

# This Year Is Darwin Year ...

... as probably everybody has already realised. Or do we still have to remind anybody that 2009 sees the bicentenary of Darwin's birth and the 150th anniversary of the publication of his seminal work, "On the Origin of Species"? Celebrations are planned throughout the year in almost every corner of the world and, not wanting to be left out, the international merchandising machinery has already jumped on the bandwagon (see photos).

Of course, *Lab Times* also plans to celebrate the world's greatest biologist. You'll find one fine example in the picture at the bottom of this page. And many more will follow as you leaf through the following pages of this "Lab Times Darwin Special Issue".

The main focus of our Special, however, isn't placed so much on the historical figure of Charles Darwin. No! We were more interested in taking a closer look at where the field of evolutionary biology stands today. In other words, what are the main questions and topics of research in evolutionary biology, 150 years after Darwin became the "father of evolutionary theory" (along with Alfred Russell Wallace).

Interestingly, during our investigations one specific question regularly surfaced: Darwin's "title question", in fact.

It is well known today that Darwin's book, despite being entitled "On the Origin of Species", only marginally addresses the question of how species are formed. Instead, it rather extensively elaborates on another topic: the evolutionary mechanism of natural selection. The "title question", however, has apparently remained "hot" right up until today. That's the reason why our Darwin issue features two essays on the questions "What is a species?" (p. 20) and "What are the mechanisms of speciation?" (p. 24).

Unfortunately, we identified more hot topics in evolutionary biology than we had space for in our "Darwin issue". One example is the significance and perception of evolutionary theory in the medical sciences. Luckily, the Darwin Year is long, so you can look forward to reading this article in our next issue.

One central question, however, has so far been left open in this editorial: why exactly do scientists celebrate Darwin to such an extent to-date? Because he demonstrated that species are no fixed creations but constantly change over time by descent with

modification and subsequent natural selection? Yes, of course! But what exactly is the impact of Darwin's insight on biological sciences today?

Well, many agree that at the heart of good science is not so much giving answers but rather finding good questions.

Up until Darwin, biology was only able to pose "What", "Where" and "How" questions. His theory that species evolve and thereby adapt to changing environments, however, directly implicated that every biological structure and every biological system is not only what

it is but, furthermore, represents two things: a biological problem and a way the problem has been solved. Therefore, Darwin's insights provided the first basis on which to ask "Why" questions. And these

have since proven to be the most interesting and fruitful ones in biology and even medicine. Why do we sexually reproduce? Why are we conscious beings? Why do pathogens become resistant to drugs?...

The number of *good* questions that Darwin's theory opened up is innumerable. And that's why we will probably still be celebrating him in another two hundred years.

