

ANGELS, PUTTI, DRAGONS AND FAIRIES: BELIEVING THE IMPOSSIBLE

By Professor Roger S. Wotton

Representational art - painting, cartoon film, etc. - makes myths appear real, with mythological creatures and objects often placed within familiar and naturalistic scenes. We are then witnesses to events that may be described only in literature, or in verbal folklore, yet the images created become believable. In this way the myths are reinforced and we assimilate these fantastic forms into our thinking.

One of the myths is that of flying beings. Angels, putti, fairies and dragons are all shown as having wings, an otherwise naturalistic form that we recognise readily. Yet, are they able to fly? If not, why do we wish to suggest they have the same powers of flight as real flying animals?

The origin of wings in angels, putti, fairies and dragons

Angels and putti are portrayed with feathered wings that are white or off-white in colour, although a minority are brown or multi-coloured. Their wings derive from those of birds, and birds are descended from reptiles with reduced fore limbs. These ancestors ran on the hind limbs, with fore limbs then being used largely for manipulation. Over time, the shape of the fore limbs changed and they evolved into wings (although some grasping function was likely to have been retained, as it is in some present-day birds like hoatzin chicks). The flight and contour feathers of the wings provide their characteristic profile and the whole body shape of birds is determined by the covering of feathers. The overall reduction of density of the bird skeleton also provides a light but strong airframe.

The wings of angels and putti must have arisen in a different way as they are present in addition to arms,^{a-d,f,g} one exception being Gormley's *Angel of the North* (1998), with its stylised wings/arms extended from the shoulders.^e Pictures and sculptures show no evidence of weight reduction in the skeleton, and angels have normal-sized bodies. Putti show weight addition rather than reduction, as they are chubby babies with tiny wings.

Unlike angels or putti, Western dragons have wings consisting of skin over a supporting framework of digits. They remind us of the wings of pterosaurs, although artists often base their images on the wings of bats.^{h,i} (In Eastern culture, dragons are not winged and more closely resemble caterpillars with ornate heads. These dragons also have an association with the sea, Leeming, 2005). Bats and pterosaurs both use(d) wings derived from the fore limb and some manipulative capacity of claws is (was) often retained. It is easy to see that dragon wings evolved in the same way as those of bats and pterosaurs, at least in wyverns. Wyverns are winged dragons without fore limbs: one of the best known portrayals is in *St. George and the Dragon* by Paolo Ucello (c. 1470),^j or perhaps early versions of the badge of the Vauxhall car company. The majority of dragons have both wings and fore limbs and give us the same problems of interpretation we had with angels and putti. Just how were wings located if they were not derived from fore limbs?

Unlike the bird wings of angels and putti and the bat/pterosaur wings of dragons, fairies have insect wings.^{k,l} Some are portrayed as having wings of bizarre shapes, but more usually they are similar to those of damselflies or, especially, butterflies (not all fairies are winged and there are many other varieties of these mythical creatures in folklore, Briggs, 1967). Insect wings are very different to those of birds and bats. Insects have exoskeletons and wings arose from extensions of two thoracic segments. These segments have both legs and wings in flying insects, the wings being pumped up to full size when the adult stage emerges from a pupa or late-stage larva. Wings then dry into thin sheets of cuticle reinforced by 'veins'. How did fairies acquire such wings and how are they attached? That is an even more complex mystery than the evolution of the wings of

angels, putti and dragons. Most illustrations show the wings originating somewhere from the back of the thorax, but how fairies produce insect cuticle and how the wings are inserted is a mystery. There are no illustrations of larval or pupal fairies to help us out.

Powered flight in angels, putti, dragons and fairies

How could powered flight be achieved by these mythological creatures? As angels and putti have bird-like wings we must believe that they beat in a similar way to those of birds. The flapping of bird wings is achieved by two muscles on each side: pectoralis major (which pulls the wing downwards) and supracoracoideus (which pulls the wing upwards). Although you may not be familiar with these names, you will know the muscles. Carving the breast of a roast chicken involves taking slices through pectoralis major while, lying close to the breast bone is the much smaller supracoracoideus. Pectoralis major is attached to the base of the humerus; so if supracoracoideus lies parallel to this very large muscle, how does it effect upward movement of the wing? The answer lies at the narrow end of the muscle where a tendon runs forward through a hole between the three bones of the shoulder joint to insert on the upper part of the humerus. Contraction of supracoracoideus thus lifts the wing. If these muscles are not familiar to you from a roasted chicken, pop to your local supermarket and buy a chicken breast: you will find it includes both flight muscles, one atop the other; the tendon of supracoracoideus being obvious.

Chickens are not good fliers but many birds certainly are and the power comes from the two pairs of antagonistic muscles. Pulling the wing downwards generates most of the lift (the reason why pectoralis major is the larger of the two muscles and why it requires such a large insertion on to the breastbone) and thrust comes in the upstroke. Lift and thrust result from the orientation of the wing and this is affected by further small muscles - the wings moving in a shallow figure-of-eight and with the leading edge of the wing tipped downwards on the downstroke and upwards on the upstroke. Even this is a simplified description because there are also vortices over the wing and these are shed in the downstroke to generate further lift. In addition to powered flight, many birds glide and soar using the flow of air over their airfoil-section wings. Watch seagulls and you will see that this results in a minimal use of energy, yet allows birds to cover long distances. It is entirely dependent on the way the feathers form a convex upper surface to the wing, forcing air to move faster and thus at lower pressure. This sucks the wing, and thus the bird, upwards. We have borrowed this design for the development of aircraft wings.

If angels and putti fly with bird wings, we face some questions:

- How is a second pectoral (shoulder) girdle to support the wings located?
- Where are the flight muscles inserted and how are these very powerful muscles apparently hidden?
- Why is there no evidence of weight reduction in the bodies of angels and putti?
- Do angels and putti just glide and, if so, how are the wings folded, unfolded and held rigid?

Of course, even a cursory examination of the evidence in representational art shows that angels and cherubs cannot take off and cannot use powered flight. If they use gliding flight they would need to be exposed to very high wind velocities at take off - such high winds that they would be blown away and have no need for wings except for recovery to a substratum when the winds died down. Interestingly, Giotto shows one angel with a rigid mono-wing^d which could be an adaptation for gliding flight.

Can a better case be made for dragons being able to fly? Their flight musculature must be similar to that of birds, as dragons appear to be reptiles and birds have reptile ancestors. Having two pectoral girdles (in dragons with wings and fore legs) presents similar problems of function to those of angels and putti and all the questions highlighted above remain. Dragons also face the

same problems if their flight mechanism is similar to that of bats, where pectoralis major is again an important contributor to the downstroke, although the supracoracoideus of birds is replaced by other muscles. We must therefore conclude that dragons, like angels and putti, are not capable of flapping flight but could glide if blown into the air on strong enough wings. It is just possible that the skin covering the wings is used as a parachute. Flying squirrels (*Glaucomys* spp.) have skin flaps at the sides of the body, which are stretched by extending the limbs and the tail. The resulting parachute slows descent and allows rapid forward movement between trees. Flying squirrels run up trees to gain height between flights but it is inconceivable that dragons show this behaviour.

Fairies are likely to have a more complex flight mechanism. If they have damselfly wings they will be flapped by muscles inserted on the wing base and running across the thorax, avoiding the lungs and other vital organs. Should the fairies have butterfly wings the flight mechanism is likely to be more complex again. Butterflies are among the most advanced insects and have direct muscles to control the orientation of the wing, but indirect muscles to generate the downstroke and upstroke in flapping flight. These indirect muscles, as their name suggests, are not anchored to the wing base. One set runs longitudinally within each thoracic segment and its antagonist set dorso-ventrally. Flapping of the wing is achieved through creating distortions in the exoskeleton of the thorax which then trigger sudden releases of tension in what has been described as a click mechanism. The distortion of the thorax needed for flight in fairies with butterfly wings would be exceedingly uncomfortable. For sure, fairies don't fly.

If they cannot fly, why are angels, putti, dragons and fairies shown to have wings?

Dragons, putti and fairies have their origins in folklore and result from mythopoetic verbal cultures of many diverse kinds. These include local, regional and more organised cultural mythologies associated with powerful States: the supposedly bird-like Sirens and the winged Furies of Classical Mythology (Morford and Lenardon, 2007) are obvious examples of the latter. It should be stressed that having wings is an attribute of only some dragons, putti and fairies but recent popular mass culture, which tends to be uniform, favours flight as one of the characteristics of all three.

Angels are different. They may have relatives in folklore but they also have significance in the Judaeo-Christian tradition (and play a role in Islam). Angels are linked to the theistic force at the centre of these religions and thus have special significance. Taking the Bible as a source, is there evidence that angels have wings or that they have a physical entity at all?

The following are quotes from the *King James Bible* ^m

Isaiah 6: verses 2 and 6:

Above it stood the seraphims: each one had six wings; with twain he covered his face, and with twain he covered his feet, and with twain he did fly.
Then flew one of the seraphims unto me, having a live coal in his hand, which he had taken with the tongs from off the altar.

Exodus 25: verse 20:

And the cherubims shall stretch forth their wings on high, covering the mercy seat with their wings, and their faces shall look one to another; toward the mercy seat shall the faces of the cherubims be.

Ezekiel 11: verse 22:

Then did the cherubims lift up their wings, and the wheels beside them; and the glory of the God of Israel was over them above.

Daniel 9: verse 21:

Yea, while I was speaking in prayer, even the man Gabriel, whom I had seen in the vision at the beginning, being caused to fly swiftly, touched me about the time of the evening oblation.

In the early mediaeval classification of heavenly beings made by Dionysius the Areopagite (c. 1500 years ago), seraphim and cherubim represent the top two ranks and their wings are not only used for flight. Archangels and angels (ranks 8 and 9) are not described as having wings, yet they can fly, as described in the last verse above. Our contemporary view of angels has been filtered through this mediaeval thought and it is a fertile ground for the imagination - hence the universal acceptance of angels with bird wings in religious images. There is no basis for this view and, as we have seen, flight is impossible in angels, just as it is impossible in putti, dragons and fairies. Yet still, the religious connection has a profound effect on our belief in the imagery; even allowing for a totally different method of locomotion to those found by all known living organisms.

The mythology of flying: Links with other worlds

Why do we need to believe that all four groups of winged beings need to fly? A simple answer is that they all represent a link between Earth and other worlds, with the power of flight allowing them to commute. What better way to emphasise this link than by giving images the wings of familiar organisms?

Angels and archangels are religious messengers and can move both ways between Earth and Heaven. Putti fly because they often accompany love, usually physical love, and they are supporters of liaisons, being able to look down on lovers while flying, or otherwise keeping their distance. Perhaps this prevents them from getting in the way of the action? Eros is a rather more grown-up example of a winged human having a similar role, firing arrows of love, just as do some of the putti. As putti are healthy-looking flying babies they have an additional role as symbols of reproductive success.

Fairies of popular imagination are thought to come from a pleasant underworld and commute between that and our world, so flying may be a way of decreasing travel time. They are very small compared to humans and play an important part in child-centred mythologies, where relative size is important. Fairies have been used in literature, film and television to excite the imagination of children, yet the mythology of fairies and their relatives (elves, trolls, goblins, etc.) is ancient and diverse. It is also amusing to note that there is often a link between fairies and angels in Christmas nativity plays, where many a child's fairy wings double up as those of the Archangel Gabriel.

Being perceived as malevolent, dragons are given the power of flight to spread evil a bit more rapidly - or to escape from saints with lances. As they fight with saints we can assume that they have connections with the residence of bad souls although, unlike angels, they seem to lead independent lives.

Mythology of flying animals

Having established that angels, putti, dragons and fairies are portrayed as possessing wings linked to specific types of animals, we next consider how myths associated with animals may have led to the choices made by generations of representational artists.

The following flying organisms are listed by Roud (2003) as having significance in the folklore of the UK and Ireland. This is, of course, only a single source of data from Western culture. Nevertheless, it provides some useful guidelines on attitudes towards different flying organisms in folklore.

<u>Organism</u>	<u>Role (usually one of many)</u>
Butterflies	The first seen each season should be killed for good luck
Moths	Thought to be connected with evil
Wasps	Killing the first wasp seen each year brings good luck (cf. butterflies)
Lizards*	Dangerous if one gets near them
Birds	Birds at a window are a bad omen
Cockerels	Messengers by calling
Crows	Bring bad luck, especially a single bird
Cuckoo	Cuckoos are often considered lucky: the call, and its direction, have great significance
Jackdaws	Bad luck omens
Kingfishers	Form good weather vanes when suspended from a string (yes, really)
Magpies	Mainly very negative: the extent of bad luck depending on their number
Nightingales	Their song is thought to be lucky (cf. cuckoo)
Nightjar	Sinister and nocturnal; thought to suck blood (cf. bats)
Owls	Associated with witchcraft; some owl calls are thought to foretell death
Pigeons	Largely a death omen
Ravens	Carrion feeders that are omens of death
Robins	Foretell death, especially if they enter homes
Rooks	Associated with death, but are thought to be lucky by some
Seagulls	Thought to be the souls of drowned sailors
Swallows	Bring luck, especially near/on a house
Yellowhammers	Thought to be 'in league with the Devil'

To this list can be added further examples:

Damselflies	Thought to be connected with the devil but they are also given female names e.g. Demoiselle (a damsel or young, unmarried woman) because of their beauty and delicacy
Snakes*	Very commonly feared as being dangerous (snakes can also be interpreted as being phallic symbols e.g. by Freud)
Doves	Symbols of peace; released at gatherings (ct. pigeons)
Eagles	Have been symbols of power since Classical times
Storks	Bring babies
Swans	Symbols of purity (but they have 'Ugly Ducklings'). Swans are also potent male symbols - derived from the myth of Leda and the Swan (the transformed Zeus)
Bats	Associated with evil: not helped by their nocturnal habit and the perceived image of vampire bats

* not flighted, but possible relatives of dragons?

There is little consistency within the list, with many creatures having almost opposite values in local myths. There are, however, some examples of uniformity. For example, all members of the crow family are regarded negatively, and we are familiar with the use of crows as symbols of doom (e.g. in Van Gogh's *Wheatfield with crows* (1890)ⁿ).

It is perhaps a surprise to read in the list above that butterflies have not always enjoyed the positive image they have now (although the caterpillars from which the adults grow are certainly recognised as pests and are still thought largely to be unpleasant). In addition to these folklore attributes, butterflies are considered beautiful, especially as they may close their wings at rest, thus

hiding their beauty (a movement that is interpreted as being demure). They are also day-active and, overall, have a better reputation than moths, many of which are drab in colour and are nocturnal. We've always had a fear of the night and of animals which are nocturnal, and this is reflected in the list given above.

A general conclusion is that birds often have a role in foretelling future events, whether these relate to climate, life or death. Fitting then that we imagine angels to have this attribute as well and we thus give them bird wings in our representational art. Putti have scaled-down wings but they are small-bird like and benign. Dragons often have bat wings which are easy to associate with evil because of their nocturnal habit. Finally, fairies have wings that are beautiful or symbolic of damsels.

Why do we need myths based on flying?

Myths based on flying could stem from out-of-body experiences that may occur near death, or when conditions are conducive to hallucination. The latter might be induced by drugs, fear, exhaustion, rapid breathing, sensory deprivation or by combinations of these. Many of us have also had dreams where we are able to fly; these dreams are interpreted by Jungian analysts to mean liberation. As flying dreams are usually pleasant, it is a short link to associate them with a world of good spirits, especially in the state of half-wakefulness during which such dreams are most clearly recalled. It is then only one further step to associate these feelings with those of other-worldly significance. The question then arises as to why we accept images of winged putti, dragons and fairies when they are impossible and obviously stem from the artists' imaginations. There must be very few who still believe in these images, although there was a much greater belief in earlier times when mythical views were more apparent. But what of angels? Their religious origin brings a much stronger hold and they exist for followers of the Judaeo-Christian religions. It is unclear, however, how many actually believe representations in works of art to be accurate. Some probably do.

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