

## Echolocation and Evolution

“It is true that creative human achievements rely on a far flung, highly articulate, cultural structure, but the creative act itself is performed by informal comprehensive powers -- by powers which the man of genius shares with all men and which all men share with infants, who in their turn are about on a par in this matter with the animals.”

Michael Polanyi in *Personal Knowledge* (1962:400)

"Everybody's created equal, but they don't *exercise* that thing."

James Brown

So far, over 930 species of bats are known, almost one fifth of all the mammal species.

Bats have been around for about 50 million years.

All bats have the capacity to echolocate, though it is much diminished in fruit bats and the 30% of bats that are not primarily catching insects on the fly.

Each species makes unique echolocating sounds.

Three species of bats echolocate and eat fish by bouncing sound off ripples of water or off little fins at the surface of the water.

There are over 300 species of shrews, more being discovered all the time, and some of them may be echolocating food or obstacles in their paths.

Cetacea – 78 species of whales, dolphins, porpoises – and some are famous for echolocating in water.

Humans are a very recent invention, only around as hominids for a few million years and as sapiens, with abnormally big brains relative to body size, for a few hundred thousand years.

Civilization, class, urban living, literacy invented just a few thousand years ago.

Humans and bats probably both descended from a tree shrew type of creature.

Bats took one path and are finding a 1,000 ways to serve Gaia, while humans took a different path and found one way, our way, to harm Gaia.

Let's suppose that bats are 930 times more successful than humans because they have co-evolved to fill 930 different ecological niches, or have evolved 930 strategies for survival and continuity, whereas we have devised just one strategy and it is failing.

We are dragging so many other species down with us.

By this sort of logic shrews are 300 times more successful than humans.

Cetacea are 78 times more successful, brilliant, wonderful.

We are opposing all these vastly more successful ontologies and echolocating strategies of mammal species on land, in the air, in the seas.

Questions. Ruminations.

Why are we betraying our fellow mammals so horribly?

Did hominids or humans take a wrong evolutionary turn when we abandoned echolocation for "culture?" When we gave up sound minds in sound bodies to look at books, TV and computer screens?

Could music-dance-ritual be our version of echolocation and the key to resuming our co-evolution with nature?

Could we branch into more species over the next million years if we resumed music-dance-ritual-echolocation as our primary communication and mode of being?

Why weren't there any exciting or stick-in-our-minds findings from Bateson's research with dolphins on matters of communication? Is echolocation a kind of primary communication that makes our kind of language communication less necessary?

Pat Campbell:

“Did you know that the bumblebee bat of Thailand weighs less than a penny?” I recall the day when, in the middle of a piano lesson, seven-year-old Gabriel threw me a very small curve. With my agenda of two major scales and a Bach minuet to check (and no knowledge whatsoever of bats), I nodded and set out to re-focus his attention on the notes and keys. Bats are a standard school unit in the primary grades, like units on spiders, birds, farm animals, and whales. Gabriel, it turns out, had been studying bats in his second grade class at school, had selected out a project to report on the “bumblebee bats”, and was simply bubbling with “facts on file” in his head that he wished to share with anyone who would listen. Teachers spend considerable chunks of their school day leading children into a discovery of the natural world, and consequently there are many enthused children who can rattle off the species, habitats, diets, and functions of birds, mammals, reptiles, and marine life. Children like Gabriel might well be rewarded for knowing what they know about their natural world, and even a music teacher might be able to put her agenda aside in order to go with the flow of a child's enthusiasm. I have often wondered whether Gabriel's question could have been a teaching moment, a time to diverge from the lesson, allowing his interest to direct the next steps. I might have said: "I've never even heard of the bumblebee bat! What do bumblebee bats sound like? How do they look when they fly? Can we make bumblebee bat music together?". But the moment slipped away.

If bats can “see” via this complex process of echolocation, finding their way in the world, one wonders why the human species, in all of its cognitive brilliance, can't take it further. Can we learn to "see" where we have been and where we are going via sounding? Can our patterns of sounding sensitize us to our place in the natural world? Children sense connections between themselves and other living creatures, while many adults seem to lose those links. Could human musicking become an extension of mammalian echolocation? If we were to make more music outdoors, in the woods, on the waters, could we balance ourselves ecologically in the natural world of which we are a part? Music, dance, and ritual might be human ways of 'seeing in the dark', shining through the darkness, brightening the way. Our engagement in musicking experience could become an awakening and/or a chance to examine our actions, a pause for the cause, and a shift from convergent-only thinking to divergent thinking, or vice versa.

- Speaking of divergent thinking, teachers and interested others might find John Baer's [Creativity and Divergent Thinking: A Task-Specific Approach](#) (Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers, 1993) of interest. Not only are theories of divergent thinking (i.e., creativity) explained, but there is a clear thread running through the discussion: the importance of a shared knowledge base that allows creative associations and solutions (i.e., divergent thinking) to occur.
- Even as we accept or doubt that humans are related to bats and tree shrews, we can celebrate the distinctively human genius that has evolved. Exemplars of

seven “intelligences” can be found in stories of seven extraordinary individuals Howard Gardner so eloquently tells in Creating Minds (New York: Basic Books, 1993)—including Martha Graham, dancer extraordinaire, and Igor Stravinsky, the chameleon-like composer who shifted colors through many expressive styles in the course of his lifetime.