



## *Helicopters and Dragonflies*

I remember many times as a child, running outside to look at a helicopter as it passed over our home. Indeed, the helicopter is an amazing feat of human engineering, and continues to intrigue many people.

Mr. Igor Sikorsky, a Russian-born engineer, was the first person credited with a successful design and construction of a helicopter, with the introduction of his VS-300 around 1940.<sup>1</sup> This helicopter soon became the prototype from which all modern helicopters are modeled. Sikorsky's XR-4 was the first widely produced military helicopter, and was used to a small degree by the United States Army during World War Two.

Concerning helicopters, J. Gordon Leishman<sup>2</sup> had this to say: *"A pure helicopter can be defined as any flying machine using rotating wings (i.e., a rotor with blades that spin about a shaft) to provide lift, propulsion, and control forces that enable the aircraft to hover relative to the ground without forward flight speed to generate these forces. In addition, to be practical, the machine must also be able to fly forward, climb, cruise at speed, and then descend and come back into a hover for landing. This is the dream of true flight, a feat only achieved in nature by the hummingbird or dragonfly. Nature has inspired humankind for literally hundreds of years before the vertical flight machine we now know as a helicopter became a practical reality."*<sup>3</sup> [Emphasis my own].

The similarities between helicopters and dragonflies may seem rather obscure, but they exist and are remarkable.

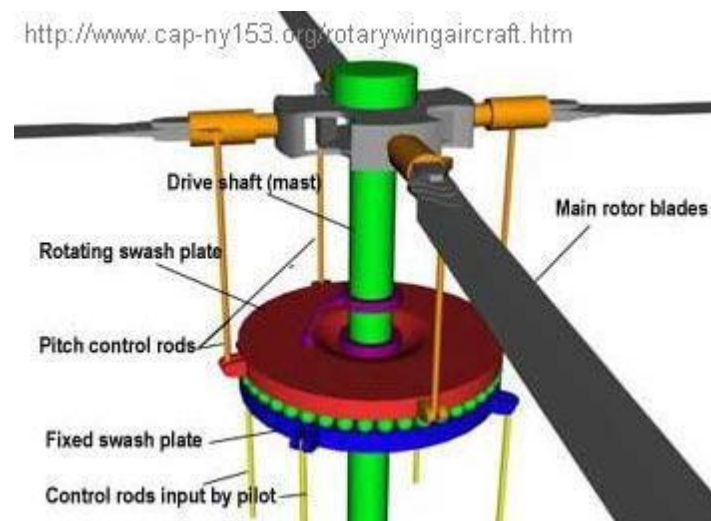


Dragonflies have two sets of wings that are almost identical. When the dragonfly is traveling forward, the front set of wings gives the dragonfly its lift, and the rear wings provide propulsion. However, the dragonfly often decides it would rather fly backwards, and can do so a split second after flying forward! This requires the muscles that power the wings to work in reverse, so that now the back wings are providing lift, and the front ones propulsion.<sup>4</sup>

Some of the first helicopters were equipped with metal blades. However, inventors and scientists soon discovered that these metal blades did not allow for agile handling of the aircraft, though they did provide great forward speed. Nor did metal blades endure the stresses of flight, due to the rigidity of the metal. Composite materials, such as carbon fibers, were finally settled upon as the material of choice for the rotor's blades because they are both strong and flexible, and do not crack as easily under stress. This allows for the helicopter to be fast and maneuverable, traits needed in modern war aircraft.<sup>5</sup>

Very similarly, the dragonfly's wings are "composite," being made up of many smaller, paper-thin wing-sections, held together by little channels, which are a type of blood veins.<sup>6</sup> The leading edge of the dragonfly's wings are quite a bit thicker than the rest of the wing, which helps to prevent the wings from fluttering while in flight.<sup>7</sup>

The main way a helicopter changes course is by the pilot's altering the angle of attack at which the rotor's blades strike the air using several mechanical levers. However, a dragonfly adjusts the angle of attack on its wings by transitioning its muscles to beat its wings in a slightly different pattern. In fact, the dragonfly is one of the only flying insects know to actually slope its body, and bank for a turn, very similar to a modern helicopter.



The aerodynamics change significantly while banking for a turn, so that the thrust being exerted by the set of wings on one side of the dragonfly's body is less than the thrust being exerted by the other side. This requires remarkable precision and coordination of the muscles in dragonflies, and even more so in helicopters. One pilot described flying a helicopter as, "Patting your head and rubbing your tummy, while balancing on a bowling ball with one leg."



<http://www.richard-seaman.com/Aircraft/AirShows/Riverside2005/Highlights/index.html>



[http://www.wpclipart.com/animals/bugs/D/dragonfly/dragonfly\\_in\\_flight.jpg.html](http://www.wpclipart.com/animals/bugs/D/dragonfly/dragonfly_in_flight.jpg.html)

While evolutionists continue to claim that everything in existence came about by random, mindless chance, let us be convinced by the astounding similarities between dragonflies and helicopters, that mankind has copied his Creator, and that God has designed dragonflies in a way far superior to that of helicopters!

#### **Footnotes:**

1 <http://inventors.about.com/od/hstartinventions/a/helicopter.htm>

2 J. Gordon Leishman, Professor of Aerospace Engineering, University of Maryland, College Park  
(<http://terpconnect.umd.edu/~leishman/Aero/history.html>)

3 Ibid.

4 Dr. Jobe Martin, Incredible Creatures That Defy Evolution, Exploration Films (<http://www.youtube.com/watch?v=41OD5NEV-Kw>)

5 <http://www.helistart.com/RotorBladeDesign.aspx>

6 [http://en.wikipedia.org/wiki/Insect\\_morphology#Veins](http://en.wikipedia.org/wiki/Insect_morphology#Veins)

7 Dr. Jobe Martin, Incredible Creatures That Defy Evolution, Exploration Films 2003 <http://www.youtube.com/watch?v=41OD5NEV-Kw>