Spring winged aircraft described in ScienceNOW, 19 January 2005. Insects use two layers of muscle to flap their wings - as each layer contracts it stretches the other, which then contracts whilst the other layer relaxes and gets stretched ready for the next cycle. This process occurs too quickly to be controlled by nerve impulses, so scientists have proposed that it works by using energy stored in the muscles themselves. A team of scientists led by Thomas Irving, a biophysicist at the Illinois Institute of Technology was able to follow the movement of proteins in fly wing muscles using a high intensity x-ray beam. They found that a long rod shaped molecule named myosin, that was previously thought to be stiff, was actually stretched between muscle contractions so it could store energy like a stretched spring. According to ScienceNOW this study “may have finally solved the mystery of how insects flap their wings so fast”.

Editorial Comment: This kind of precision engineering at the molecular level is a powerful challenge to the idea that proteins evolved by random changes in their amino acid sequences. Unless the myosin proteins had the right 'springy' properties to start with, the insects would not be able to fly, and would lose out in any struggle to survive. (Ref. flight, proteins, nanotechnology)