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Period 2

Advanced Placement Biology Research Project:

Introduction:

Shortly after writing about the "Ancient Greek Pyramids" and the Saharan mice that construct small pyramids of pebbles to extract moisture from the air, William R. Corliss accidentally came across Ronald M. Nowak’s book, “Australian Native Mice,” which describes the mouse species P. chapmani. P. chapmani builds low mounds of pebbles over its burrow systems. In both cases (Saharan and Australian) the pebbles are of a uniform size and cover a large area, often a meter in diameter. The pebbles are probably collected both by excavation and from the surface perhaps with the purpose of retaining moisture. Now we must decide between at least two possibilities: Since, the Australian native mice and Saharan mice are many thousands of miles apart, we have: (1) independent mouse inventions –merely a coincidence that the exact same method was used; or (2) an example of Sheldrake's morphic resonance. According to Dr. Sheldrake the idea is that there is a kind of [memory](http://fusionanomaly.net/memory.html) in nature. Each kind of thing has a collective memory. So, for example, take a squirre living in New York now. That squirrel is being influenced by all past squirrels. Dr. Sheldrake’s theory is, in his own words, “…how that influence moves across time, the collective squirrel-memory both for form and for instincts, is given by the [process](http://fusionanomaly.net/process.html) I call morphic resonance…a theory of collective memory throughout nature.” The memory processes are expressed through ‘things’ called morphic fields. These fields are within and around each organism. Morphic fields result in the memory processes that we take for granted today. Basically, morphic fields are fields of habit. These fields have been set up through habits of thought, through habits of activity, and through habits of speech. Most of our cultural life is habitual, we don't invent the English [language](http://fusionanomaly.net/language.html), we inherit the whole English language with all its habits, its phrases, its structure, and it’s grammar –and we use it like a habit. Occasionally people invent new words, but basically, once we've assimilated it, it happens automatically. I don't have to think when I'm speaking, reaching for the next word. It just happens, and the same is true about physical skills, like riding a bicycle, or swimming, or skiing if you can ski, these kinds of things. Sheldrake says the more often these things happen the easier they become for people to learn. Things like learning language have happened over thousands of years, so there's a tremendously well-established morphic field for language speaking. And so we instinctively inherit it and assimilate into our collective unconsciousness. The whole idea of morphic resonance is [evolutionary](http://fusionanomaly.net/evolution.html), but morphic resonance only gives the repetitions. It doesn't give the creativity. So evolution must involve interplay of creativity and repetition. Creativity gives new forms, new patterns, new ideas etc. We also know creativity ‘happens’ at different places and times around the world. And then what happens is a kind of Darwinian natural selection. Not every good idea survives.  Not every new form of art is repeated. Not every new potential instinct is successful. Only the successful ones get repeated. By natural selection and then through repetition they become probable, more habitual. Morphic fields organize themselves in this way. There need not be any conscious organization of morphic fields. (Self-organizing systems: things that organize themselves, like snowflakes, or molecules, or ecosystems, or animals, or plants, or societies, like flocks of birds). It must make a difference if someone is absolutely intensely involved with an idea and dwells on it with huge [intensity](http://fusionanomaly.net/intensity.html). If somebody in solitude works away in an extremely intense way it may indeed set up a morphic field. In fact, we know that something like that does seem to happen, because it's very common in art, in fashion design, in science and technology for different people to have similar inventions. A familiar example of this is the story of the renowned Charles Darwin, who, when developing his theories of descent with modification, was reluctant to make his work public in fear of the uproar he knew it would create. Then in 1958 Darwin received a letter from Alfred Wallace, a young British Naturalist working in the remote East Indies. This letter was accompanied by a manuscript in which Wallace developed a theory of natural selection essentially identical to Darwin’s. Wallace was simply sending his new theory to one of the leading biologists of his time, asking Darwin to evaluate the paper and send it for publication. Darwin himself wirte of the encounter, “…I never saw a more striking coincidence…”Now, is it merely a coincidence that the most revolutionary theory of all natural science was made on two separate occasions, by two isolated individuals, living thousands of miles apart, not in collaboration with each other, nor in contact with society, would –throughout all the thousands of years of human existence– develop this theory, within the space of one decade? Surely not, clearly there is more to it than meets the eye. First, in history, there were discovered, electrical and magnetic fields, and then later gravitational fields, then quantum fields, and in biology, morphogenic fields. This field concept in biology is what Sheldrake calls morphic fields, which he says are the invisible patterns that underlie the growth of living organisms; the invisible patterns organizing the activity of nervous systems, underlying instincts in animals. And they are the invisible connections that link together members of social groups. For example, a flock of birds can all turn together at practically the same time. He thinks this is because there is a ‘field’ of the whole flock; they're all within a larger system, part of a larger whole. The morphic field of the flock is what links and coordinates them. He says, “They're turning far too fast to do it just by watching their neighbors or by responding to ordinary sensory information.” The example he gives is to think of these fields and their movements as being coordinated in the same way as the movements of iron filings around a magnet. When you move the whole magnet, the whole pattern of the filings changes because they're all responding to the field of which they are a part. This he says is as true for birds in a flock as it is for human members of social groups. The inside front cover of the March 1944 issue of BioScience displays five pairs of colorful [butterflies](http://fusionanomaly.net/butterflies.html). Each member of each pair is practically a duplicate of its partner in shape, design, and colors. But, each butterfly of each pair is also a different species. Although the pairs are from the same geographical regions, there is no obvious reason why this astounding mimicry should occur. Here, one cannot extrapolate that one species gains an [evolutionary](http://fusionanomaly.net/evolution.html) advantage by mimicking an unpalatable species, as with mimics in the case of the Monarch Butterfly. That is, there seems to be no evolutionary advantage to looking alike. (Miller, Julie Ann; BioScience, inside front cover, March 1994). Cases of remarkable mimicry also occur among geographically separated species (like the mouse example above). The North American Meadowlarks are nearly exactly the same as the African Yellow-throated Longclaw. Convergent evolution names the phenomenon but doesn't tell how or why long chains of random mutations can come up with the same designs where there seems to be no "guidance" by the forces of natural selection. You see, in all cases where convergent evolution occurs, it is because of directional natural selection shaping analogous adaptations, but in these cases there could be no naturally selective influence identified, the convergent evolution was independent of any such naturally selective forces and therefore would have to be related to something else. Challenging the fundamental assumptions of modern science, this ground-breaking radical hypothesis suggests that nature, itself, has memory. The question of morphogenesis - how things take their shape - remains one of the great mysteries of science. Questions like “What makes a rabbit rabbit-shaped?” How do newts and starfish regenerate limbs? Why do societies arrange themselves in certain predictable patterns?According to Sheldrake's hypothesis of formative causation, these questions remain unanswered in part because convention is hobbled by the reductionist assumption that finding the answers to such questions is largely a matter of figuring out the machinery of nature, of getting to the bottom of an ultimately mechanical universe. But, Sheldrake suggests that nature is not a machine and that each kind of system - from crystals to birds to societies - is shaped not by universal laws that embrace and direct all systems but by a unique "morphic field" containing a collective or pooled memory –a collective unconciousness. So organisms not only share genetic material with others of their species, but are also shaped by a "field" specific to that species. Why do many phenomena defy the explanations of conventional biology and physics? For instance, when laboratory rats in one place have learned how to navigate a new maze, why do rats elsewhere in the world seem to learn it more easily? Rupert Sheldrake describes this process as morphic resonance: he argues the past forms and behaviors of organisms influence organisms in the present through direct connections across time and space. Calling into question many of our fundamental concepts about life and consciousness, Sheldrake reinterprets the regularities of nature as being more like “habits than immutable laws”. Said, in other words, all scientists are aware that upon the death of an organism, something leaves the body, or the body looses something, this we know is energy –which has many forms– we ask what shapes this energy into the forms we see around us. The nature of this formative principal is the focus of this theory.