



Takshila Magazine

Volume 1.4



Tamaso ma Jyotirgamaya
"Lead us from Darkness to Light"



Authors

Ryan Baidya, PhD, MBA, is an educator, writer and entrepreneur. He is also author of Biopreneur: The Molecular Millionaire. Currently teaches MBA and Bio-business related courses at the California Takshila University.

Pratibha Gramann, Ed.M., Trainer of Pranayama for Health and Well-being. Facilitator of study & debate groups on Patanjali's philosophy, Vedanta, and Sankhya philosophy. Currently, Pratibha Gramann is an Adjunct Professor at California Takshila University and completing her doctorate degree.

Bharat Bhusan Patnaik, S. Sreekumar, G.K. Chattopadhyay, N. Suresh Kumar, H. Lakshmi, A.K. Saha and B.B. Bindroo
Central Sericultural Research & Training Institute, Central Silk Board, Berhampore, West Bengal, INDIA.

Other articles are written by current students of California Takshila University.

Medzym
In business for health



MISSION

On By discovering, developing and delivering innovative medicines to fight against disease. We aim to improve human health and increase the quality of longevity.

CONTACT

Ryan Baidya, PhD, MBA
Chairman
Medzym, Inc.
Phone: 408-561-5123



Contents Takshila Magazine Volume 1.4 - 2011

Effect of Abuse and Neglect on Brain Development during Early Childhood	04
Mynd	11
Electromagnetic Effects on Brain	14
Interesting Facts about Human Brain	17
Brain Profiling	20
Conservative and Liberal Approach	22
Pranayama Practices and Well Being	26
Biotechnology-Pacing the Indian Silk Industry with Visionary Promises	29



Effect of Abuse and Neglect on Brain Development during Early Childhood

Ryan Baidya and S.Samy (California Takshila University)

Being an infant, a toddler, is a growth stage in our lives where we absorb most things happening to or around us. We learn what we experience which activates and develops our brain and nervous system along the way. Happiness love and nurture promote positivity in child's physical, cognitive, social and academic growth, utilizing their brain capabilities. An abused and neglect have adverse impacts on the child's **physical, cognitive, emotional, and social** growth.

Brain development is a lifetime process but it is said during childhood that the brain matures and fully develops to function throughout life.

According to researchers, the human brain begins to form three weeks after conception even then at birth it is undeveloped and not all areas are organized and fully functional. We are born with the basic brain structure but a lot of the brain's development occurs during the **first few years after birth**. This process of growth or development, follow a sequential pattern from the "bottom up" (Perry, Pollard, Blakely, Baker & Vigilante, 1995; Perry 2000a).

As the brain develops, it grows larger and more dense. By the age of 3, a baby's brain has reached almost 90 percent of its adult size (Perry, 2000c). The growth in each region of the brain largely depends on receiving stimulation, which spurs activity in that region. This stimulation provides the foundation for learning.

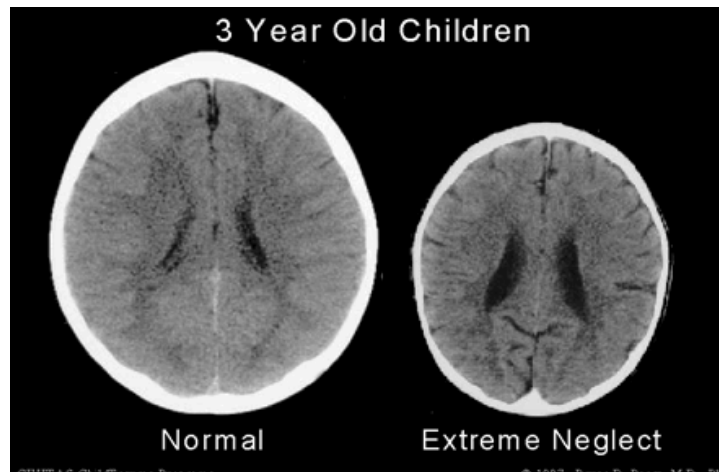
Brain development during infancy and early childhood growth stage has been receiving a lot of research attention especially the effects of abuse and neglect. According to US Child Protective Services, approximately over **700,000 children** are abused or neglected each year. "As you grow, the brain is essentially like a sponge. It's absorbing all kinds of experiences. So if a child is not held, touched, talked to, interacted with, loved, literally neurons do not make those connections, and many of them actually will die. Simple things like eye contact, touch, rocking and humming can make all the difference to a baby. It makes neurons grow, it makes them make connections. Then, it makes the brain more functional," Dr. Perry says.

Neglect and abuse (emotional, physical and sexual) have immediate and long-term effect on a child's development. The impact of maltreatment on a child's developing brain causes negative effects seen in a wide variety of areas including **social, psychological, physical and cognitive** development. The long-term effects of abuse and neglect of a child can be seen in higher rates of psychiatric disorders, increased rates of substance (drug) abuse, and a variety of severe relationship difficulties.

Dr. Perry also compares a brain scan of a normal, healthy 3-year-old child with a child who was severely neglected his first three years of life. "The first thing is that the brain is a little bit smaller. The brains of really severely neglected children tend to be smaller than the brains of children who have not been neglected," he says. "The brain didn't grow and shrink. It just didn't grow.



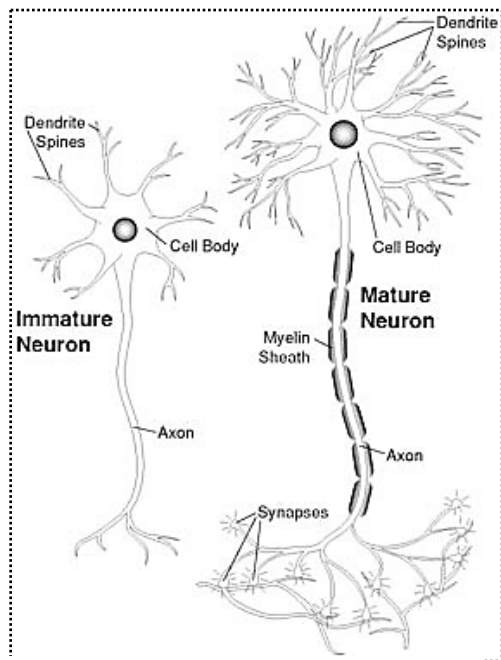
“These images illustrate the negative impact of neglect on the developing brain. In the CT scan on the left is an image from a healthy three year old with an average head size. The image on the right is from a three year old child suffering from severe sensory-deprivation neglect. This child’s brain is significantly smaller than average and has abnormal development of cortex.” These images are from studies conducted by a team of researchers from the Child Trauma Academy (www.ChildTrauma.org) led by Bruce D. Perry, M.D., Ph.D.



All rights for reproduction of the above image are reserved, Bruce Perry, MD., Ph.D. Baylor College of Medicine.

"As you grow, the brain is essentially like a sponge," Dr. Perry says. "It's absorbing all kinds of experiences. So if a child is not held, touched, talked to, interacted with, loved, literally neurons do not make those connections, and many of them actually will die." Simple things like eye contact, touch, rocking and humming can make all the difference to a baby, Dr. Perry says. "It makes neurons grow, it makes them make connections," he says. "Then, it makes the brain more functional."

The specific effects of maltreatment may depend on such factors as the age of the baby or child at the time of the abuse or neglect, whether the maltreatment was a one-time incident or prolonged occurrence, the identity of the abuser (e.g., parent or other adult), whether the child had a dependable nurturing individual in his or her life, the type and severity of the abuse, the intervention, and how long the maltreatment lasted. However, brief periods of moderate, predictable stress are not problematic; in fact, they prepare a child to learn and cope with the general world. The body's survival actually depends upon the ability to mount a response to stress (Shonkoff & Phillips, 2000).



Neurons mature when axons send messages and dendrites receive them to form synapses.

Forming the Structure

The brain is made up of nerve cells also called *neurons*. At birth babies have almost all of the neurons more than 100 billion of them, although there is research that indicates some neurons are developed after birth and well into adulthood (Shonkoff & Phillips, 2000), the neurons babies have are primarily what they need to work with while growing up as children, adolescent, and adults.

Organizing the Structure

Brain development, is the process of generating, activating, strengthening, and discarding connections among the neurons; these connections are called *synapses*. Synapses, in the nervous system is a connection which allows a neuron to pass on information to other neurons, body muscles or glands.

It organizes the brain by forming neuronal pathways that connect the parts of the brain governing everything we do—from breathing and sleeping to thinking and feeling. The synapses present at birth are primarily those that govern our bodily functions such as heart rate, breathing, eating, and sleeping. Almost all other functions are developed as babies grow up into children and adults (Shore, 1997).

Daniel Siegel, medical director of the Infant and Preschool Service at the University of California, L.A., has found important links between interpersonal experiences and neurobiological development. There are clear links between neglect and abuse and later psychological, emotional, behavioral, and interpersonal disorders. The basis for this linkage is the impact that abuse and neglect have on brain development.

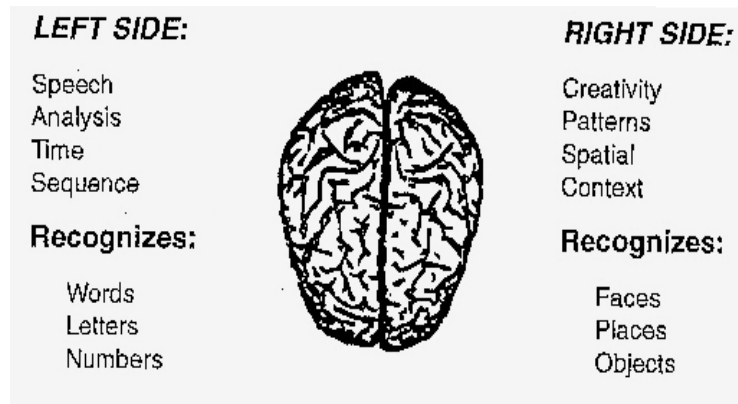
Generally the **Left Hemisphere** of the brain is the site of language, motor activity on the right side of the body, and logical thought based on language.

The **Right Hemisphere** of the brain is responsible for motor activity on the left side of the body, context perceptions, and holistic perception.

The **Orbito-Frontal Cortex** (the part of the brain directly behind the eyes) is responsible for integrating emotional responses generated in the limbic system with higher cognitive functions, such as planning and language, in the cerebral cortex's prefrontal lobes.

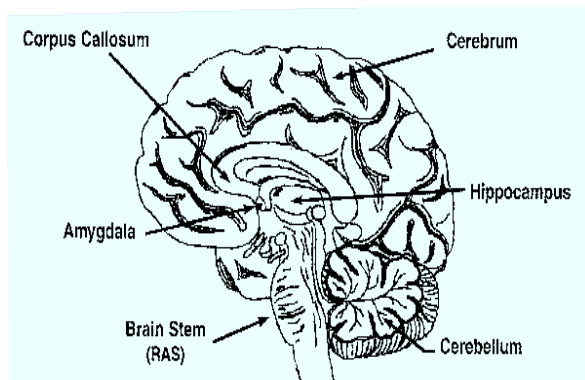
The **Left Orbito-Frontal Cortex** is responsible for memory creation while the **Right Orbito-Frontal Cortex** is responsible for memory retrieval.

The Left and the Right Hemispheres of the Brain and its Processes



Healthy functioning requires an integrated right and left hemisphere. A substantial number of synaptic connections among brain cells develop during the first year of life. An integrated brain requires connections between the hemispheres by **the Corpus Callosum**.

Abused and neglected children have smaller **Corpus Callosum** than non-abused children. Abused and neglected children have poorly integrated cerebral hemispheres. This poor integration of hemispheres and underdevelopment of the **Orbitofrontal Cortex** is the basis for such symptoms as difficulty regulating emotion, lack of cause-effect thinking, inability to accurately recognize emotions in others, inability of the child to articulate the child's own emotions, an incoherent sense of self and autobiographical history, and a lack of conscience.



Stressful experiences that are overtly traumatizing cause chronic elevated levels of neuroendocrine hormones. High levels of these hormones can cause permanent damage to the hippocampus, which is critical for memory. Based on this we can assume that psychological trauma can impair a person's ability to create and retain memory and impede trauma resolution.

Abuse—Physical, Sexual, and Emotional

Abuse can refer to physical abuse, such as hitting, shaking, burning, or other forms of maltreatment that a parent or other caregiver might inflict. In the long-term, shaking can damage the fragile brain so that a child develops a range of sensory impairments, as well as cognitive, learning, and behavioral disabilities.

Emotional abuse generally refers to any injury to a child's psychological or emotional stability (Child Welfare Information Gateway, 2008). Chronic stress may also qualify as emotional abuse. In some States, alcohol or substance abuse or domestic violence that affects the unborn child is considered child abuse. Physical abuse can cause direct damage to a baby's or child's developing brain. For instance, we now have extensive evidence of the damage that shaking a baby can cause. According to the National Center on Shaken Baby Syndrome (2009), shaking can destroy brain tissue and tear blood vessels. In the short-term, shaking can lead to seizures, loss of consciousness, or even death.

Neglect—Lack of Stimulation

While chronic abuse and neglect can result in sensitized fear response patterns, neglect alone also can result in other problems. Malnutrition is a classic example of neglect. **Malnutrition**, both before and during the first few years after birth, can result in **stunted brain growth** and slower passage of electrical signals in the brain (Shonkoff & Phillips, 2000).

The most common form of malnutrition in the United States, iron deficiency, can affect the growing brain and result in cognitive and motor delays, anxiety, depression, social problems, and attention problems (Shonkoff & Phillips, 2000).

Although neglect often is thought of as a failure to meet a child's physical needs for food, shelter, and safety, neglect also can be a failure to meet a child's cognitive, emotional, or social needs. For example, babies need to experience face-to-face baby talk and hear countless repetitions of sounds in order to build the brain circuitry that will enable them to start making sounds and eventually say words. If babies' sounds are ignored repeatedly, their language may be delayed. These types of delays may extend to all types of normal development for neglected children, including their cognitive-behavioral, socio-emotional, and physical development (Scannapieco, 2008).

Global Neglect

Some specific long-term effects of abuse and neglect on the developing brain can include, (Teicher, 2000):

- Diminished growth in the left hemisphere, which may increase the risk for depression.
- Irritability in the limbic system, setting the stage for the emergence of panic disorder and posttraumatic stress disorder.
- Smaller growth in the hippocampus and limbic abnormalities, which can increase the risk for dissociative disorders and memory impairments

- Impairment in the connection between the two brain hemispheres, which has been linked to symptoms of attention-deficit/hyperactivity disorder.

Some causes of child abuse and neglect are:

- Today's western, busy and career conscious lifestyle, single-parent and contemporary family societies.
 - Both parents work either to meet the demands of their needs and wants or career is becomes more important than their children's welfare.
 - Parenting is considered old fashioned, low self-image and status in society. A parent does not have recognition or is thought not have a good future if one stays home to look after their children till they start schooling. Contemporary families mostly do not have grandparents or other extended family members with them.
 - Due to many similar reasons as stated above, children are sent to child care, nanny-care, and preschool. There are high chances that children left in these types of care, face neglect and in some cases even abuse.
- Unplanned/Teenage Pregnancy
 - Inexperience in parenting, too young or not prepared for a child during that stage of their lives. Some parents or single moms are not willing to change their lifestyle and take up the responsibility; they also might not have support of their family or society.
- Domestic violence, poor relationship between parents, broken family
- Poverty, large family have lot of children to look after, lack of family planning , unemployment

We say that our children, the next generation are the future of our society, our country and the world. As adults, parents, family members/friends, guardian, teachers, it is our responsibility to ensure that children get the utmost care, love, attention, stable home environment, food and education to have a healthy and stable future, to become a mature, responsible adult.

How we mold these innocent and immature minds depend on their nurture, love and care they get from us. Educating adults, expecting parents, married couple, child - care takers and teachers on parenting and importance of child development and impact of abuse and neglect could be one of the solutions to reduce abuse and neglect on children. If an individual has gone through some abuse or neglect in their childhood they some say, their children might go through similar experiences but I say, why not learn from that past bad experience, put a stop to it by ensuring that their children doesn't have to go through it.

Child care services can also play an important in reducing such occurrences by improving their services, ensuring that abused and neglected children get stable home environment and making adoption criteria more stringent. By the time child abuse and neglect are reported, most children have suffered to the extent that they start showing signs of it. Therefore to eliminate this problem parents and guardian need to learn and understand that their children's safety and future lies in their hands.

References

http://www.childwelfare.gov/pubs/issue_briefs/brain_development/effects.cfm
http://teacher.scholastic.com/professional/bruceperry/abuse_neglect.htm
<http://www.childwelfare.gov/can/impact/development/brain.cfm>



Mynd by Neurofocus

Ryan Baidya

Study of human brain activity/ nervous system divided into various fields such as neuroscience, psychology, behavioral science etc. While researchers are still studying, discovering and working to fully understand the complicated structure and function of human brain, **NeuroFocus** has introduced “**Mynd**” World’s first “*full brain dry wireless*” EEG measurement headset device.

It is a mobile, medical grade neurotechnological product, endorsed by European Brain Computer Interaction Consortium, a leading scientists association of Brain-Computer interaction.

Mynd is designed to capture brainwave activity across the full brain. The product was introduced on March 21, 2011, at the 75th Annual Advertising Research Foundation conference held at the Marriott Marquis in New York.

According to NeuroFocus, this is the first time; market researchers will be able to capture the high quality data on consumers' subconscious responses in real time, wirelessly, revolutionizing mobile in-store market research and media consumption at home.

The European tools for brain-computer interaction consortium (TOBI) will utilize Mynd as their core platform to develop practical, medical-grade technology that will improve the quality of life for people with neurological disorders such as spinal cord damage and stroke.



NeuroFocus “**YOUR CUSTOMER IS TALKING TO YOU 2000 TIMES IN A SECOND. ARE YOU LISTENING?**”

“We capture that communication... MEASURE IT...ANALYZE IT... UNDERSTAND IT like never before.”

In product/consumer business world, this technology will be used to help improve the effectiveness of their client’s brands, product packaging, marketing, advertising and entertainment.

Dr. A. K. Pradeep, Chief Executive of NeuroFocus said “While developing Mynd, we focused on achieving medical-grade scientific precision along with extraordinary ease of use and aesthetics. This NeuroMarketing breakthrough provides new opportunities for our clients to gain critical knowledge and insights into how consumers perceive their brands, products, packaging, in-store marketing, and advertising at the deep subconscious level in real time.”

NeuroFocus applied 3 measurement disciplines to achieve their desired result:

- **EEG** (electroencephalography) high density arrays of sensors capture consumer’s brainwave activity across the full brain at 2000times per second.
- **Pixel Level Eye Tracking** to provide precision data about visual focus
- **GSR** (Galvanic Skin Response) biometrics to confirm emotional engagements that reveal exactly how consumers perceive your brand, marketing or entertainment content.

NeuroFocus methodologies give attention to six critical measurements in NeuroMetics. It measures attention, emotion and memory. From these results the gauges of purchase intent, novelty and awareness it derived.

Mynd Highlights

Mynd has undergone development and testing procedures for last three years. The standards set for the device to meet included performance levels as accurate and reliable as gel-based, wired EEG systems provide used in clinical settings for a host of neurological disorders, as well as high durability and serviceability.

The product highlights are:

- Full brain coverage with dense array EEG sensors.
- Within seconds of use Mynd captures brainwave activity across the full cortex.
- Wireless transmission of brainwave signals, capable of interfacing with any Bluetooth enabled mobile communication device.
- Dry electrodes eliminating the use of gels and enhancing signal quality by introducing novel technological breakthroughs.
- Enables first full brain coverage home panels for market research
- Comfortable, lightweight, aesthetically pleasing modular design with easily replaceable sensors.

Reviews on this medical grade neuro-technological product from statements below indicate that *Mynd* is has taken a step ahead in neurological research study and provides a strong foundation for further advancements.

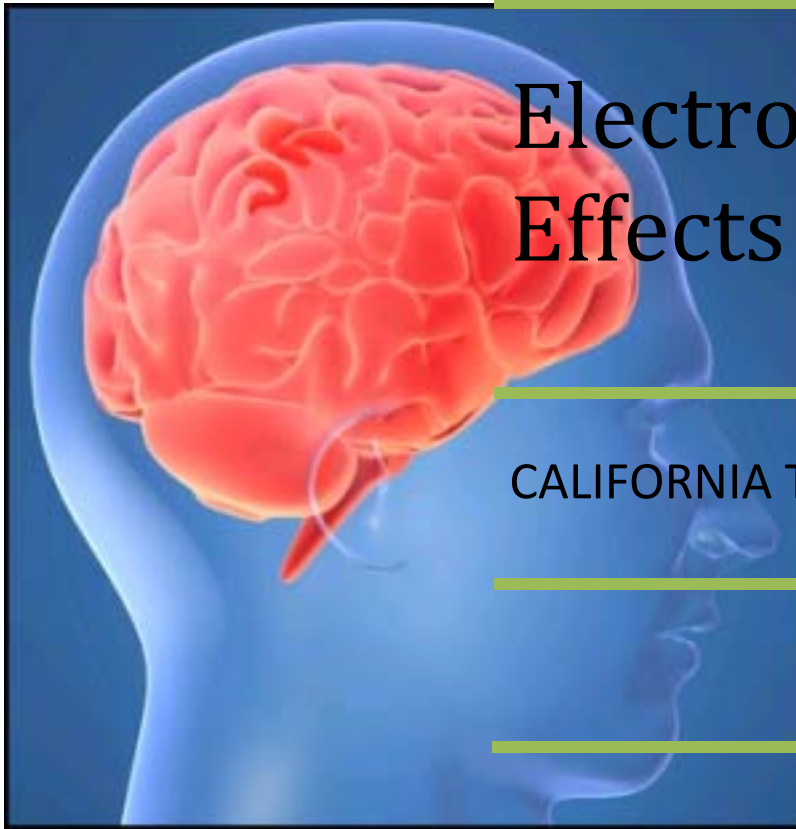
"This wireless dry electrode headset substantially reduces the cost and expertise necessary to access signals from the brain, which has profound implications for clinical and commercial applications of EEG technology" said Dr. Gerwin Schalk, Research Scientist, Wadsworth Center, Neural Injury & Repair, and developer of "BCI 2000" - the main technological platform used for brain-computer interaction worldwide for treatment of paralysis.

Dr. Robert T. Knight, Director of the Helen Wills Neuroscience Institute at the University of California, Berkeley, and NeuroFocus' Chief Science Advisor said "Mynd represents an authentic breakthrough in brainwave measurement technology and I am especially pleased that it will also be used to help people with neurological disabilities such as paralysis overcome some of their most difficult barriers. This is a truly compelling example where a technology developed for business-to-business applications like NeuroMarketing can add enormous value to other avenues of life."

According to NeuroFocus, they have plans to distribute Mynd headset throughout its neurological testing laboratories in the U.S., the UK/Europe, the Asia/Pacific region, Latin America, and the Middle East. It will also be deployed in the company's neurological testing facilities which NeuroFocus designs, builds, staffs, and operates for individual client companies.

References

<http://www.neurofocus.com/>



Electromagnetic Effects on Brain

CALIFORNIA TAKSHILA UNIVERSITY

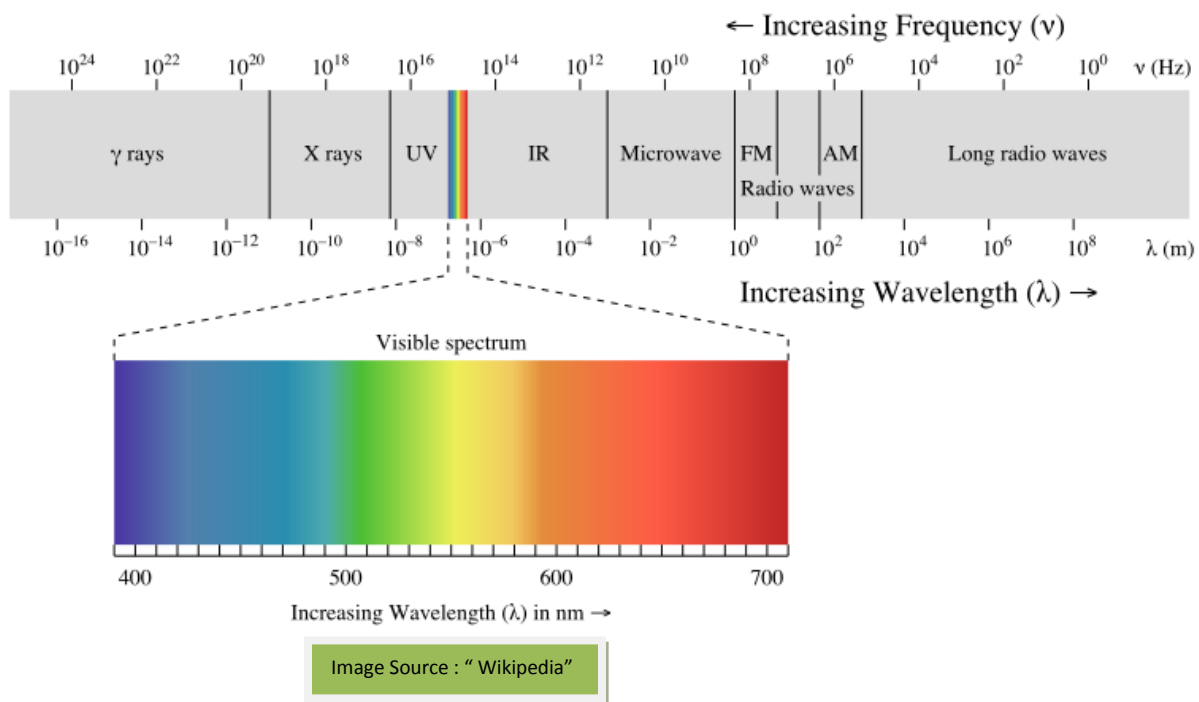
Bhargav Boinpally

Electrical Engineering deals with many branches but many of these are concerned with Electromagnets. The telephone, the arc lamp, the coal separation machinery, the electric bell, the electro-mechanical machinery and in many more other useful applications of electricity, the main organ is electromagnet.

Electromagnet is a type of a magnet whose magnetic field is produced by the flow of electric current.

In general, Electromagnetism is the phenomenon when the current passes through a conductor, magnetic field will be generated around the conductor and the conductor become a magnet.

Electromagnetic Radiation is a form of energy exhibiting wave like behavior as it travels through space. It is classified according to the frequency of wave. It carries energy and momentum that may be imparted with which it interacts. Radio waves, microwaves, infrared radiation, ultra violet radiation, x-rays etc are falls under the electromagnetic spectrum.



Humans and animals are surrounded by the magnetic field in the almost same way the magnetic field surrounds the earth as a protector.

Any living being on earth cannot escape electromagnetic field. Right from our start date on earth to end date on earth we are bathed in the earth all encompassing fields. Now here the question arise, since we are surrounded by electromagnetic field can we sense it?

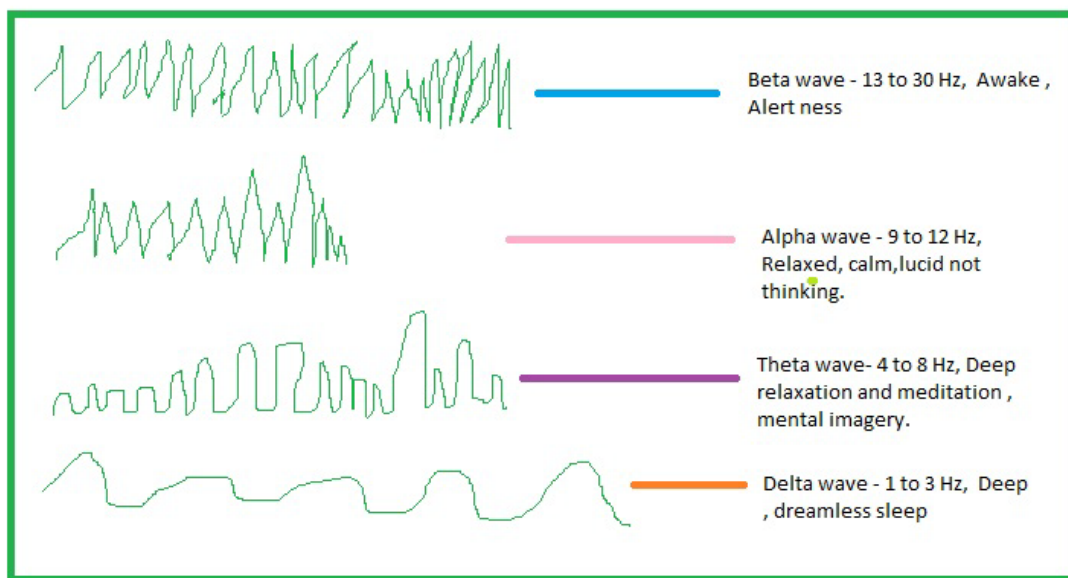
There are certain wave frequencies of where human brain will respond according to it, they are

Beta waves- range between 13 to 30 Hz this state is associated with peak-concentration, high alertness.

Alpha wave –range between 9 to 12 Hz, this is place of deep relaxation, calm, lucid not thinking.

Theta wave – range between 4 to 8 Hz, this is one of the more elusive and extra ordinary realms. This is also known as twilight state which we normally only experience fleeting as we up out of deep sleep, we are in walking dreams, vivid imagery flashes before the mind's eye . It is also been identified as gateway to learning and memory. Theta meditation increases-creativity, enhances learning, reduces stress and awakens intuition and-other extrasensory perception skills.

Delta Wave – range between 1 to 3 Hz, it is associated with deep and dreamless sleep.



So, I think our thoughts are made up of distributed kind of electromagnetic fields. But the most important question arise here, how the brain activity that we are aware of differs from the brain activity during all of those unconscious actions.

When we see an object, signals from our retina travel along nerves as waves of electrically charged ions. When they reach the nerve terminus, the signal jumps to the next nerve via chemical neurotransmitters. The receiving nerve decides whether or not it will fire, based on the number of firing votes it receives from its upstream nerves.

In this way, electrical signals are processed in our brain before being transmitted to our body.

Every time a nerve fires, the electrical activity sends a signal to the brain's electromagnetic field. But unlike solitary nerve signals, information that reaches the brain's electromagnetic field is automatically

bound together with all the other signals in the brain. The brain's electromagnetic field does the binding that is characteristic of consciousness.

The brain's electromagnetic field is not just an information sink; it can influence our actions, pushing some neurons towards firing and others away from firing.

One of the objections to an electromagnetic field theory of consciousness is, if our minds are electromagnetic, then why don't we pass out when we walk under an electrical cable or any other source of external electromagnetic fields? The answer is that our skin, skull and cerebrospinal fluid shield us from external electric fields.

“The conscious electromagnetic information field is, at present, still a theory. But if true, there are many fascinating implications for the concept of free will, the nature of creativity or spirituality, consciousness in animals and even the significance of life and death.

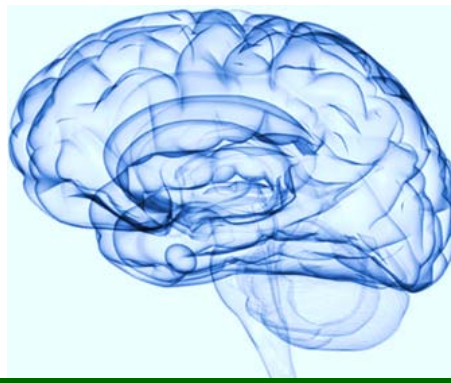
From the latest, The research group which includes neurosurgeon Hans Wieser of Zurich, Jon Paul Dobson of the Swiss Federal Institute of Technology, and Michael Fuller of the University of California (Santa Barbara), came together when Fuller's sabbatical took him to Zurich as part of his continuing studies of Earth's changing magnetic field. There he met Wieser, a specialist in the treatment of epileptics who do not respond to drug treatment.

In such patients, the only way to stop the electrical storms responsible for their seizures is to surgically remove small portions of the brain which generate the seizures. To localize this region precisely, electrodes were implanted directly into the patient's brain. Then the researchers waited for seizures to occur spontaneously so that they could pinpoint the culprit area, and thus remove the smallest amount of tissue possible.

The effects of external magnetic fields of human brain are normally small they are lost in much larger ambient electromagnetic fluctuations. They are virtually impossible to detect outside the CRANIUM. But in this case, magnetic fields could be applied to the brain and measured from within. Consequently the chances of detecting an effect were much larger and more immediate.

This procedure thus worked to benefit both patients and scientific research. The research group enclosed each patient's head in a coil which could generate a magnetic field of 1 to 2 milliteslas, about 100 times stronger than Earth's and nearly the strength of fields around ordinary household appliances. The patients responded with multiple bursts of epileptic form activity recorded from the implanted electrodes, thus demonstrating that magnetic fields are capable of directly affecting the human brain.

In the recent advancements, Gamma rays treat brain tumors - the electromagnetic spectrum.



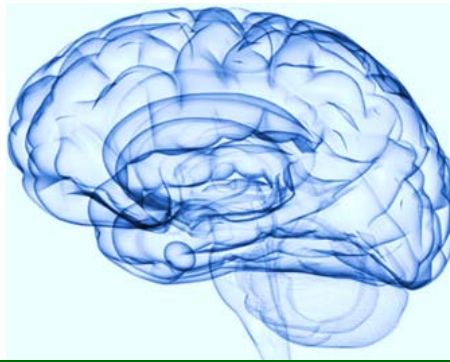
Some Interesting Facts about Human Brain

Dimensions and Sizes

- Average dimensions of the adult brain: Width = 140 mm/5.5 in, Length = 167 mm/6.5 in, Height = 95 mm/3.6 in.
 - How much does human brain weigh?
- At birth our brains weigh and average of 350-400g (about 4/5 lbs), as adults the brain averages 1300-1400g (about 3 lbs).

Composition

- The composition of the brain = 77-78% water, 10-12% lipids, 8% protein, 1% carbohydrates, 2% soluble organics, 1% inorganic salt.
- The cerebellum contains half of all the neurons in the brain but comprises only 10% of the brain.
- The cerebral cortex is about 85% of the brain.
- Percentage of total cerebral cortex volume = frontal lobe 41%, temporal lobe 22%, parietal lobe 19%, occipital lobe 18%.
- There are about 100 billion neurons in the human brain, the same number of stars in our galaxy. ✨
- The left hemisphere of the brain has 186 million more neurons than the right hemisphere.
- 750-1000ml of blood flow through the brain every minute or about 3 full soda cans.
- In that minute the brain will consume 46cm³ (1/5 cups) of oxygen from that blood.
- Of that oxygen consumed, 6% will be used by the brain's white matter and 94% by the grey matter.



Times

- The brain can stay alive for 4 to 6 minutes without oxygen. After that cells begin die.
- The slowest speed at which information travels between neurons is 416 km/h or 260 mph, that's as "slow" as today's supercar's top speed (the Bugatti EB 16.4 Veyron clocked at 253 mph).
- 10 seconds is the amount of time until unconsciousness after the loss of blood supply to the brain.
- Time until reflex loss after loss of blood supply to the brain, 40-110 seconds.
- 10 seconds is the amount of time until unconsciousness after the loss of blood supply to the brain.
- Time until reflex loss after loss of blood supply to the brain, 40-110 seconds.
- Results from cognitive tests show 30% of 80-year-olds perform as well as young adults.
- Your brain is about 2% of your total body weight but uses 20% of your body's energy.
- The energy used by the brain is enough to light a 25 watt bulb.
- More electrical impulses are generated in one day by a single human brain than by all the telephones in the world.
- How much does human brain think? 70,000 is the number of thoughts that it is estimated the human brain produces on an average day.
- After age 30, the brain shrinks a quarter of a percent (0.25%) in mass each year.
- 89.06 is the percentage of people who report normally writing with their right hand, 10.6% with their left and 0.34% with either hand.

Brain Profiling

Ryan Baidya

Brain Profiling, known to be a new concept of this time, identifying and analyzing your thinking pattern and preferences and how it affects you, your behavior, its influences in studies, work and your lifestyle. In near future, Brain Profiling might become a “hot trend” especially in the business and job market. This method should be adapted by businesses that desire to be more productive, innovative, effective and profitable.

Although Brain profiling is known to be the ‘Hot Trend’ of today, it has been unconsciously been practiced in the past. In ancient times, it is known that teachers identified the specific talents of their young students and mastered them in those specific tasks. Some however, got into family work class and continued working in the same field, such as farming, taking over businesses etc. Due to less population and competition, things were created, developed, designed and introduced, which is the foundation of our lives today. If not for these different interests, our lifestyle would what it is now.



Different occupations require unique mental requirements. Writers, teachers, researchers, business man, farmers, artists, politicians, scientists, engineers, there are thousands of professions we choose from and our thinking behavior help us select what we like the best. Due to our highly competitive work market, high rate of unemployment and need of money to survive, many people are left with little choice and work in areas that they have least interest in.

This brings productivity problems which are usually caused by a mismatch between people’s mental preference and the mental requirement of the work they do.

The best solution for the hiring organization and the employee is to have the closest alignment that can be achieved between the employees and their work. Any profession, according to the mindset of people, how they think and what they will be most efficient in, employers will have the advantage of most effective selection of best suitable people for the specific job requirements.

One of the answers to this difficult task is **HBDI**.

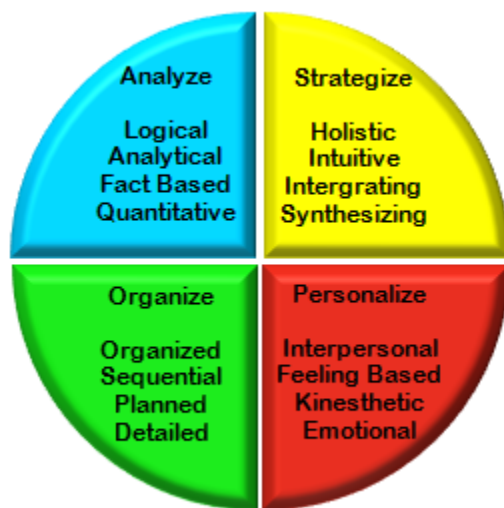
In late 1970's, Ned Hermann, founder of Herrmann International and the originator of *Whole Brain Thinking* first pioneered the study of the 'Brain' in the field of business, created a model where he divided the brain into four quadrants, **HBDI**. There are companies and organizations using **HBDI** at their advantage to select efficient, effective employees.

A proper matching improves the employee's chances to be smart, productive and satisfied. The whole brain method by HBDI offers an improved approach to marketing, sales, advertising, managing and many areas of business.

The **Herrmann Brain Dominance Instrument** (HBDI) is a system which claims to measure and describe thinking preferences in people. Ned Hermann discovered that each of the brain quadrants is responsible for separate and distinct activities. Understanding how your preference shape the decisions you make can lead to profound enhancements in your personal and professional lives.

It arranges talent far more effectively through gaining a deeper insight into which environments and challenges will cause teams to thrive rather than fight. Once people understand their thinking style and preferences, then they have the opportunity to improve and extend their thinking and understanding horizon.

The Four - Primary Thinking Style of the Whole Brain 'HBDI' model.



This model was developed by Ned Hermann in 1970s, www.hbdi.com.

HBDI, Hermann Brain Dominance Instrument is an assessment tool to measure thinking preference. It helps people understand themselves and their dominance in their thinking style.

120 questions in HBDI assessment evaluates and describes the degree of preference individuals have for thinking in each of the brain quadrants.

The benefits from HBDI evaluation for organizations is improvement of individual and team effectiveness, leadership development, talent management, sales, service and marketing effectiveness, creativity and innovation. It gives insight to people into their own and others thinking styles, to make the most out of their natural thinking preferences and skills they to improve when the situation arises.

Reference

<http://englishelxnb1.wordpress.com/2010/11/25/what-do-you-do/>

Conservative and Liberal Approach

By Ryan Baidya

Our control and command centre, one of the most vital and complex organ in almost all living creatures, Brain.

What and how we see, hear, listen, feel, our process of learning, understanding and interpretation of surrounding, our preferences, emotions, behavior, personality etc, basically what, who and how different we are is due of the difference in individuals brain structure and function.

Our thinking approach and preferences are diverse; this is what makes us unique, gives us choice of interest. It creates groups, sectors, organizations, where you mostly find people of similar preferences come together to share interests and sometimes achieve set goals.

People are normally categorized by gender, physical traits and other social factors, but we are also different in opinion especially social and political matters.

How we think, comprehend or interpret issues usually dealing with people, politics, society, religion, traditions and changes, indicate if we have a conservative or liberal approach. Some factors that affect our choices and opinions are our physical environment, society we grow up in, religious and cultural background, education, geographical barriers, age, gender and many others.

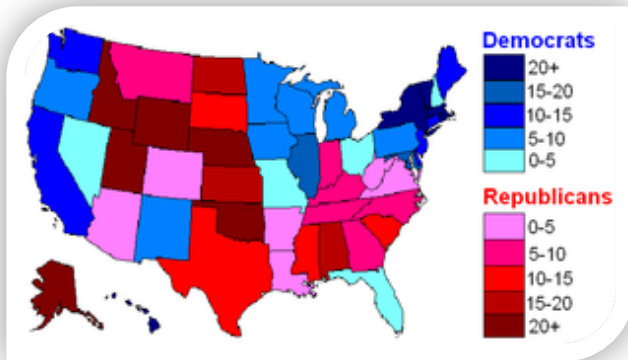
Conservative minds keep the family and cultural traditional values, are resistant and cautious to changes with religion, politics, and their surrounding. They believe in personal freedom, individual liberty and responsibility to solve their own problems with limited government interference. They believe the role of government should be to provide people the freedom necessary to pursue their own goal, following traditional values.

Liberal minds are progressive, they believe in the future, in importance of liberty and human rights; are more open to new ideas and approach. They believe in government action to achieve equal opportunity and practice equality for all. Their policies generally emphasize that it is duty of the government to solve or eliminate social problems and to protect civil liberties, individual and human rights. An example of American liberal causes were voting rights for African Americans, abortion rights for women, gay rights and government entitlements such as education and health care.

This difference is what makes us diverse in all aspect of human live, in culture, tradition, ethics, education, profession and beyond all this, it makes us an individual.

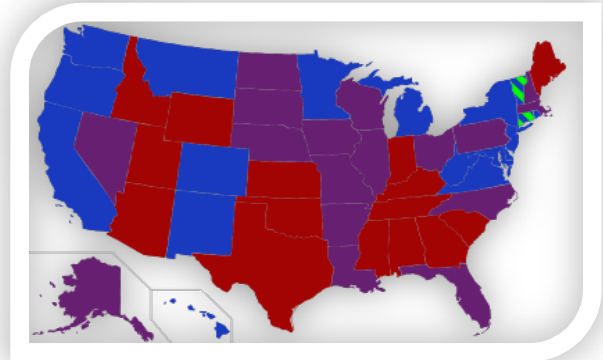
In addition, the Conservative and Liberal style of approach is also evident in “Left and Right” classification of Political Parties, presented as opposites in its spectrum for example in the United States, “left wing” refers to Liberal views and “right wing” refers to conservative views.

Since the year 2000, the US political map, have their various states marked blue and red.



Average margins of victory in the four presidential elections between 1992 and 2008

Reference: http://en.wikipedia.org/wiki/Red_states_and_blue_states



Current Senate party membership by State

Blue and Red represent majority of the residents voting for either Democratic Party Presidential Candidate or Republican Party Presidential Candidate, respectively. Democratic Party (blue) upholds the liberal principles and Republic (red) upholds the conservative principles.

We all belong to either conservative or liberal or sometimes in between these two groups. Normally we regard opposing thinkers to be unethical, wrong, incapable of correct judgment, arrogant etc. Rather than this unacceptance, we should try to learn and understand why these differences exist. How we can broaden our tolerance, accept and respect the decisions others make.

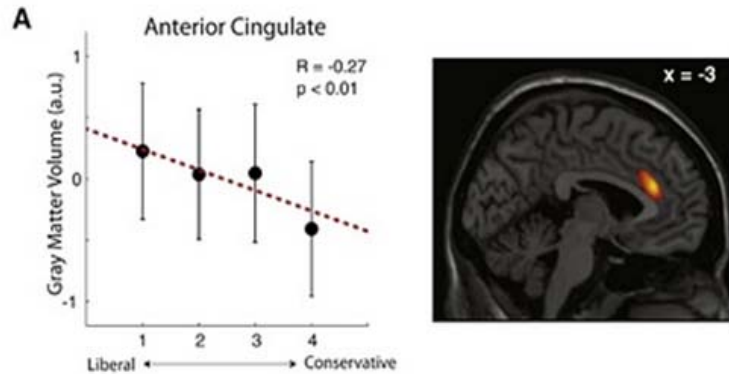
The differences between liberals and conservatives are profound, and a new study suggests they may even be reflected in the structure of their brains. A recent study by *Ryota Kanai* -University College London Institute of Cognitive Neuroscience, *Tom Feilden*, *Colin Firth* and *Geraint Rees* identified biological influences on an individual's political orientation rather than environmental causes as thought before.

"Previously, some psychological traits were known to be predictive of an individual's political orientation," said Ryota Kanai of the University College London. "Our study now links such personality traits with specific brain structure."

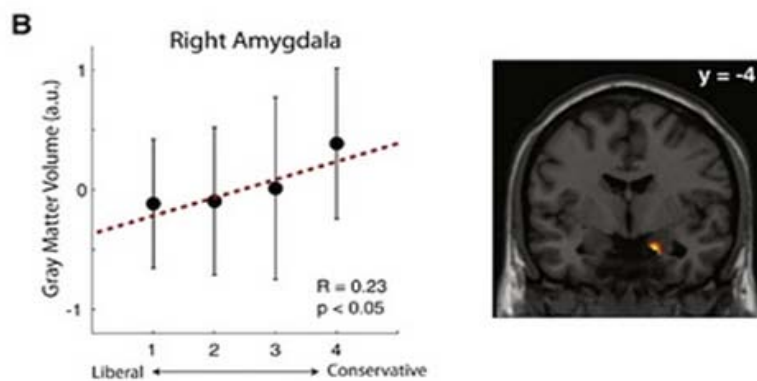
According to their report on '**Political Orientations Are Correlated with Brain Structure in Young Adults**', to show the functional correlation of political attitudes (liberalism and conservative) has a counterpart in brain structure, the team took a large sample of 90 healthy young adults and related self reported political attitudes to gray matter volume using structural magnetic resonance imaging (MRI). The team found that **Liberalism** was associated with **increased gray matter volume in the Anterior Cingulate Cortex** and **Conservatism** was associated with **increased volume of the right Amygdala**. The result from their study is given below.

Individual Differences in Political Attitudes and Brain Structure

Kanai et al., Political Orientations Are Correlated with Brain Structure in Young Adults, *Current Biology* (2011), doi:10.1016/j.cub.2011.03.017



(A). Regions of the Anterior Cingulate where gray matter volume showed a correlation with political attitudes are shown overlaid on a T1-weighted MRI anatomical image in the stereotactic space of the Montreal Neurologic Institute Template. A statistical threshold of $p < 0.05$, corrected for multiple comparisons, is used for display purposes. The correlation (left) between political attitudes and gray matter volume (right) averaged across the region of interest (error bars represent 1 standard error of the mean, and the displayed correlation and p values refer to the statistical parametric map presented on the right) is shown.



(B) The right Amygdala also showed a significant negative correlation between political attitudes and gray matter volume. Display conventions and warnings about over interpreting the correlational plot (left) are identical to those for (A).

The association of gray matter volume of the Amygdale and Anterior Cingulated Cortex with political attitude may reflect emotional and cognitive traits of individuals that influence certain political orientation. According to what is known about the functions of these two brain regions, the Amygdale has many functions including fear processing, **large Amygdale are more sensitive to fear**. This is consistent with the team's hypothesis and findings, individuals with larger amygdale are more inclined to integrate conservative views into their belief system.

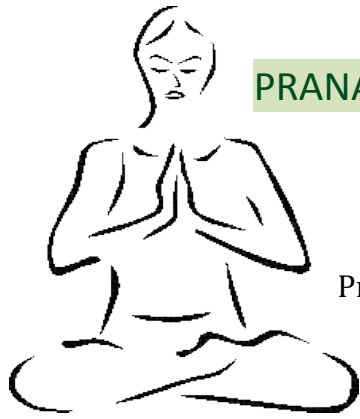
One of the functions of the Anterior Cingulated Cortex (ACC) is to monitor uncertainty and conflicts. Thus, it is conceivable that individuals with larger ACC have a higher capacity to tolerate uncertainty and conflicts, allowing them to have liberal views.

Furthermore, it requires a longitudinal study to determine whether the changes in brain structure observed lead to changes in political behavior or whether political attitudes and behavior instead result in changes of brain structure.

References

Kanai, R., Feilden, T., Firth, C., Rees, G. Political orientations are correlated with brain structure in young adults

http://en.wikipedia.org/wiki/Red_states_and_blue_states



PRANAYAMA BREATH PRACTICES and WELLBEING

Adjunct Prof. Pratibha Gramann
CA Takshila University

Pranayama is the name given to regulated breath methods that come from the Indian yogic-tradition. The efficacy of pranayama is mentioned in Patanjali's Yoga Sutra as a key method for reducing mental pain and anxieties. In section II-49 of the Yoga Sutra, pranayama is defined as the regulation of the flow of inhalation and exhalation (Aranya, 1981, p. 230).

Popular views of pranayama breathing practices seem to limit its use to asanas or yogic-exercise practice. The science of pranayama is a transformative psycho-physiological science in its own right. It goes beyond what is used in yogic-asana practice. It is a meditation in itself as well as prepares the mind for deeper meditation.

Breathing practices or breath work is part of the ancient systems of Raja Yoga and Ashtanga Yoga. Variations of classical pranayamas can be found in yoga manuals of practice. A few of the classical pranayamas that are known to practitioners of nearly every type of yoga are:

- ❖ Nadi Shodana, an alternate nostril breath technique;
- ❖ Kapil Bhati, a method for clearing the forehead and sinuses;
- ❖ Agnisar Dhauti, for the abdomen and digestive system; and
- ❖ Ashwini Mudra, for purification of nerves located at the base of spine.

The four methods of pranayama practice mentioned above are preliminary pranayama's that are essential for purifying the nerves of the mind-body complex. They also prepare body cavities and lay groundwork for more advanced methods. This is the reason that manuals caution beginners to proceed slowly when engaging in breathing practices. A period of three months of practice of the four preliminary methods is recommended prior to engaging in more advanced breathing practices. In fact these methods are so efficacious; one can get all desired effects by only doing regularly the four preliminary purifications.

Chaitanya Yati (2009) states that the aim of pranayama is to clarify the mind resulting in a steady and cheerful state of mind (p. 115). Some reasons for practicing pranayama stated by practitioners as well as found in manuals on pranayama are:

- Manage / remove stress
- Alleviate insomnia
- Remove lethargy
- Improves health
- Improve memory
- Experience inner peace
- Improve concentration
- Increase energy for the entire day
- Increase confidence
- Control anger
- Increase patience
- Develop clarity
- Develop mindfulness.

The APA College Dictionary of Psychology (2009), states 'well-being' as "a state of happiness, contentment, low levels of distress, overall good physical and mental health and outlook, or good quality of life (p. 454). A comparison of the APA definition of well-being matches the influences reportedly resulting from the practice of pranayama.

Pratibha Gramann, Ed.M.

Trainer of Pranayama for Health and Well-being

Facilitator of study & debate groups on Patanjali's philosophy, Vedanta, and Sankhya philosophy. Email: rmg.pratibha@att.net

References

Aranya, H. (1981). *Yoga philosophy of patanjali*. New York: State Un of N.Y. American Psychological Assoc. (2009). *APA college dictionary of psychology*. Washington, DC: APA. Chaitanya Yeti, N. (2009). *Living the harmonious union: Principles and practices of Patanjali's yoga sastra*. New Delhi: D.K. Printworld

<http://alby-om.blogspot.com/2010/04/benefits-of-yoga-for-health-and.html>



*Silk
Industry*

Biotechnology – Pacing the Indian Silk Industry with Visionary Promises

Bharat Bhusan Patnaik*, S. Sreekumar, G.K. Chattopadhyay, N. Suresh Kumar, H. Lakshmi, A.K. Saha and B.B. Bindroo

Central Sericultural Research & Training Institute, Central Silk Board, Berhampore, West Bengal, INDIA

*Corresponding author: drbharatbhusan4@gmail.com

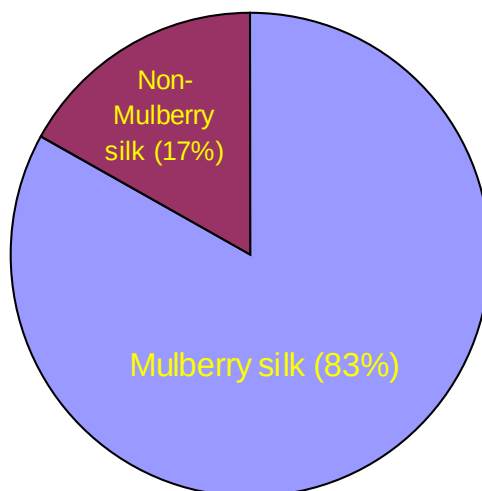
Silk-Talk

Indian Sericulture has been on crossroads for quite some time now with impressive growth over last six decades due to untiring efforts in the fields of research and extension. Due to expansive works of Indian sericulture scientists towards improvement in sericultural practices and advent of new technologies, Indian Silk Industry was able to withstand global competitive markets. It now accounts for 15.52% of global silk production.

The traditional passion for silk-based products with amazing forms of silk garments endeared at home helps the country to fabricate challenging position in silk industry, as second largest producer of silk and also the largest consumer of silk. It not only is a source of foreign exchange earnings, but also provides employment to 6 million people (mainly hailing from weaker sections of society) in 60,000 villages. It therefore, provides a sustainable boost to rural youth and women to receive handsome remunerative returns mostly as a form of alternative agricultural practice.

Figure 1: Silk Production in India (2009-10)*

Provisional Source: Central Silk Board, D&B India



- Non Mulberry Silk Production – 17% and Mulberry Silk Production - 83%.

Figure II. TOTAL EXPORT EARNINGS OF SILK ITEMS [₹. in Crore, \$ in Millions]

ITEMS	DECEMBER				APRIL - DECEMBER			
	2010		2009		2010-11		2009-10	
	₹.	US \$	₹.	US \$	₹.	US \$	₹.	US \$
Natural Silk Yarn	2.64	0.58	2.08	0.45	22.12	4.85	19.96	4.16
Silk Fabrics & Made-Ups	130.66	28.94	106.53	22.85	1116.51	244.58	1030.45	214.90
Readymade garments	112.76	24.97	95.81	20.55	796.82	174.55	1028.39	214.47
Silk carpet	0.52	0.12	6.08	1.30	6.58	1.44	36.48	7.61
Silk waste	0.26	0.06	5.79	1.24	29.16	6.39	15.95	3.33
TOTAL	246.84	54.67	216.29	46.39	1971.19	431.81	2131.23	444.47

Source: Foreign Trade Statistics of India (Principal Commodities & Countries, DGCI&S, Kolkata

Despite the fact that, Indian silk industry survives in the global competitive market, it faces stiff challenges towards its smooth and sustainable growth therefore has been relegated towards practicing strategies needed for vitalizing better productivity and quality.

This is the case, even though India stands at the 'hot seat' in the form of Silkworm Biodiversity with five commercial crops of silk produced: Mulberry, Muga, Oak Tasar, Tropical Tasar and Eri.

The stiff challenges posed within the Indian Sericulture Sector include unhygienic conditions and practices within the seri-farming community coupled with biotic (disease prevalence during silkworm rearing) and abiotic stresses (high temperature and high humidity) and below-optimal processing technologies.

Likewise, the Mulberry host plant needs to be enriched with nutritive qualities, foliage etc. and free from pests and diseases. The benchmark is to narrow the widening 'lab to land' gap, and attain potential and sustainable yield through traditional breeding practices innervated with suitable biotechnological approaches.

Indian sericulture sector needs a 'dynamic systems' approach that takes the participatory resources of biochemists, molecular biologists, immunologists, textile technologists, industry experts and stakeholders in addressing research visions.

Biotechnological interventions have brought about promising changes in the agricultural scenario through expanding horizons of production potential, improvement in productivity and quality. It has also shown propelling signs of developments in Indian Silk Sector. It is therefore appropriate to focus on the impacts created by the biotechnological field, providing visionary promises and pacing the Indian silk industry towards forefront of revolutionary research.

Silk-Biotech: Impacts

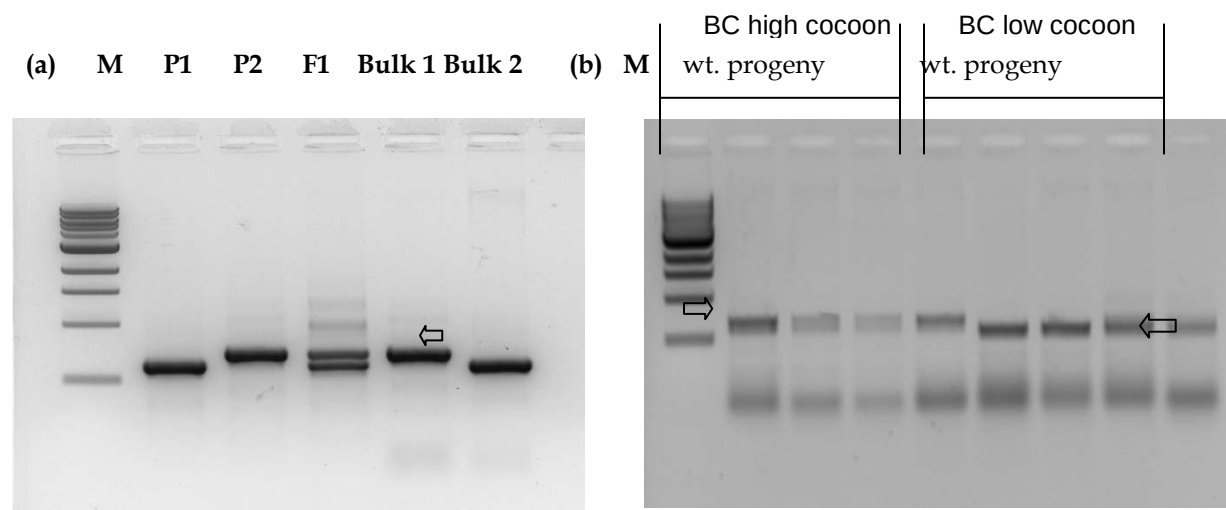
In an effort to address, the need for harder and highly productive races, quantitative genetics approach have played a promising role, whereby gene identification allows to assess or delete the traits and develop a new organism with excellent characters.

It certainly relates to the role of genes in controlling complex traits like survivability, silk yield, disease resistance etc. For instance, in Indian sericulture scenario, it is now possible to identify candidate genes responsible for disease resistance. Isolating, multiplying, eventually incorporating them into susceptible races through suitable vectors have been successfully implemented.

Silkworm breeding protocols have become more efficient with adoption of DNA-marker assisted selection and transgenic strains carrying genes for viral and protozoan disease resistance. This has certainly paved the way towards development of superior races with dominant characters.

Thermotolerant strains of silkworm to be explored in the tropics are realistic with proteomic studies on differential expressions of Heat shock proteins and their evolutionary modifications. Establishment of heat-stable esterase and its direct relationship with thermo-potentiality of breeds has provided silkworm breeders to rationale congenic breeds (recurrent back cross lines) through introgression of multigenic characters. The propensity of utilization of the same as molecular markers would facilitate conventional breeders to select better parents, with a reduction in laborious crosses for development of suitable silkworm strains important for tropical countries under silkworm race improvement programs.

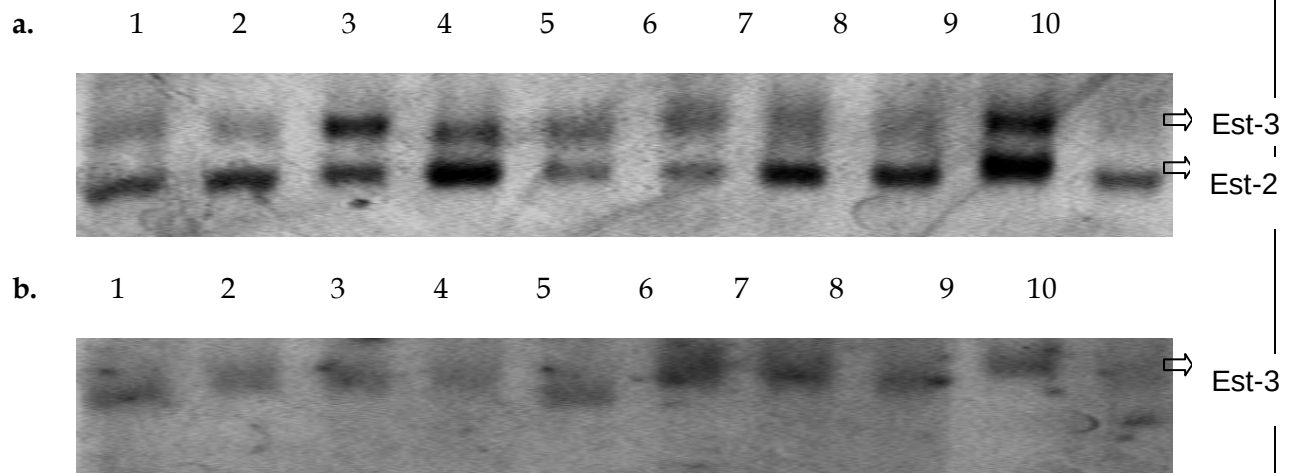
Source: Ming-Yong Han, Agency for Science Technology & Research, Singapore



Amplification profiles of EST SNP primer No.04124 of 4th linkage group in parents, F1 and F2 bulks (a) and BC progeny (b). Arrows indicate polymorphic SNP products of 0.6 kb in P1 (Pure Mysore, low

yielding) and 0.7 kb in P2 (CSR2, high yielding). F1 shows co-dominant expression of both products revealed by two bands. Bulk 1 (high cocoon weight bulk of F2 and BC) and shows the 0.7kb product of high yielding parent P2, while Bulk 2 (low cocoon weight bulk of F2 and BC progeny) has the 0.6 kb band of low yielding parent P1.

Source: Sreekumar S., Ashwath, S. K., Slathia, M., Kumar, S.N., and Qadri, S.M.H. 2011. Detection of a single nucleotide polymorphism (SNP) DNA marker linked to cocoon traits in the mulberry silkworm, *Bombyx mori* (Lepidoptera: Bombycidae), *Eur. J. Entomol.* 108: 347-354.

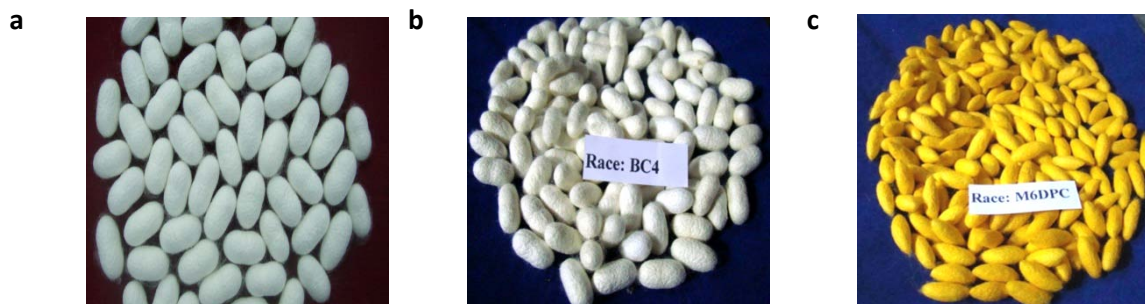


(a). Vertical 8% PAGE of β -esterase & b. heat stable β -esterase isozyme pattern in haemolymph of bivoltine breeds of *B. mori*. Lane 1 - MC4(O), Lane 2 - SK7, Lane 3 - B.Con.4, Lane 4 - B.Con.1, Lane 5 - D6(P)S, Lane 6 - SK6, Lane 7 - NB₄D₂, Lane 8 - D6(P)N, Lane 9 - YB, Lane 10 - SK4(C); Est - 2 and 3 are non-specific using 2% β -naphthylacetate as a substrate. Est-3 was detected when normal gel of haemolymph were incubated at $70 \pm 2^\circ\text{C}$ for 10 min prior to addition of 2% β -naphthylacetate as a substrate

Source: Patnaik, B. B., Biswas, T. D., Nayak, S. K. Saha, A. K. and Majumdar, M. K. (Unpublished data, Central Sericultural Research & Training Institute, Berhampore, West Bengal, India)



B. Con.1(c) is the congenic breed of bivoltine JPN (a) with improved survivability due to introgression of thermotolerant factors from multivoltine CB5 (b)



B.Con.4 (c) is the congenic breed of bivoltine D6P (a) with improved survivability due to introgression of thermotolerant factors from multivoltine M6DPC (b)

The RNA interference based baculovirus resistant transgenic silkworm lines developed is a significant milestone towards preventing the cocoon crop loss due to the dreaded disease, thus improving silk productivity.

Studies into effector mechanisms of silkworm defense are progressing with the characterization of anti-bacterial proteins similar to unique insect-specific Lysozyme. Such purified anti-bacterial fractions had potency in showing activity against *Pseudomonas* AC-3 strain isolated from diseased muga silkworm. Host factors responsible for anti-baculoviral immunity have been explored using oligonucleotide microarray and Reverse-Transcriptase-PCR approach. Purification of Densonucleosis virus and its sequence characterization have been conducted and detailed.

Silkworm feces as natural sources have been explored to have potent anti-BmNPV proteins with antioxidant, hepatoprotective and analgesic properties and its immunopharmacological significance in arresting cancer cell growth and may have significant impact on drug development industry. Antifungal fractions from silkworm pupae were found to have inhibitory effects on mycelia growth of *Fusarium oxysporum*, *Piricularia oryzae* and *Alternaria porri*.

Genetic sexing strains with sex-limited cocoons, egg color and larval markings have been successfully developed by translocation of yellow color cocoon gene from chromosome 2 and black egg color gene from chromosome 10 (autosome) to W sex chromosome. This would create significant impact for silkworm grainage workers and seed developers.



Source: Multivoltine Germplasm Maintenance Unit- Central Sericultural Research & Training Institute, Berhampore, West Bengal, India

Sex limited breeds with cocoon color differentiation in Nistari- A pure race of West Bengal. Yellow cocoons signify females whereas white cocoons signify males.

Excavating the rich wild silkworm bioresources, some unexplored and some sharply declining is critical to unravel many resistant genes for development of disease-resistant hybrids in sericulture.

Studies of bio-ecology of wild silkworms are also needed to protect their ecologically diverse habitats. PCR-based molecular marker, RAPD technique and protein profile by gel electrophoresis have been used to study the diversity of both domesticated and wild silkworm strains. Polymorphic and putative associations of simple sequence repeat (SSR) and inter simple sequence repeats (ISSR) with certain characters like cocoon shell weight, filament length and denier have been established.

An improvement in silk yield pertains towards consideration of the cumulative effects of major traits that influence silk yield. Ongoing and persistent efforts on construction and integration of high density linkage maps, the availability of BAC libraries and mutant genetic resources of the silkworm will help shed focus on molecular mechanisms that control Quantitative Trait Loci (QTL's).



Application of tissue culture techniques to study brain survivability of fifth instar, 2nd day larvae for almost 14-16 hrs at 37°C in dark and subsequent characterization of neuropeptides in brain affecting silk biosynthesis within the silk glands have generated interest in sericulture industry for better silk yield in terms of quality and quantity.

Silkworm cell cultures have been used for the multiplication of virus particles for studying their growth and development, screening of chemicals for viral inhibitory studies and in production of vaccines.

These natural bioreactors have been able to express an antigen for Hepatitis B, Human Growth Hormone, Human Alpha-Interferon, Feline Interferon and attempts have been put forward to produce other recombinant proteins of interest that are potential vaccine candidates.

Genetically modified silkworms secreting human protein collagen in cocoons that can be used to generate artificial skin and cartilage and in cosmetic surgery to fill out lips and wrinkles is a reality in the biomaterials speciality. Culturing different animal cells (human carcinoma cells, fibroblast cell line) on silk fibroin films showed ability to develop cell attachment and growth and induced bone tissue growth *in vitro* when seeded with osteoblasts.

Mesenchymal stem cells cultured over assembly of microperiodic silk fibroin scaffolds have successfully differentiated to cartilage tissue. This remarkable performance of silk scaffolds for tissue engineering applications attributes to its purity, modifiability and controlled degradability.

Genetically engineered silkworms producing “spider silk” with potential biomedical applications as sutures, tendon and ligament repair, bulletproof vests and automobile airbags have provided significant synergy towards their role as incinerators.

Another challenge is to understand the molecular structure of silk. Scientists have reconstituted silk extracted from silkworm cocoons, by extracting and purifying proteins from natural fiber so as to create ‘magic sauce’ from which new materials can be envisioned. Such high-quality synthetic silks, modified for a diverse range of applications could soon be made on an industrial scale.



Source: Foreign Trade Statistics of India
(Principal Commodities & Countries, DGCI&S,
Kolkata)

Colored silk fibers could be used as biocompatible scaffolds (particularly for the growth of artificial blood vessels, ligaments) in medicine in the future

Genetic divergence and interrelationships among wild mulberry species and assessment of genetic relationship between tropical and temperate mulberry have been studied utilizing RAPD, ISSR and fluorescent-based AFLP markers.

Projects at the Multi-Institutional level (involving premier institutes like CCMB, Hyderabad, CSB and other State Government institutions) have been envisaged towards identification of DNA markers associated with disease and pest resistance in mulberry.

Cryopreservation of dormant winter buds of one year old lateral shoots of mature trees after partial dehydration have been successfully practiced and had a appreciable impact on sustaining core mulberry germplasm from diverse genetic origin and geographical region.

Agrobacterium mediated transformation has opened prospective avenues towards mulberry transgenics. Transgenic mulberry lines with HVA-1 (from *Hordeum vulgare*) gene for abiotic stress tolerance have been developed and field evaluation been conducted. Development of Expressed Sequence Tag (EST) libraries from mulberry for abiotic stress tolerance and mapping populations of mulberry for water use efficiency, moisture tolerance and highly alkaline conditions will usher significant improvement of host plants towards environmental acclimation.

Web-enabled DNA database on mulberry developed for the first time in the world congregating about 250 genotypes including 50 selected elite genotypes will help in resource utilization and subsequent manipulation according to the needs. Sustained efforts have been initiated towards construction of framework linkage map of mulberry for mapping and identification of useful genes.

Silk-Sign

Seri-biotechnology has opened prospective avenues towards exploration of seri-biodiversity in a holistic and simulated manner. By improving sustainable production of silk through interventions in host plant improvement, cultivation practices and human skills, silkworm breed improvement, crop stability and post-cocoon processing. It has probability of impacting the drug discovery industry with products of medicinal value and an expression system thoroughly validated for expression of recombinant proteins, which would new avenues towards biomaterials sector. It is now required to improve the dimensions in biotechnological approach for the Sericulture Industry to reap benefits of sustenance and progression in future.

Profile of Authors

Bharat Bhusan Patnaik is the recipient of International Scholar Exchange Fellowship by Korea Foundation of Advanced studies and has been recognized as UGC-NRCBS Visiting Fellow (2010) and Indian Academies Summer Fellow (2007). His current interests lay in Silkworm Immunity more specifically with reference to host factors responsible for antibaculoviral stress and Silkworm lectins.

G.K. Chattopadhyay is a prominent Geneticist who pioneered Congenic approach in Silkworm Breeding with potential breeds such as B.Con.4, B.Con.1 & M.Con.4, M.Con.1. His work on heat-stable esterases as thermotolerant markers have been signified through publications in reputed journals as Insect Biochemistry & Molecular Biology.

S. Sreekumar was the recipient of prestigious JSPS fellowship of Japan and is involved in various aspects of Silkworm Genomics at National Institute of Agrobiological Sciences, Tsukuba, Japan. His current research interests are in establishment of markers linked to Quantitative Trait Loci in domesticated silkworm.

N. Suresh Kumar is a recognized silkworm breeder having authorized nine bivoltine hybrids for commercialization in India. He is the recipient of best scientist award from Central Silk Board, Bangalore in 2003. He is presently engaged in the development of region and season-specific bivoltine silkworm breeds.

H. Lakshmi is an emerging silkworm scientist with extensive experience in different aspects of general sericulture and has published in reputed International and National journals.

A.K. Saha is currently holding the charge of Divisional Chief-Sericulture looking after the Silkworm Breeding & Genetics, Physiology, Pathology & Biotechnology sections. He has extensive research knowledge on General Sericulture and has 3 patents to his credit. He has published International and National papers including a book on Rearing Technology.

B.B. Bindroo holds the charge of Director, Central Sericultural Research & Training Institute, Berhampore, and West Bengal. He specializes in biometrical/quantitative genetics and has identified ZW type of sex mechanism in plants with extensive works on ontogenetic aspects of leaf development. He has also published more than 250 papers in International and National journals.

Indians for Collective Action Annual Banquet Event



**Santa Clara Convention Center, October 15 2011,
5pm to 9pm**

Guest Speakers Anna Hazare and Paul Polak



Indians for Collective Action - Annual Banquet Event

Santa Clara Convention Center, October 15 2011, 5pm to 9pm

For more information visit www.icaonline.org

Nobel Leaders like Anna Hazare and Paul Polak inspire people across the globe to join in the course for improvement of people's livelihood and to stand against injustice to humans – global revolution. Civilians, social and human rights activists progress to fight for equality, corruption free, social and economic equity and for a prosperous living.



Anna Hazare, needs no introduction, he has dedicated his life for social service, for humanity, a social activist; initiated the Satyagraha movement and leader of Anti Corruption Movement in India, protesting for the approval and implementation of “Jan Lokpall Bill” – People’s Ombudsman Bill by the government. For more information on Anna hazare, please visit www.annahazare.org

Dr. Paul Polak, is the founder of International Development Enterprise, IDE develops practical solution to combat poverty. Paul Polak, cofounder and CEO of Windhorse International, he is also the founder of D-Rev. Design Revolution- design and development of ideas and products that benefit the poor people by helping them work their way out of poverty. For more information on Paul Polak, please visit www.paulpolak.com

The purpose of organizing this annual banquet event at Santa Clara is to honor, support and raise international awareness for respectable course the honorable guest speakers, Mr. Anna Hazare and Dr. Paul Polak want to achieve.

California Takshila University sincerely supports and will actively work in collaboration with ICA in this propitious event. We have contributed by providing marketing and media resources and by utilization of our premises. Our participation in this event is a small way of showing our appreciation for ICA's, Anna Hazare's and Paul Polak's vision for a just and prosperous nation.

ICA is based in San Francisco Bay Area, it is a nonprofit group and they work in partnership with social organizations towards a sustainable fair social and economic, ‘equal for all’ society.



★ ICA'S ANNUAL BANQUET IN SF BAY AREA OCTOBER 15, 2011 5:00PM TO 9:00PM ★

Sri Anna Hazare

Leader of Anti Corruption and Lokpal Bill



**ICA is a Network that
Empowers Agents of
Social Change in
India and the U.S.**

**ICA's Mission
is to be a Catalyst for
Social and Economic
Equity for all**

Dr. Paul Polak
Inspirational Speaker



Global Poverty Remover
**Founder of International
Development Enterprises (IDE)**
**A non-profit dedicated to
developing practical solutions
that attacks poverty at its roots**

Visit www.icaonline.org for Venue and Tickets Info

LEGACY OF Pt. BHIMSEN JOSHI

A GRAND HINDUSTANI VOCAL CONCERT

By
Sri. Nachiketa Yakkundi
& Renowned Bay Area Artists

Remembering The Legend



**SEPTEMBER
25, 2011**

**@ 5:00 PM
SHARP!**

**JCC, 3921
Fabian Way
Palo Alto
CA 94303**

AN UNFORGETTABLE EVENING OF MUSIC MELODIES OF LATE Pt. BHIMSEN JOSHI

*A Benefit Concert
for ICA*



www.ICAonline.org

Sponsorship
Opportunities
Available!

Buy 1 Ticket, Get 2nd at

\$10 off

SPECIAL PROMOTION

Discount Coupon Code : 925BJC2ndAt\$10
(Limited Qty)

FOR CHARITABLE CAUSES!

Tickets: \$10, \$15**,
\$25, \$35, VIP, Donor*

*Students \$10 Special (with ID)

**Early Bird \$15 Special (while Supply Lasts)

A FEAST FOR THE MUSIC LOVERS! DON'T MISS!!



California Takshila University
2954 The Bunker Hill Lane
Santa Clara
CA 95054

