

Traditions, rituals and science of Ayurveda

Recently, in a breakthrough research, scientists from University of Barcelona, Axilum Robotics France and Harvard Medical School have successfully demonstrated a conscious transmission of information between the minds of emitter and receiver subjects far away from each other. Scientists believe that such 'hyper-interaction' technologies will have a profound impact on the social structure of our civilization and may raise important ethical issues.^[1]

Just about the same time in India, Pune city's police department was accused of succumbing to using a planchette. Paradoxically, this mysterious way of supernatural communication was used to resolve the murder mystery of Dr. Narendra Dabholkar, who dedicated his entire life to eradicate superstitions. It is not surprising that the police department had to face lot of criticism from media and a large section of society. What surprised people more was a passing remark from a computer scientist, Dr. Vijay Bhatkar, who is the present chairman of the governing board of Indian Institute of Technology, New Delhi. No wonder he was criticized when he referred to paranormal phenomena like "remote viewing." His remarks raise fundamental issues related to science and scientific outlook on the one hand and non-science, pseudoscience, superstition, sorcery, blind faith and rituals on the other. He probably indicated the potential to develop cutting-edge technology like remote viewing. But, often, such remarks are spontaneous and are to be taken in the right spirit. In any case, this episode has several lessons and messages. The whole gamut of issues related to this episode is also applicable to *Jyotish* shastra among many other Indian knowledge systems and, to some extent, to Ayurveda and Yoga.

TRADITION AND PROGRESS

Modern science is all about testable and repeatable experiments and predictions. Science has always been dynamic and continuously evolving. Separation of science from speculative philosophy resulted in natural science

as conceived by Galileo, Bacon, Darwin and Newton. In this journey, most path-breaking inventions were either considered as idiotic, irrelevant, unwanted or even impossible. New technologies and industries like aviation, computers, telecommunication and Internet are good examples. These were in real sense disruptive innovations that changed many paradigms of their times. Today, cloud computing has become a reality while many other innovations like google glass, sixth and seventh sense are on the way to becoming reality. This progress of modern science has reduced the gap between imagination and reality, but more importantly the progress of science has always raised an issue of its relation with tradition.

TRADITIONS

Every society has some tradition or the other. Traditions refer to knowledge systems and practices in various domains of human experience. Such traditions contribute to the history of every society. They may concern science, philosophy, culture, language and religion, and may be reasonably classified as healthy or unhealthy. Healthy traditions change and adapt to contemporary needs. Much of the fabric of modernity has threads from evolving living traditions. Traditions continue to evolve from generation to generation to become a heritage, which shape religious, philosophical and cultural practices of society. Traditions can be dynamic and may lead to innovations. With a rational approach, scientific traditions can evolve into contemporary science. In the Western world, the Greek traditions followed a rationalist path and progressed during the Renaissance, the age of Enlightenment and industrial revolution. Many scientific discoveries and inventions occurred during this period. The emergence of modern science and western biomedicine is a result of traditions adopting the rationalist approach.

As traditions can be living, they can also become dead and frozen. Such traditions tend to become hard and ritualistic. Living traditions allow debates and self-critique. A living tradition rejects dogmatism of any kind. Dogmatism tends to accept any tradition uncritically. When this happens, adherence to traditional knowledge and practice degenerates into mere ritualism. As a result, tradition loses its contemporary relevance. Further, with the ritualistic approach, traditions can lead to blind faith and superstitions. Indian health traditions have gone through both these phases.

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Many knowledge domains like six *darshanas*, *Panini's* grammar and traditions like music, mathematics, medicine and health are based on the basic principles governing the relationship between man and nature. Such basic principles or theories may remain unaltered or *shashwat*, for example the theory of *panchamahabhuta* and *tridosha*. Many traditional practices like fasting and dietary patterns may pass through many generations without much change because of their design elegance and continued relevance.

RITUALS

Progression of new traditions and regression of rituals is a continuous process that requires pragmatic introspection and guidance from *Aaptas*. Whereas traditions can be continuously evolving, rituals tend to be static. When the core ideology and purpose behind the tradition is lost, it becomes a relic in the form of rituals. Rituals can lead to customary practices, mysticism and stereotyped mechanical behavior. Many customs of yesterday may seem outdated, irrelevant and redundant today. The process of trans-generational knowledge transfer is adversely affected by foreign invasions, dictatorial rules and rigid social systems. Traditions can become irrelevant or outdated if they do not adapt to the changing environment. The ritualistic approach encourages worship instead of critical inquiry. Many times, ritualistic behavior is egoistic and aggressive. For instance, the concept of fasting has a scientific basis, but, today, it has become a mere ritual. Healthy living traditions like *ritucharya* may get reduced to festivals and food recipes.

RITUALS IN BIOMEDICINE

Ritualism is not a monopoly of traditional knowledge systems like Ayurveda. Modern western biomedicine is no exception. It is becoming over-dependent on measurement tools and techniques. At present, the world is changing with a pace that it never has previously. The nature of present evidence-based medicine practice is going more on the ritualistic way. The definitions of health, physiology and pathology are driven by commercial interests rather than scientific evidence.

Medical practice in most general clinics is not necessarily based on scientific evidence or ethical practice. Many treatments, drugs and diagnostics seem to have survived without rigorous intellectual challenges. In the race to become evidence-based, western medicine is relying more on pathology reports and rigid protocols. The hegemony of large medical centers, high-impact journals and iconic physicians is influencing the nature of clinical practice. Many drugs like statins, steroids, analgesics, psychotropic agents, vitamins and antioxidants are being prescribed blindly following

the protocols of professional bodies and pharmaceutical companies. The protocols, standards and checklists are necessary requirements. However, their relevance and context must be kept in mind when making judgments. Clinical acumen cannot be blindly replaced by laboratory reports.

AYURVEDA AS A LIVING TRADITION

Living traditions continuously examine old practices in the light of new knowledge, tools of logic and critical rationality. Ayurveda is an Indian heritage and is a continuously evolving health tradition. Ayurveda reveals an interesting journey from mythology to logical, rational and evidence-based practices. Because of hostile environments during a series of invasions, the Indian traditions seem to have been forced to take the ritualistic path to preserve their identity. As a result, progress of scientific culture in India was arrested. The epistemology of Indian science was compromised. Because of unfavorable environments like Colonial rule and the impact of western medicine, the growth and development of Ayurveda suffered for many decades. As a result, the rich living tradition of Ayurveda was frozen.

But today we are in the modern world where physical, chemical, biological and computational sciences are converging in sophisticated technologies like genomics, biotechnology, nanotechnology, artificial intelligence, cybernetics and robotics. New theories based on non-linear, holistic and systems approaches are evolving. Discussions about science and spirituality, consciousness, mind-body interactions, ecological sensitivities, value systems and the searching questions about the purpose are finding new grounds. We seem to be completing the circle by creating new bridges between science, philosophy and spirituality. The new movement of integrative medicine is based on personalized holistic approaches through diet and lifestyle modification. New initiatives like Wellness, Predictive, Preventive, Participatory and Personalized Medicine, Person-Centred Medicine, Whole-Person Medicine and all such integrative variants emerging in different parts of the world seem like modern avatars of Ayurveda. They seem to reinvent Ayurveda, its philosophy of *swasthya* and its basic concepts of Yoga as *Chitta*, *Vritti* and *Nirodha*.

If we look at traditions with a critical, but not a dismissive attitude, then Indian traditions of health like Ayurveda can provide leadership by actively engaging with global initiatives on systems biology and personalized medicine. What are the relationships between ancient knowledge systems like Ayurveda and Yoga with modern biology, mind-body physiology? How can concepts like spirituality and consciousness relate to new theories like quantum,

complexity, chaos? Can two social traditions from different cultures combine? What is the difference in the epistemologies of Ayurveda and western biology? What is the relation between Indian metaphysical concepts like *padartha* and *dravya guna vigyan* and their western counterpart - pharmacology? How are *doshaprakriti*, genomics and epigenetics related? How is the concept of *advaita* relevant today? What are *samadhi*, *nirvana*, consciousness and transcendence? Why are Higgs Bosons called God particles? What is the relation between science and spirituality? Admittedly, many such questions can be handled easily through pseudoscience. But, actually, these are the questions of philosophy and metascience. That is why eminent Noble Laureates like Einstein, Tagore, Schrodinger, Eccles and many have touched them in the past. At present, Noble Laureates Brian Josephson, George Sudarshan, VS Ramachandran, David Shannahoff-Khalsa, Dean Ornish, MS Valiathan and several others are trying to do their bit to address some of these searching questions. They are neither mediocre nor pseudoscientists. It is also important to continuously review and study the nuances of traditions, practices, rituals, customs, cults from social sciences and humanities perspectives. Serious and critical appraisal of such research questions will be interesting for the development of future metascience.

For this to happen, Ayurveda and Yoga traditions need to shed ritualistic forms of practice and embrace scientific outlook. Concepts like *Dosha*, *Dhatu*, *Rasa*,

Guna, *Agni*, *Srotas*, *Ojas*, *Ama*, *Prana*, *Kosha*, *Nadi* etc., have the “potential” to offer innovative leads to the future of medicine, health and wellness. The real question is how to “translate” this potential in actual benefits to science and people. We must revitalize the legacy of Charaka, Sushruta, Vagbhata and many others to liberate Ayurveda from being a frozen ritualistic tradition into a living tradition. If we accept this challenge, *Dhanvantari* will be worshiped in the spirit of a new quest for knowledge without the need for rituals of *prayers*, *yagas* and garlands.

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Tribute to Yogacharya BKS Iyengar and Vaidya Vilas Nanal

Yoga and Ayurveda sector had recently lost two legends -Yogacharya B K S Iyengar and Vaidya Vilas Nanal.

Veteran Yoga teacher, Bellur Krishnamachar Sundararaja Iyengar Guruji practiced and promoted Yoga for more than 80 years. His unique style of practicing Yoga became famous as 'Iyengar Yoga'. He demonstrated how to achieve perfection in postures (*Asanas*) using simple supportive tools. Guruji thousands of followers are from all over the world. He was awarded as Padma Vibhushan by the President of India. He passed away on August 20th, aged 96 years.

Vaidya Vilas Nanal was a great scholar and physician born in Nanal tradition of Ayurveda practice. Along with his clinical acumen, he had a special approach of interpreting Ayurveda concepts in terms of basic sciences. As a *Vaidya* Scientist, Vilas Nanal contributed to major research projects of Ayurveda like AyuSoft and AyuGenomics. He taught hundreds of students and was awarded 'Brihad Trayee Ratna'. He was closely associated with J-AIM editorial team. As a tribute, his research article on 'anguli parimana and insulin resistance' is being published in this issue.

J-AIM pays homage to Yogacharya Iyengar and Vaidya Nanal.