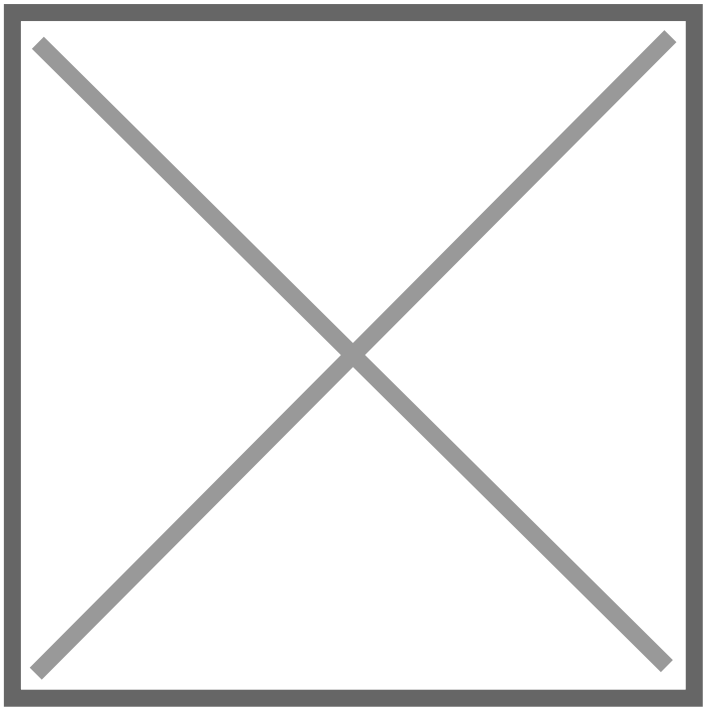
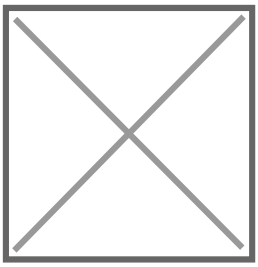
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Building borderless minds and borderless thinking

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Modern scientists may not realize it, but they are followers of Gandhi in one fundamental respect. Gandhi campaigned for simplicity. The hallmark of great science is indeed simplicity. Equations like E=mc2 or F=ma, are path-breaking, simply because they are so simple. Unfortunately, when it comes to harnessing technology for life style, things become more complex and complicated. Gandhiji implied that our mind should be open and uninhibited. It should be open to new ideas and new thinking. There should be no artificial boundaries and walls or borders between the people. A borderless mind and borderless thinking alone can lead to a borderless world.

Science is built on facts. Scientific knowledge is proven knowledge, it is objective and verifiable knowledge. Hence it is considered to be reliable. In essence, the scientific method consists of careful observation of nature and cautious confirmation of all conclusions. Good science excludes all unsubstantiated hypotheses. Observation and experiment are the methods of science. As new observations are added to the total body of scientific knowledge, some of the older observations lose their relevance and become obsolete. This dynamic aspect of science is perhaps its most outstanding attribute.

We need to recognize that scientific knowledge generated in formal laboratories is not the only knowledge system. There is knowledge generated in the 'laboratories of life' by people over centuries. Many societies in the developing world, like India, have nurtured and refined systems of knowledge of their own, relating to such diverse domains as geology, ecology, botany, agriculture, physiology and health. We are now seeing the emergence of terms such as 'parallel', 'indigenous' and 'civilizational' knowledge systems. Such knowledge systems are also expressions of other approaches to the acquisition and production of knowledge. The process of globalization is threatening the appropriation of elements of this collective knowledge of societies into proprietary knowledge for the commercial profit of a few. These fragile knowledge systems need to be protected and enhanced through national policies and international legislation, while providing its development & proper use for the benefit of its holders.

It is only now that we are bringing to see the benefits of bringing down the walls between the two domains of knowledge. Let me cite an example. It pertains to a medicine that is based on the active ingredient in a plant, Trichopus zeylanicus, found in the tropical forests of southwestern India and collected by the Kani tribal people. Scientists at the Tropical Botanic Garden and Research Institute (TBGRI) in Kerala learned of the tonic, which is claimed to bolster the immune system and provide additional energy, while on a jungle expedition with the Kani in 1987. A few years later, they returned to collect the samples of the plant, known locally as arogyapacha, and began laboratory studies of its potency. These scientists then isolated and tested the ingredient and incorporated it into a compound, which they christened Ã¢â?¬Å?JeevaniÃ¢â?¬? Ã¢â?¬â?? giver of life. The tonic is now being manufactured by a major Ayurvedic drug company in Kerala. In November 1995, an agreement was struck for the institute and the tribal community to share a license fee and two percent of net profits. The process marks perhaps the beginning of the healthy respect that the practitioners of the modern science are developing for holders of

traditional knowledge.

Thomas Henry Huxley said in 1881, Ã¢â?¬Å?It is easy to sneer at our ancestors Ã¢â?¬â?? but it is much more profitable to try to discover why they, who were really not one with less sensible persons than our own excellent selves, should have been led to entertain views which strike us as absurdÃ¢â?¬?. It is in this spirit that we should build a borderless mind, which connects the past with the present. The idea is not to 'recreate' the past but 'understand' the past by using new science.

TL Lentz and colleagues reported in 1982 in Science that acetylcholine receptors might serve as receptors for rabies virus. In Sushruta Samhita, the ancient Indian classic on the science of life, there is a fascinating account of Datura as a prophylaxis for rabies. The active principles of Datura Strammonium are atropine and related alkaloids that predominantly block the muscarine action of acetylcholine, precisely what was discovered by Lentz and others thousands of years later. In view of Lentz's findings, Datura for rabies may represent the first documented example of pro-phylaxis by receptor blockade. However, the use of Datura was found by people centuries ago, who were not trained in modern science. On the other hand, modern scientists had no clue about the work reported in Sushruta Samhita. How do we build the bridges between the two?