leg feathers on modern birds get to any real size, they are always wing feathers, not body feathers. The leg feathers even mimic the exact colour and pattern of the wings – including pied wing markings.

It is a curious fact that the biplane structure of the first birds is identical with the first man-made aeroplane: that is, Orville and Wilbur Wright‟s powered biplane named the Wright Flyer at Kitty Hawk North Carolina in 1903. *© Don Burke*

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***Feathered Legs***

In his Budgerigar Variety Bible Ken Yorke says of this characteristic that although there is no official record of when it first appeared it has been popping up for several decades.



In some other varieties of bird it is encouraged

(for example the Belgian Bantams bred by Tony Piercy in the past ) but this has not been so in budgerigars. One of the reasons cited for this is the difficulty in putting closed rings on such birds.



It is not known precisely how it is inherited but it is possibly a dominant m