

## Man in the World of Insect: From Food to Technology

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Almost everywhere you look you'll find diverse group creatures belonging to insecta that constitute about 80 percent of animal kingdom. In fact, these six legged animals evolved before the human life started on the planet earth. Since, they take part in many natural processes entomologists now believes that if all insects would suddenly disappear, humans would not be able to survive in new conditions longer than 10 years. Unfortunately many of us perceive them as problematic such as mosquitoes, lice and bed bug that transmit diseases, some damage our possessions, buildings, such as termites and others hurting agriculture (weevils and locusts). Yet, without insects, ecosystem services like pollination, nutrient cycling and waste management will stop completely leading to lack of food for human. Besides, they can be a very good source of food for man and animals especially to fight hunger and malnutrition as they are very good source of protein and vitamins and relished as delicacies world over.

Human civilization have learnt so many lessons from these creatures especially social and organised living and maintaining harmony in the group. We can be inspired in many ways by social insects to solve up surging problems faced by human society these days like public health and development of efficient information and transport systems. Since they are the master of survival, their unique ability to perform in extreme nature has led to incredible inspirations for engineering marvels. For example, bio mimmetics based on insect structures such as antennae, legs, wings and eyes is an emerging science for future world. Bombardier beetles spitting ability inspired human to design fire extinguishers that are more effective and use less water besides the development of more efficient inhalers, and fuel injectors that burn fuel more efficiently and reduce pollution. Tiny scales and ridges on the wings of certain butterflies reflect light in a way that creates optical interference that can perfect for smart hand-held devices. Using this knowledge, efforts are on to develop video display that uses near-zero power whenever the displayed image is static (a real battery-saver) and refreshes fast enough to handle video images. By mimicking the structure of scales of *Cyphochilus* beetle engineers are trying

to develop material that could make our teeth whiter and even to make brighter paper or surface. Termites open and close vents as needed to keep the temp so close to 87 degrees in their mounds that is inspiring to develop ingenious system of vents for a building that can automate natural ventilation by synchronous control of motorized windows at the upper and lower levels. This led to the development of sensors that determines when to open or close the windows as in Eastgate Shopping Centre in Zimbabwe. Serrated hypodermic needle that resembles a mosquito's proboscis touching the skin at fewer places pain free is being developed. Flying insects are inspiring human to develop intelligent micro machines with excellent manoeuvres in unpredictable environments. Understanding these systems advances our knowledge of flight control, sensor suites, and unsteady aerodynamics. Many robots or micro air vehicles (MAVs) for example robo bees, hector etc. have now been successfully developed Further there are so many successful examples on future warfare's based on insect biomimetic like F-35, stealth plane, robo bees and biosensors to detect bombs. To sum it up it is concluded that if insects had not evolved, humans probably wouldn't exist either and we need to change our perception towards these creatures as they are far less dependent on us than we are on them.

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