Observations of the Owl (15)

Nobody's Perfect

Happy birthday, Darwin! Special wishes, in particular, from your feathered friends. Yes, we birds also admire good old Darwin as the most important biologist of all time. After all, it was largely the cooperation with birds that provided him with the most essential clues for developing his theory of evolution by natural selection.

Okay, okay – we owls weren't the exemplary source of Darwin's insights. But birds definitely played a distinct role! My dear cousins: pigeons, finches and mockingbirds to be more precise.

"Believing that it is always best to study some special group, I have [...] taken up domestic pigeons," wrote Darwin. By breeding all types of fancy pigeons he systematically studied how much variation could exist within a single type of animal and thereby successfully gained insight into the workings of selection.

Before that, during the Beagle voyage, it was the famous finches of the Galápagos Islands that, as many have thought, prompted Darwin to start thinking about the mechanisms of evolution. However, after re-examining his notes, it seems that, in fact, the Galápagos mockingbirds were the real key. Crucially, Darwin noted which of the noticeably different mockingbirds was from which island, something he didn't do with the finches. And apparently, it was these observations that led Darwin to question "the stability of species" for the first time.

"You humans very often like to adopt a rather anthropocentric view when it comes to evolution."

You can imagine that my cousins still harshly dispute who should take the credit as the essential "cooperator" in the Galápagos Islands and for effectively planting the catalytic seed in Darwin's brain, which finally grew into the whole theory.

Anyway, fact is: we birds definitely played a very prominent role in Darwin's development of the theory of evolution. "So what?" you might think. "Mere chance. Darwin could easily have studied some other creatures and, very likely, he would have reached exactly the same conclusions."

Hmm...disputable…I have a very different view on this. However, such a depreciatory human attitude is no surprise to me, given the rather anthropocentric perspective you humans often like to adopt when it comes to evolution.

For example, just recently I read the following lines in one of your scientific journals; ironically, they pertain exactly to the evolutionary relationship between you humans and us birds:

"The lineage that led to modern birds is an ancient offshoot of our vertebrate tree. It was about 330 million years ago that the ancestors of reptiles and birds branched off from our lineage, and that puts birds somewhere between (and beside) mammals and the extinct theropod dinosaurs, because they still maintain reptilian characteristics that we've lost; for instance, they still lay eggs and do not have a urinary bladder. So we can use them to trace the changes that have occurred as we went from our common ancestor to having fur to making milk to having live-born young."

Well, I have to admit that, similarly, we birds (and owls, in particular) very easily succumb to the same chauvinistic mindset. Thus, adopting the *aviocentric* view, an owl biologist much prefers the phrase:

"The mammalian lineage, of which humans are a part, is an ancient offshoot of our vertebrate tree. It was about 330 million years ago that their early ancestors diverged from our lineage to form the separate mammalian side branch. Like all mammals, humans lack a lot of specialised characteristics that we have developed but the common ancestor of lizards, birds and humans also lacked; for instance, they have no feathers and wings, their heavy bones are not hollow, they lack crop and gizzard, their respiratory system is much less complex without our air sack, and they are unable to sense the magnetic field lines of the earth. So, we can use them to trace the changes that have occurred as we went from our common ancestor to possessing our special traits."

Just for fun, let's imagine an *E. coli* biologist who probably would state in a provokingly *microbiocentric* manner:

"The lineage which gave rise to all eukaryotic organisms branched off the prokaryotic trunk about 1.5 billion years ago. Since then, eukaryotes have developed ever more sophisticated features from multi-cellularity up to complex nervous systems, which has enabled conscious learning in order to react and adjust their behaviour better to changing environments. We prokaryotes, however, might have tackled the same task more efficiently by ignoring all that pretentious stuff and focussing, instead, on the optimisation of our genetic networks. This way, we have become the world champions in coping not only with changing but even with most extreme environments."

Interestingly, not long ago, Stephen Jay Gould, one of your most famous evolutionists, made the same point when writing "Bacteria represent the world's greatest success story. They are today and have always been the modal organisms on earth; they cannot be nuked to oblivion and will outlive us all. This time is their time, not the 'age of mammals' as our textbooks chauvinistically proclaim. But their price for such success is permanent relegation to a microworld, and they cannot know the joy and pain of consciousness. We live in a universe of trade-offs; complexity and persistence do not work well as partners."

So what does that mean? At least, that nobody is perfect in evolutionary terms. You humans are not, we birds are not and bacteria less than ever. We are all only *sufficiently* adapted to the current challenges of our respective environments. Nothing more. Or don't you think you would be even "better" with wings to fly? Or wouldn't both of us be more complex if our ancestors had re-installed photosynthesis during our evolutionary history – like those slimy *Elysia* sea slugs (see *PNAS* vol. 105: 17867-71)?

On the other hand, by gaining energy from light alone and there being no necessity to hunt small animals – how unchallenging, boring and distinctly tasteless would an owl's life be?

Comments to *owl@lab-times.org*.