

Dinosaurs aren't extinct

(some things that we can learn from biology)

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In many millennia of history, and scientific development, until two hundred years ago nobody knew that there had been dinosaurs – as well as many other ancient or rare species. The occasional discovery of an unfamiliar fossil was perceived as a quirk in nature (or, maybe, the petrified remnant of a dragon or some other imaginary creature).

A crucial, long-lasting weakness in science was the failure to understand evolution. Charles Darwin's *The Origin of Species* in 1859 was met with more distress than appreciation by the scientific community of his time. A hundred and fifty years later, there are still obstinate antagonists who refuse to accept its consequences (especially, but not only, concerning the origin of humanity).

The discovery of “huge and terrible monsters from the past” soon attracted the curiosity and imagination also of people who were not particularly interested in science. Long before Michael Crichton, in 1990, wrote his intelligent novel *Jurassic Park*, there was awesome fantasy fiction, including mysterious “re-births” of terrifying man-eating monsters. While it was comforting to know that the real ones were extinct long before any human being existed – so we can avoid nightmares, because none of us was ever devoured by a dinosaur.

It has been less than twenty years since *Jurassic Park*, in 1993, became a movie, making dinosaurs “fashionable” to the point of becoming toys, puppets and cartoons. But even in such a small lapse of time there has been considerable development of studies on this subject.

In fact not all were tyrannosaurs. Several of the most gigantic were herbivores. And there were various species no larger than a turkey. Scientific improvement continues and perspectives are changing. For instance now we know that, if ancient dinosaurs hadn't been “suddenly wiped out” by some cosmic event or climate change, they could not have remained dominant in the environment – because, in any case, the stronger evolutionary potential of mammals would have prevailed.

A recent, and very relevant, discovery is that dinosaurs aren't extinct. There are many living species of their kin. They are called birds. (Actually a few of the “surviving dinosaurs” are closer to reptiles, as we used to believe all of them were. But there is a far greater number of birds in dino-heritage).

Only a few dinosaurs could fly. Most of them didn't. But this isn't the issue. Several of today's birds don't fly – such as chicken, turkeys, penguins, ostriches, emus, kiwis, etcetera. The fact is that dinosaurs probably weren't like we see them in drawings, movies or museum reconstructions. We still have a lot to learn not only about their appearance, but more importantly their biology and genetics.

With evolution, while we (mammals) prevailed on land (and also at sea) they became dominant in the sky, with only a few of us (bats) flying. But now we have airplanes.

The most important learning is on a much broader scale. It's about life in general and specifically human evolution. Particular species or breeds can become extinct in the natural course of evolution (countless "mutations" are born and dead every day). But genetic heritage continues and multiplies diversity.

Of many "humanoid" species only one survives today. The most recent discoveries of anthropology show that the billions of people now living are very close relatives. Descendants of a particular human breed that (according to some studies) two hundred thousand years ago was reduced to a small number of remarkably well organized individuals at the southern end of Africa.

Does this mean that all other "humans" or "pithecanthropes" are extinct? Not really. Many are our ancestors. We share with them a large part of our genetic structure and there are also cultural similarities. Without their contribution to the evolution of our species we wouldn't be what we are.

It is so also for culture, civilization, thinking. We are confused by a perception of continuing change, that often is only appearance. And (if we look more carefully) dismayed by the painful perception of how many opportunities for progress are missed and in how many ways things are going from bad to worse. Ranging from the ridiculous to the brutally disastrous.

The "extinction of dinosaurs" is a dangerous misconception also as a metaphor. It is dangerously simplistic to label as such whatever we would like to be vanished. For two opposite reasons. One is that truly unacceptable attitudes and behaviors have a nasty way of surviving (often in disguise) and it's risky to assume that they have disappeared. The other is that many things (and ways of thinking) carelessly dismissed as old rubbish are much more useful and interesting than the dumb proliferation of alleged innovations.

We also need to know that, even if we are doing our best to learn and understand, some sort of cultural dinosaur is likely to be lurking somewhere in our mind. Getting rid of such parasites isn't easy. We need to cultivate the subtle art of doubt, to discover if and why something that appeared "certain" needs some rethinking.

I am not attempting to draw any conclusions. I only hope that these observations may be, not only for myself, an incentive to think. The understanding of the past can help us to perceive the present and trace ways of the future. Of course there is much to learn from history, that too often we fail to explore as *magistra vitae*. But we need to look also into the deep roots of life.

Human nature and development are, inherently, biology. A young and fascinating science in which a lot remains to be discovered and understood.