**[On wings of air](https://www.dawn.com/news/1421906/on-wings-of-air)**

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YES, yes … election fever is at a peak, Nawaz Sharif is in jail, [politicians are calling voters donkeys](https://www.dawn.com/news/1419700) and actual donkeys are being beaten by political workers. Hordes of extremists are contesting elections – having suddenly been removed from the Fourth Schedule — and seem to be mainstreaming the rest of us as opposed to the other way around. Agriculture and its various departments are the talk of the town, and there is more mention of engineers in popular discourse than in an average matrimonial ad.

No, we won’t be discussing any of these topics in this column due to my own personal political fatigue and also because of a highly developed instinct for self-preservation. Instead, this column is about spiders. Flying spiders. This isn’t a metaphor or some imagining of the fevered mind of an arachnophobe, this is about the answer to one of the most long-standing mysteries of the natural world.

Our story starts in 1832, when 22-year-old Charles Darwin was on his history-making voyage aboard the Beagle. Sailing off the coast of Argentina, Darwin came on deck to find that the ship was now host to thousands of little red spiders about a millimetre wide who had somehow made it on board and coated all the ship’s ropes in their gossamer webs.

*Spiders can sense and exploit earth’s electrical field.*

Being an inquisitive kind of guy, Darwin wondered where they had come from, given that they had appeared overnight and that the coast was at least 60 kilometres away. Others have observed this phenomenon — known as ballooning — since then and decided that the spiders ‘sailed’ on the wind. But that didn’t satisfy Darwin as in some cases there were no winds to sail on. Instead, he posited that the ‘aeronaut’ spiders somehow floated on electrical currents.

Centuries later, he has been proven right. Scientists at the University of Bristol put the spiders in an enclosed box and generated electrical fields similar to what the spiders would experience in the outside world. Immediately, the tiny hairs on the spiders stood up, much like ours do when exposed to static electricity. But then, the spiders stood on the tips of their legs and raised their abdomens and actually took off into the air. When the field was switched off, the flying spiders also dropped down to earth.

The complete explanation is too lengthy but in essence this proves that spiders can sense and exploit earth’s electrical field, using it to fly up to five kilometres up in the air and some 1,600 km out to sea.

Nor is this the only case where members of the animal kingdom have powers that seem to come out of the comic books. For example, we have known for decades that birds use the earth’s magnetic field to navigate, much as we use road signs and Google maps. The first inkling of this came in the 1950s when a scientist noticed that caged robins would gather in the southern end of their cages when the migratory season approached despite being in a room where they could not see the sky or even tell if it was night or day. A decade later, another scientist proved this theory by ‘fooling’ the birds with electromagnetic coils.

Again, birds are not unique in this as they share this ability (called magnetoreception) with frogs, bats, all manners of aquatic life and — to an extent — cows. Yes, cows; quite by accident scientists studying Google maps discovered that cows tend to either face magnetic north or south while grazing. We don’t know why, but in the case of birds we do now know how they visualise these invisible (to us at least) lines of force that crisscross the globe. This is due to an ‘unusual’ eye protein called Cry4 — which is produced in larger quantities during migration season, enabling the birds to get a clearer road map, so to speak.

So what about us, smug species that we are with our highly developed brains, opposable thumbs and Netflix? Throughout history we have copied and ‘improved’ on what nature has to offer: Sabretooth tigers have claws and we don’t? Let’s develop weapons to compensate. Freezing in winter while bears stay warm? Let’s skin them and wear their fur. Birds can fly but we can’t? Say hello to the Wright brothers.

So can we also harness the energies of the earth as a biological function? Spiritualists believe we can and have for centuries — pointing to the quasi-occult theories of Ley Lines and the persistent Chinese belief in ‘dragon lines’ and feng shui. Scientists are also in the game, and a maverick geophysicist called Joe Kirschvink has been experimenting on this for years. Others are looking towards gene editing and engineering to give us what nature didn’t. Those specialising in biomimickry are looking at the spiders to possibly design better wingsuits and gliding gear. After all, wasn’t radar inspired by bats? Soon enough, calling someone a ‘birdbrain’ may not be an insult but a marketing slogan.

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