

The Future of Communication

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He believed that just as life had covered the Earth to form the biosphere, so mankind — thinking life — would eventually encompass life to form a higher layer, a cogitative layer he called the noosphere.

-- Arthur C. Clarke and Stephen Baxter, *The Light of Other Days* (2000)

Communication in plants mainly takes place in elaborate chemical ways and, in some cases, via light and vibration. Animals can communicate via chemicals (e.g., pheromones) and other means that they can produce and perceive. They make sense of various electromagnetic signals via their magnetic sense (e.g., migratory birds), electrical sense (e.g., electric fish) and vision (visible spectrum, thermal spectrum, IR and UV spectrum in some animals such as honeybees, snakes and raptors, single photon detection, generation of camouflaged polarized patterns for communication on squid skins). The auditory sense in some animals amazes with its huge bandwidth (some bats easily hear frequencies higher than 100 000 Hz, and use tiniest modulations for echolocation, with subnanometer mechanical thresholds). The sense of smell is so accurate that we can detect single molecules. And with our sense of touch we can e.g., perceive textured messages written in Braille. And these are just some of the senses of people and animals!

Since the development of electrical devices for communication, our sensory field and our potential to talk has enlarged tremendously. We can now communicate across space, across languages and across species. Online encyclopedias such as Wikipedia provide knowledge at our fingertips, and — what might be one of the most revolutionary aspects of our new ways of communication — via the convergence of minds we all shift from consumers to collaborators, with emergent results beyond our wildest imagination. We are currently creating worlds as we want them — online. But such online paradises are just the beginning — together we can bring them to reality — with the help of elaborate control, instrumentation, communication and computational technologies.