

gravitational field. The universal gravitational field holds the whole Universe together. It includes the whole Universe, and that universal gravitational field, according to Einstein, is not in space and time. It is spacetime. It provides the framework within which everything else happens.

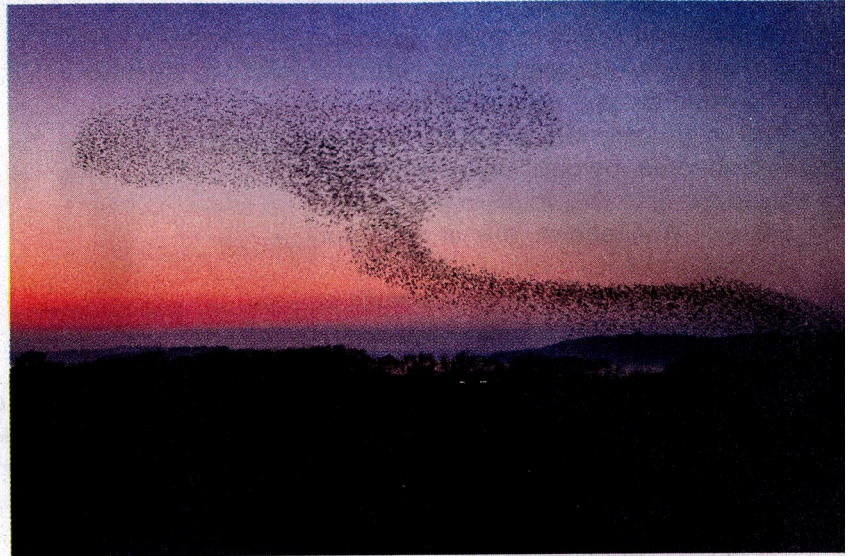
And a magnetic field, if you think of iron filings scattered around a magnet, lining up in lines of force around a magnetic field, it's a top-down causation that causes those lines of force to appear and the iron filings to take up their positions. They don't take up their position because each individual iron filing sort of somehow knows where to go and tells the next one what to do, they do it because there's a top-down causation affecting the whole thing. And in a termite mound, what I'm suggesting is there's a morphic field for the entire termite colony, like an invisible blueprint or plan. The individual termites, which are blind, put little balls of mud in the right place to build this structure, but they themselves don't see where they're going and they know where. The entire structure of the field, any more than an iron filing in a magnetic field within one particular line of force doesn't have the plan of the entire magnetic field within it, that's within the field as a whole.

And so the example you gave was an experiment by Eugène Marais in South Africa, where he damaged a termite mound. He put a metal plate in the middle of the termite mound and on both sides the termites repaired the damage by making bridges and arches. And even though they were all blind, they lined up so they were perfectly aligned, suggesting there was an invisible plan underlying the termite colony. And I think that these group fields are also something we can actually see in action.

Most people have seen murmurations of starlings, for example, where these birds fly together in flocks, sometimes with tens of thousands of birds in a flock and they can all change direction in such a way they don't bump into each other. The individual birds not only know where their neighbours are, but where they are going to go next, otherwise they'd be constantly colliding, and I think they are responding to a field of the group as a whole. You could call it a hive mind or a group mind, which is a top-down causal influence to which they're all responding and to which they all contribute. If you think of a magnetic field, the whole magnet has an overall field which is a unified whole and that emerges from the individual magnetic domains within the magnet, and in turn keeps them aligned in the right way. So, the individual starlings in a sense give rise to the group field which then has a top-down effect on the starlings. So these group phenomena, these group lines, these group fields are indeed examples of morphic resonance, I would

claim, and all morphic fields have a kind of inherent memory so they'd remember the behaviour of past startling murmurations. There'd be a kind of memory in the group mind, not just a free-standing group mind that's non-historical, and the group mind of termites would inherit the forms and patterns of previous termite colonies.

Boucnik: Sounds like a feedback effect taking place at some point, but the thing is, I've spoken to an entomologist from Sydney University and also a quantum physicist from Frankfurt [University], quite eminent people, but as far as they're concerned top-down



causation is "not on", it's absolute heresy still. I was just wondering: has there been any sort of shift away from... have you noticed a more hidebound materialist point of view to something a little bit more holistic?

Just to give an example to finish, the program which got me interested in this first of all was called "global swarming" by [Sir] David Attenborough, and he showed all the murmuration, bait balling, what have you, and at the end of the program he said all the unity is illusory, it's all just individuals and it's just a complete illusion, and I thought that was rather premature! Then a few years later, there's a program... This is probably about 10 years ago: *Swarm: Nature's Incredible Invasions*, the BBC does sometimes on BBC Four, and this was seven or eight years later, and they showed an ant colony. I can't remember the actual example, but they showed all the differentiation of labour and collective decisions clearly being made and altered, and the narrator said... explained how this is happening, how the ant colony is doing this... and there was almost like a drum-roll effect and he said: "The links between all the ants creates a mind", and I thought, "Well there's a Eureka moment that's missed the headlines!" So in about seven or eight years' difference there seems to be some sort of change. I asked another interviewee, Jay Lakhani, who's the first