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Eternity of Sound and
the Science of Mantras

Pt. Shriram Sharma Acharya

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**ETERNITY OF SOUND AND
THE SCIENCE OF MANTRAS**

(Śabda Brahṁ: Mantra Vijñāna)

– Pt. Shriram Sharma Acharya

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PREFACE

The knowledge of *Śabda Brahm* – *Nāda Brahm* is an important branch of the Indian school of spirituality. The science and philosophy of *Śabda Brahm* encompasses the methodology and effects of *mantra-japa*, prayers, collective chanting and *sāadhanās* of the *veda-mantras* and that of the *Nāda Brahm* deals with the genesis, expansion and influence of music. The volume 19 of the “Pt. Shriram Sharma Acharya Vangmaya” series presents truly rare and detailed information and guidance on this topic. The present book is compiled from the English translation of the first two chapters of this volume that focus on the cosmic dimensions of sound and the science of *mantras*.

Linguistically, the word *mantra* in Sanskrit implies a specific structure of sonic patterns – coded in syllables and vowels, that works as an spiritual tool to liberate the mind from ignorance, illusion and evil instincts. The specific configurations of syllables and the corresponding combinations of phonemes in the *mantras* make the latter powerful ‘carriers’ of the cosmic energy of sound. The book presents a perspicuous introduction with analysis of multiple aspects of the physical and subliminal impact of sound and the structure of *mantras*. It also highlights authentic reports on scientific experiments in this direction.

Different methods of rhythmic enunciation (*japa*) and spiritual practices (*sāadhanās*) of *vedic mantras* are described here with adept guidance. The author, Pt. Shriram Sharma Acharya also focuses on *mantra yoga* as an effective endeavor to master the generation and utilization, without any external means or instruments, of the immense powers of sound for specific noble purposes. Although the *vedic mantras* could be well expressed vocally as prose or verse, the method of singing them in specific rhythms as hymns was given principal importance by the *ṛṣis*. Hence the unique spectrum of *vedic swaras* and the gamut of chanting patterns for *mantras* were evolved and encoded in the *Sāma Veda*.

The *Sāma Veda* contains divine knowledge of the miraculous spiritual flow of music that can effectuate a vivid connection of the individual ‘self’ with *thy*-self. The author highlights the crucial role of

this Veda and discusses the present status of the schools of *sāma gāna* in the context of the difficulties faced today in identifying the best chanting patterns for the *Vedic Mantras*.

The *sāadhanās* of *mantra yoga* together with *nāda yoga* are integral parts of the spiritual experiments on awakening of the *Kuṇḍalinī* and realization of the *Brahm* through *Om̐kāṛ*. These topics too are covered here sagaciously in scientific light. The paramount role of *vāk* (absolutely refined voice) in *mantra yoga* is emphasized with necessary guidance. The author describes the four successively subtler levels of human voice (*vāṇī*) and presents the methods, for the control and refinement of the *vāṇī* and mental faculties, which can be practised by everybody in day-to-day life. These *sāadhanās* gradually lead to the spiritual elevation of the *vāṇī* up to the supreme level – the *vāk*.

He further illustrates – how the hidden spiritual powers of a *mantra* are aroused by *japa* through such a spiritually empowered voice. And how the materialization of the blessings and curses also becomes possible because of the power of *vāk*. Authentic examples and scientific evidences of the modern times are presented in this book with relevant excerpts from the scriptures to support and explain the enormous potentials of refined *vāṇī*.

Acharya Sharma's elucidation of the esoteric and complex subject matter of *Śabda Brahm* and *Mantras* is indeed lucid, logical and scientific. The book also outlines – how the modern science could offer multifaceted benefits towards the incessant welfare of human society by constructive investigations in the Science of Mantras.

– Dr. Pranav Pandya, MD
Chancellor, Dev Sanskrati
Vishwa Vidyalyaya, Hardwar

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Omnipotent Role of Sound in the Universe

The *vaidika* scriptures on the origin of the universe mention that the absolute existence of the *Brahm* is expressed and realized in the sublime vibrations of *Śabda* and *Nāda*. The *anāhat*¹ *swar* (the evolutionary impulse of cosmic sound) induced by these vibrations is said to be the generator of perpetual energy in the universe. *Śabda* – the omnipresent eternal origin of sound and *Nāda* – the eternal element of the self-existent cosmic impulse of music, immanent in the subliminal as well as the gross realms of existence and their ever-evolving expressions in infinity are referred in the *shastrik* literature as *Śabda Brahm* and *Nāda Brahm*.

Śabdaitavāda – the *vaidika* knowledge of absolute sound, describes the sublime power of the omnipresent sound (*Śabda*) as an eternal, limitless whole and the sole creator of the universe. Sound is regarded here as the basic source of energy and motion existing in the universe. The existence of the material world is said to have originated from the cosmic impulse, the infinite bang of *Śabda*. [The big-bang theory of the modern science agrees with this conclusion of the ṛiṣis -scientists of yore]. The non-existence or absolute end of the world at the ultimate time – the other ‘end’ of the universal cycle – is also described to be a consequence of similar supersonic explosion. On the subliminal front, the existence of enormous activities² of mind is said to have been realized through the eternal medium of sound.

In our day-to-day life, we generally come across with two types of sound – *vyakta* (audible) and *avyakta* (non-audible). These are defined as *jalp* and *antarjalp* in the Jain scriptures. The spoken words fall under the first category and those expressed silently (e.g. while thinking....) or through the language of mind are examples of the latter. Acoustic theories of modern physics have characterized these categories in terms of frequencies of the involved ‘hard sound’. The manifestation of the *vyakta* and *avyakta* are relative in the physical world. The ultra and supersonic forms are *avyakta* to our ears, which can normally sense a sound only in the frequency-range of 20 to 20000 vibrations per sec. Similarly, the loud noise of a busy road

would be non-audible to a person who is sitting in a closed house away from the road.... These examples clearly illustrate that the *avyakta* sound also exists in the same ‘reality’ as the *vyakta* one.

Our cosmos consists of the sound waves in all frequency ranges — beyond the grasp of our audio sensors and even beyond the limits of our imagination.... Each impulse of the infinite activities of Nature indwells in the cosmos in the form of subliminal vibrations (of *Śabda*) before its physical manifestation in space and time. Many animals in this world are well equipped to perceive such subtle sounds in some range. Several varieties of birds and animals are therefore able to sense the future events, especially, many of the natural calamities of tremor etc, that are impossible to be precognized by humans. Often this ‘superhuman’ potential of animals and birds beats the advanced sensors of sophisticated instruments.

The sonic vibrations of each spoken or mentally thought syllable exist in the universe forever. Some frontline researchers of the modern science of sound hope that further advancement of science and technology would one day enable recording the voices (of the sages of yore) in the omnipresent ‘ocean’ of ether.

The *vaidika* science of *mantras* – the *Mantra Vijñāna*, developed by the ṛṣis had endowed them with an exceptional faculty of communication across the universe. This power was indeed supernormal as compared to the capabilities of the modern inventions like radio, television and radar...., etc. *Mantra Vijñāna* is the science of the subliminal as well as the cosmic powers of sound. The specific configuration of the syllables compiled in the *mantras* makes them important in terms of associated sonic effect. The enunciation of a *vedic mantra* in a specific composition of accent, pitch, intensity, amplitude and rhythm results in its expansion (at a pace faster than the laser beams) in the endless domain of physical energy waves and consciousness. Because of the unique property of sound to traverse (via the electro-magnetic waves) anywhere in the space, the collective chanting of *vaidika mantras* can induce cosmic impact.

Significant scientific research on the demonstration and the measurement of sonic energy has been carried out in the modern age of ad-

vanced technology. This includes pioneering research in the area of ultrasonic in the USA and Germany. The applications of ultrasonic and infrasonic technology range from strategic weapons to biomedical instruments, from brainwashing to sound therapy and from telecommunications to remote control of the spacecrafts....

Having realized that the energy generated by the decomposition – through *japa*³ of a *mantra* – of the cosmic sound (*Śabda*) would be of exponential magnitude as compared to that of the atomic energy, some pioneering scientists have also begun an in-depth study of the *mantra vijñāna*... However, the researchers of this field must note that, it is the sublime effect of the *mantras* on the consciousness, which is more important than the gross (physical) sonic effects. Studies in this direction should therefore pay greater attention on the possibilities of spiritual enlightenment of all conscious beings with the help of *mantra vijñāna*.

The treasure of knowledge in the Vedas is encoded in the form of *mantras* and *chandas* (hymns). Every *mantra* and *chanda* has its significant importance. The *Gāyatrī Mantra* is honored as preeminent in the science of spirituality and the *mantra vijñāna*. This *ādi* (absolute origin) *mantra* is a compilation of nine special words (in ancient Sanskrit) formed by twenty four syllables. The *japa* of this *mantra* creates rhythmic pressure on the nerves and also titillates the extrasensory energy center (the six *cakras*) and subtle nerve-bundles (*upatyikās*) that generate soothing effects in the *sādhaka*'s body and mind and also affect his deep inner self.

This absolute *mantra* is said to have been realized through the cosmic vibrations of the eternal, sublime force of the omnipresent supreme consciousness (*Brahmā*). This *mahāmantra* is referred as the divine mother of all the Vedas and hence of all branches of knowledge. It is also recognized as the smallest of all religious scriptures and volumes of ultimate knowledge.... Because of its unique potential of inspiring the individual consciousness to link with the supreme consciousness, the *Gāyatrī Mahāmantra* is indeed the most powerful and astonishing creation of *Śabda*.

The symbolic depiction in the *shastrik* literature about.... “the seven horses of lord Sun gaining energy from the vibrations in *mahadākāś*

(the cosmic dimensions)....” — implies the generation of seven natural notes of music by the ‘explosion’ (from quintessential to perceivable state of existence) of the *anāhat nāda*. This cosmic expression of *Śabda Brahṁ-Nāda Brahṁ* is described as the origin of the evolutionary impulse that resulted in the gross (perceivable) and subliminal existence of the ever-evolving Nature and the ever-expanding Universe.... This evolutionary afflatus is also described in the rhetoric presentation of the scriptures as – the cosmic force generated by the commingling of the *Prakṛati* and *Purūṣa*⁴.

The sublime vibration of the eternal sound of the self-existent absolute syllable “ॐ” (*Oaṁ*) indwells everywhere in the cosmic expansion. The self-generation of its rhythmic impulse (*Om̐kāṛ*) – the ‘big bang’, had generated the infinite spectrum of the sublime and the gross reflections of *Śabda* and consequently effectuated the existence and manifestation of the electromagnetic waves and the basic physical energies of sound, heat and light.

The spiritual *sādhana*s⁵ of the *Nāda-Yoga* lead to the realization of *om̐kāṛ* and hence to the unfolding of the secrets of Nature and deciphering of the hidden movements of time (past and future events)....

During the initial stages of *Nāda-Yoga* one has to meditate upon the internal ‘sounds’ perceived through closed ears while sitting in an externally silent surrounding. Long term dedicated practices of this method results in the experience of a variety of ‘otherwise’ non-existent sounds ranging for instance, from that of a whistle or flute to a buzzer or a big-gong; tinkling of a beetle, peeling of bells, to the noise of the thunder bolts.... An unperturbed subliminal humming sound (of “Om̐kāṛ”) is experienced in the depths of the inner self in the completion phase of this *yoga sādhana*. The attainment of this ultimate state of deep trance in *Nāda-Yoga* corresponds to absolute harmony and engrossment of the mind and the soul with the cosmic echo of *Oaṁ*....

Realization and arousal of the sublime power of *Śabda Brahṁ - Nāda Brahṁ* immanent in the human body, mind and the inner core of the soul are aimed in some higher levels of spiritual *sādhana*s.

All the branches of *Mantra- Vijñāna* and related fields of *yoga* deal with the study and practice of rhythmic enunciation of *mantras* and deep meditation upon the transcendental powers of *Śabda* and *Nāda* hidden in the former. These areas of research in the science of spirituality and *yoga* deal with the knowledge of *Śabda Brahṁ - Nāda Brahṁ*. The inclusion of the perennial syllable (*Oaṁ*) and its phoneme *Omkāra* is compatible as well as essential with respect to the compilation of a *mantra*. Therefore, the science and philosophy of *Omkāra* also fall within the vast domain of knowledge pertaining to *Śabda Brahṁ- Nāda Brahṁ*.

The Indian scriptures on *yoga* and spirituality mention a great deal on *Śabda Brahṁ* – as the basis of all branches of *Mantra Vijñāna* and the science of the eternal syllables “ * ” (*oaṁ*), and *Nāda Brahṁ* – as the source of knowledge and realization of the seven eternal notes⁶ and the science of *omkāra* and music.

The elementary practices of *Śabda Yoga* deal with training, control and refinement of voice and speech. Consistent attempt for observance of purity, truth, precision and softness of spoken (vocally or in mental conversation via thoughts) words in day-to-day conduct are prerequisites before one could initiate *Śabda Yoga*. Gaining knowledge through sacred means like good literature, interaction and learning from enlightened personalities who possess truth and piety of character, and transmitting it to the deserving persons via equally noble mode is also necessary as a preliminary exercise of *Śabda Yoga*. A disciple (*sādhaka*) of this spiritual *sāadhanā* should realize the spoken and written words as live carriers of thoughts, sentiments and inspirations.

The *Nāda Yoga* principle focuses upon the *sāadhanās* of realizing the spiritual dignity and divine bliss of music through sincere training of the *shāstrīya samgīta* (Indian classical music).

Higher level endeavors of *Śabda Yoga* and *Nāda Yoga* result in the attainment of extrasensory potentials of communication in the subliminal horizons of supramental intellect and super consciousness. An accomplished *yogi* of the *Śabda Yoga*, can transmit his thoughts and inspirations to educe and control the minds of others at will. Similar state of success in *Nāda Yoga* enables one to receive cosmic signals, divine voice and the messages of great souls and *yogis* from higher realms of spirituality.

Astonishing Power of Śabda – The Eternal Element of Sound

We all can easily experience the powers of hydro, thermal, electrical and wind energies in different forms. That *Śabda* or any form of sound also has similar or greater impact – cannot be believed or realized so clearly. Even the visible effects of music are found to vary according to the psychology or emotional state of the subject and are therefore experienced in varied contexts and intensities.

The scientific investigations on the existence and properties of sound waves indicate that the effects of sound could be as physical as those of the other forms of energy. The Doppler Effect is worth mentioning in this regard. The historical breaking of a bridge due to the superimposition of the cyclic sound created by the orderly footsteps of Napoleon's army; Falls of several huge and stout bridges due to the synchronization of sound of noisy winds or noises of the surroundings – for instance, the falls of the Lao Bernard bridge in France in 1852 and 1871, the Ohio river's bridge in USA in 1854 and those of its Niagara water-fall in 1864 and 1889, the bridge over Tacoma river in Washington, in 1940..., etc – are some of the well known examples of this significant effect.

Some German scientists are said to have gained, during the time of first World War, the knowledge about the development of a weapon that could produce sound waves of a frequency higher than 10^5 vibrations per second. Such waves would ruin the targeted persons in less than a second because the resultant sonic effect would destroy the neurons of the subjects at a rate faster than that due to a high power direct electrical shock...

According to acoustic experts, even the harmonious tune of a musical instrument if repeated under appropriate synchronization (in terms of frequency, amplitude, intensity and rhythm) with other musical output (e.g. the tinkling sound of the bells in the ankle-ornament of a dancer) can result in the destruction of the stage set for the musical performance. Similar destructive effect could be observed by the orderly, superimposed high-intensity audible sounds....

Occurrences of earthquakes are also largely attributed to similar effects, of periodic resonance of superimposed sound waves (at specific frequencies in a specific order) deep inside the earth's surface.

It appears that the destructive power of sound could be used, in lieu of dynamite for instance, to create high-energy explosions. In order to make constructive use of this gross effect of the amplified powers of superimposed sound waves some physicists have carried out systematic experiments in advanced laboratories. One interesting experiment conducted in the Wasingzt-House Laboratory at New York is worth citing here. An 8 ft long Iron rod of 50Kg weight was hung in the center of this laboratory. A small bottle-cork, weighing merely 0.5 ounce, was also hung parallelly near the rod. The experiment was set so that the cork would hit the rod at a constant frequency without any disturbance. An immediate thought in our mind would be that the hits of such a tiny cork would only result in its own destruction. But the facts are quite the contrary! After fifteen minutes of these periodic collisions the rod was found to have vibrations in it... An hour later, the rod began to oscillate like a pendulum....

If the orderly vibrations (and hence the sound) of such a tiny dimensions could be so powerful then one can imagine the gigantic impact of the enormous vibrations created by the ever more loud sound (ranging from day-to-day speech to the traffic-noise... and to the explosive sound of space crafts....., etc) produced by the living beings on the earth...; and.... by the natural collisions and (meteoritic) explosions in the space....!

Modern scientific research has gone a long way in its study of the sonic waves. These investigations coupled with the advancement of electronics have now made the speech recognition by machines like

computers and robots, an established reality. Applications of the radio waves and the lasers have become integral part of modern life. It is not far from sight when experiments will be set in the advanced laboratories to verify and demonstrate the super natural physical effects of classical music such as – the automatic kindling of oil-lamps by *Rāga Dīpak*, the potential of *Rāga Malhār* in commencing rainfall at any time at the singer's will, the power of *Rāga Śankar* in transforming a dry wooden stem into a blossoming tree..., etc.

The progress, at the same pace, of the current practice of using the creative power of music in psychological treatments, stress management and in healthier maintenance of animals and vegetation...etc., would certainly pave the ways for the realization and use of the knowledge of the *Śabda* and *Nāda* for an overall ascent of personality as described in the Indian scriptures of yore.

On the subtler front as well, modern science is moving towards investigating, to some extent, the latent powers and subtle energies of *Śabda* (*Nāda*) as described in the ancient Indian scriptures. The journey of research from atoms to electromagnetic waves has finally been oriented on the fundamental and vital role of sound waves pervaded everywhere in the cosmic expansion. The *big-bang* hypothesis of the origin of the universe is also coming closer to the 'theories' cited in the *vaidika* literature.

The scriptures on *yoga* render significant importance to *Śabda* – *Sāadhanā*, the spiritual experiment of the realization of the eternal cosmic sound, via the practices of – *swara yoga*, *surati yoga* and the *mantra yoga*. The science and philosophy of *mantra* has emerged from the in-depth knowledge of the *ṛṣis* and their expertise in using the latent powers of *Śabda* and *Nāda* – towards fulfilling the noble purposes of global purification and uplifting at the physical as well as the spiritual levels. This is the reason why in case of every *mantra*, it is the pattern and strength of vibrations and energy generated by its *japa* and not its linguistic structure, grammar or the word-meaning that play the key role in making the *mantra* so effective...

The *vaidika mantras* are said to have been created as specific configuration of phonemes and syllables corresponding to the ‘sonic pattern’ of the enormous expressions of the subliminal vibrations of the afflatus of the *Brahm* as realized by the *riṣis* in the state of deep trance.

Sonic energy, being a physical manifestation of *Śabda* exists in its original form in the universe forever, without any natural conversion into any other form of energy. The subtle vibrations and impact of *mantra* is therefore regarded as eternal.

In scientific terms, the vibrations in any material form or in the etheric medium constitute the fundamental source of existence and manifestation of sound. As we all know, the quavering of the wires of a musical instrument creates specific vibrations in the medium in the vicinity of these wires; due to this, the air (particles) around is first compressed and then spread periodically according to the frequency of these vibrations. The sound so generated is carried along the entire expansion of the medium.

The vibrations carried via the air medium are audible (i.e. recognized by the sensors of our ears) if they fall into the frequency range of 16 to 20,000 cycles per second in general. Upon perception by the nerve-sensors in the ears, these vibrations are transmitted – through appropriate electrical signals, to the neural system in our brain and the corresponding sound is ‘heard’ by us. The presence of the medium of air is essential for the normal functions of hearing by the ears in a human body. For most of the marine animals, the medium of water fulfils this purpose. In some creatures the centers for perception and transmission of sound are located along the skin pores or elsewhere in the body instead of the ears.

The position (vis-à-vis their connections with specific centers in the brain) of our two ears helps instantaneous hearing of the audible sound and the recognition of the direction from where it is arriving. However, despite optimal functioning state of the brain and the ears, we cannot hear the infra sound – produced by the vibrations of frequencies much lower than 16 cps, and the ultrasound – generated by vibrations of frequencies much higher than 20,000 cps. Moreover, even the sound belonging to the audible frequency-range, but produced at

a long distance or in a noisy surrounding, would not be heard by our ears; because, the disturbances in the air-medium would perturb its original vibrations in such cases.

The orderly expansion of the sound waves (vibrations) of compatible characteristics produces well structured sonic patterns while a disorder converts them into a noise (in terms of communication signals). The velocity (around 1088 ft per sec) of sound is much lesser than that of light. This is the reason why the flash of lightening is seen before the loud noise of a thunder bolt.....; or..., smoke produced by a cannon is seen before the cracking sound of its explosion is heard..... 'How far a sound will be heard or received by a sensor that is perceptive to its frequency' – depends upon its intensity and loudness. The larger is the intensity, the lesser would be the effect of distance.... For example, the noise of a volcano, exploded in Indonesia in 1883, was heard up to a distance of over 5000 miles in open air.

The propagation of the sound is hindered or reflected back whenever its carrier medium is blocked. This gives rise to an echo or to a dispersed sound depending upon the (atomic) structure and shape of the obstacle. The quality (loudness and amplitude) of the reverberation depends upon the type of the original sound and the regularity and geometry of the dense medium (or the obstruction) with which the sound waves collide. At times, the sound produced at one place and perceived within a certain range can be heard beyond an intermediate region of its non-perception. For instance, an explosion that took place in Moscow sometime in 1920s became popular because, its noise was heard up to 60 miles but not at a distance from 60 to 90 miles. Amazingly, it was clearly heard at a distance of another 60 miles forward (i.e. within the distance from 91 to 121 miles approximately) from the place where it occurred.

Propagation of sound via radio waves amplifies its velocity up to the order of 186000 miles per second or more. This is how the radio stations can communicate from one end of the globe to the other in a matter of few seconds. Marching ahead from the knowledge and utilization of radio waves, the modern science and technology have advanced up to the level of capturing as well as generating infra sound and ultrasound with the help of sophisticated instruments. The present century might enable experimentation on still higher dimensions of sound and pave the way for experiencing the yet 'hidden' realms of its sublime existence.

Constructive Applications of Sound in the Modern Age

The discovery of radio waves had created revolution in the scientific development of the modern world. Research on ultrasound and infrasound has given it a big leap towards the new horizons of advanced technology.

The pulse-echo method for testing of metals was developed in 1940-'50 based on Prof. Dazisch's research on ultrasonic waves. Contemporary research on ultrasound has led to multifaceted applications in engineering and sciences.

Use of ultrasound – in noninvasive technologies like the EMR, sonography and ultrasonic surgery, in the diagnosis and treatment of diseases like arthritis, gall-stone and in complicated surgical operations has taken a predominant place in the medical technology today. Amongst the recent experimental studies, the research works of Dr. Luxel in Sweden, Dr. J.C. Taylor in England and Dr. Toshio Bogoi in Japan have shown promising use of ultrasonics in the neurological disorders as well.

The visible as well as the subtle effects of infra-sound are found to be more powerful in the field of communications than those of the audible or ultrasound. The radio waves could be used only through appropriate transistors. This limitation has been overcome by the invention of microwaves and other infrasonic waves. The special use of infrasound lies in the acquisition of distant (in time and space) and low frequency signals and is therefore of specific importance in telematics and advanced telecommunication technology. According to Dr. Joseph Todd, a radiologist in the Univ. of California at Los Angeles, infrasonic radio waves could also be sent or received via neurological signals. Nature possesses many live examples to support his claims.

The frantic running around by animals like cats, dogs, rabbits...etc., hours before the occurrence of an earthquake in the nearby area – indicates the capabilities of these animals in sensing the infrasonic vibrations deep below the earth's surface. Systematic experimental studies on the changes in the behaviors of several animals and birds

have given conclusive results in this regard. The Japanese make use of the Goldfish to know about the tremors well in advance. Some species of elephants and fin whales are found to make efficient use of infrasonic signals for deciding the direction of their future movements....

The presence of an infrasonic effect, due to its subtle nature, is often linked with 'mysterious' events. One such interesting phenomenon is associated with the research of Prof. Govard Marceillis of Vienna. He used to feel dull and restless with nausea while working in the office in his properly clean and airy chamber. This had started happening every day since several months. Mysteriously, his condition would become normal as soon as he came out of the particular chamber.... His body and mind were in good health otherwise. Regular observance of this peculiar phenomenon prompted him to investigate the matter....

Once, while he was sitting with the support of a wall in his chamber, he sensed some sort of vibrations in it. It was found that the noise of an air-conditioner (fitted several months ago) in the adjacent room gives rise to these vibrations.....; the frequency of these micro-scale vibrations was found to measure around 07 hertz, which was generating infrasonic waves in the chamber of the Professor.

Prof. Govard then carried out intensive research on microwaves. He developed an instrument to generate infrasonic waves. To his surprise, during several experiments, he observed that these waves were capable of penetrating the bodies of the *guinea pigs* and, due to their high energy fields, were capable of liquidating the solid constituents there in a fraction of a second. During a demonstration of the power of infrasonic waves – when he operated his machine to generate such waves in an open ground...., the glasses of the concrete buildings in the surroundings were found to have broken almost instantaneously and the inhabitants of the buildings complained of headaches, irritation, nausea and tension during this experiment.

Because of their immense potential in creating high energy fields, the discovery of infrasonic waves soon led to the technological developments ranging from the household appliances like the microwave ovens to the highly sophisticated instruments for advanced scientific research.

The above examples and technological applications clearly signify the magnificent role of the power of sound in our physical life. However, if misused this power would be equally detrimental.... Noise pollution is among the major health-hazards being faced by the world today. The selfish and power-hungry motives of a few have also led to destructive use of sonic energy. This greed and exploitation of the astonishing power of sound could prove to be disastrous to humanity and to the existence life on our beloved planet.

Misuse of Sonic Energy – Risks in the Present Times

The smallest level of intensity of sound that could be heard by our ears has been scaled to measure as zero decibels. The average intensity of a whisper (through human mouth) is measured on this scale as 10 to 20 decibels... and so on.... The sounds of intensities (hence, loudness) more than 75 decibels are found to be harmful to the psychological and physical health. According to a report of the international symposium on environment organized in Stockholm by the UNO – ‘if a human being has to live constantly in a noisy atmosphere where the intensity of sound is more than 140 decibels then he would soon lose the normal mental balance...; further higher levels of intensities of this sound would result in his untimely death’.

It is found that, on an average, the intensity (in decibels) of sound produced by normal conversation is around 60, that of quarreling voice is about 80. The average intensity of the noisy sound of a motorbike measures around 100, that of a siren of a factory about 150, aircraft about 160 decibels...., etc. The collective impact of these disturbing sounds is found to explosively damaging and more dangerous for our ecosystem than the pollution of air and water.

Scientific Studies on Noise Pollution:

Scientific investigations reveal that the stimulation created by the sound waves of intensities higher than 25-30 decibels at a continuous stretch can perturb the normal bio-electrical signal-processing of the nervous system and hence should be regarded as risky... Maintenance of silent ambience in hospitals, especially around the heart-patients and in the intensive care units is therefore mandatory.

Contemporary experimental research on guinea pigs as well as on the human subjects carried out in the acoustics, medicine and neuropsychological research laboratories across the world – in the 20th century, has shown significant mal-effects of loudness of sound on clinical, physiological and psychological behavior of the subjects. The leading projects include – the experiments conducted at San Francisco medical college, California; Dr. William F. Guar’s research lab in Georgia; Keliayer Hearing and Speech Center, Texas; Dr. Lester W. Santen’s physiological research laboratory in Ohio; and the field research carried out by Prof. V. Williams of the Harvard Univer-

sity...., etc, in the USA and those of Dr. Griffith in Australia, and the national studies of heavy industries' physical and working environments... carried out in England, France and Russia

Similar to the Doppler effect, the negative effect of loudness results in the destruction of matter in its vicinity. During the construction of a plane field near Leningrad, some time in 1963, it was observed that the loud noise of the bulldozers had caused a sudden fall of the feathers of the hens in a nearby poultry farm. The loud 'voice' of super magnet fighter aircrafts had produced cracks in the historic caves of Kenyan. Many other historical monument around the world are facing similar dangers due to the noise pollution created by the traffics or the heavy industrial operations in the areas around.

The intensity of sound has a key role to play at the cellular and molecular level as well. Dr. Dailhastize's research carried out at the Massachusetts Institute of Technology has shown that the coagulation of the RBCs increases with the loudness of sound in the surrounding environment. This results in narrowing down of the arteries and increasing their rigidity. Similar results were obtained at the School of Engineering and Applied. Sciences, UCLA during a study of the effects of noise, the negative effects of the loudness of sound in the big cities were found to have caused liver diseases in the adults and affected the would-be-born children of the pregnant women – such infants were born with physiological and anatomical abnormalities of one kind or the other.

While the appropriate ordering and controlling of the frequency and intensity in music creates soothing effects of strengthening the healthy functioning of the body and the mind, any disordering in it could prove to be equally harmful. For instance the electronic strain gauge tests conducted by an acoustic, Dr. John Diamond, have indicated that some combinations and tuning of the 'Da... Da....Da....' in a noisy pop music can ruin about two-third of the muscle-strength of its listeners. The sound (though subtle in nature) produced by evil thoughts and sentiments like jealous, ego, anxiety, anger – generated by excessive ambitions, possessive desires or attachments – fall into the second category. Those desirous of living a happy, healthy and long life should attempt creating a noise- free atmosphere in their external and the internal world. Silence in the surroundings and a peaceful state of mind are evidently crucial for the success of any kind of *yoga* or spiritual practice.

Infrasonic Communications: Misdeeds of Today

As stated earlier, the infrasonic waves are the fastest signals and the most modular medium of communication through space as compared to the other modes known till date. However, the falling values of humanity in the modern world have largely opted for the misuse of this superb natural power of *Śabda*.

The effects of direct contact with infrasonic waves have been found to be most harmful for the physical health as it can destroy the body tissues in a tiny span of time. That uncontrolled infrasonic radiation are insidious to one's psychology, has also been observed in several incidents in the recent past – some of these were 'large scale' phenomena like the ones presented below.

Peculiar feelings of fear, despair and dullness used to prevail among the tourists who visited the Santonini Island in south Igen. This prompted geographical investigations... It was found that, long ago (some time in 1450 BC), the major portions of the island had got immersed in the Atlantic ocean; the geological movements of the same and disturbances thereby create vibrations (measurable by sensitive seismographic instruments) that result in generating infrasonic waves around Santonini.

During the peak of the Cold-War times, some Russian scientists had conducted experiments in which they had sent infrasonic signals to several parts, esp. in the factory-/ mining- areas, of Canada. This had put millions of people, esp. laborers in the factories or the mineworkers, into unusual states of mental depressions, dullness and lethargy for several days.. This naturally affected the factory- and the mining operations and created serious problems... Canada had raised this issue at international forums to prevent recurrence of such ghastly trials. Similar infrasonic 'attacks' of the Russians were reported in Alaska. The American defense-scientists had retaliated by transmitting equivalent low frequency anti-waves.

The weapons capable of transmitting infrasonic radiation at targeted spots of strategic importance in the enemy's camp are the most dreaded and ghastly, as they can virtually paralyze the opponents for a desired period of time during the war – without leaving a clear evidence of this inhumane act. Registering such attacks is hard be-

cause such signals can be propagated directly without the requirements of any transistor or reflection sensors... etc. Unmindful race for such developments, if left unchecked, might even lead to the extinction of life on our globe.

Considering the disastrous dangers of misuse of the gigantic power of sound and realizing the astonishing role of *Śabda* in the creation and maintenance of normal functioning of human body, mind, and the existence of life in the universe..., the advanced research in the areas of ultra-high or higher frequency or infra low or still lower frequency sound waves should now be carefully directed towards the noble constructive ends of scientific quest.

History of human civilization has witnessed the lives of many great personalities who from time to time have made use of the spiritual power of *Śabda* to guide the human intellect towards the righteous directions of global welfare. In view of this fact and realizing the eternal power of *Śabda*, we have logical reasons to believe that a constructive unification of the modern sciences with the science of spirituality would prevent the recurrence of the misdeeds of the recent past and help induce a harmonious ambience of all round progress suitable to human dignity.

Guidelines from the Ancient Science of Śabda

The power of *Śabda* is indeed astonishing when realized in the spiritual realms in terms of *mantras*. The *sātvika mantras* are sources of overall refinement of the physical as well as spiritual domains of life. The *sāadhanās* of such *vedic mantras* bestow individual and global welfare in the truest sense. The *tāntrika mantras* possess tremendous potential that could be employed as ‘mechanized’ device to affect specific targets – be that mind or matter.... If misused, the negative effects of the *tāntrik mantras* could be disastrous for the user and the target both.

The human body and mind constitute a super advanced scientific laboratory. The founders of the *mantra vijñāna* used to conduct experiments in this fantastic bequest of Nature.

According to the ancient philosophy of mysticism (*rahasyavāda*) – *Śabda* is eternal and is the fundamental perpetual force that effectuated the creation of the universe. The blueprint of any event that is going to happen anywhere in the cosmic expansion first occurs in the form of the vibrations of *Śabda* in the ocean of its omnipresent *Nāda*. The experts of *mantra vijñāna* were able to ‘perceive’ these subliminal vibrations and could therefore ‘visualize’ the future events with ease. The sole aim of their experiments with the *mantras* was – cognition of the absolute truth and using its ultimate knowledge for divine illumination of the world....

Our body is defined in the ancient scriptures as a manifestation of specific reactions of *Śabda*. With this perceptions, the rhythmic cascade of bodily functions could be termed as a bio-swing, moving according to the set frequency (like that of a radio) of *Śabda*. When all the components of this gigantic ‘sonic’ device of our body (and mind) are harmonized, we are in fine health and mood and work in perfection according to its natural frequency.

The modern experts like Dr. Steven Hypern, director, Spectrum Research Inst., California, opine that – we all live in an ocean of sound, some vibrations of which are compatible with our own frequency.

Dr. G. Kozhinov of Bulgaria has conducted some experiments on *yoga* to investigate such compatible frequency-ranges. His findings show that – the subjects go into a state of trance while kept in controlled conditions under the influence of sonorous sounds of specific medium-range frequencies, played at specific rhythms.

Dr. Hans Jane of Zurich has quoted in his dissertation on siematics that – (energy) waves constitute and transform any kind of matter that exists physically..... In his scientific experiments he had demonstrated the liquifying of steel plates by the effect of sound waves. In yet another experiment, he had produced a compound of this liquid by mixing powdered plastic and some metals under superimposed effects of similar sound waves. By controlled sonic vibrations on this compound he reconstructed the plates whose upper surfaces now had a transformed appearance.

Dr. Hans has developed a tonoscope based on the principles of sonic transformations. The sounds received by the input microphone of this instrument are converted into *visual images* on the output screens. He has invented that *Oam*⁷ is a *mantra* that generates very specific geometrical images on the tonoscope. (Remarkably, these images correspond to the Sanskrit syllable used to represent this unique sound). He concludes that the specific vibrations of *mantras* and the specific patterns of their *japa* – as invented by the Indian seers of yore – must have been great source of generation of immense energy, mental inspiration and consequent multifaceted development of happy and healthy society.

If a stone is thrown in a silent water pond then circular waves, moving in the transverse directions, are generated on its surface. Similarly, any vibration in the etheric ocean generates sound waves in the cosmos. These waves move longitudinally in all directions forming a virtual 'sphere' of vibrations in the space.... As the region of expansion and the strength of the waves in the water pond will be more for the heavier stone..., similarly, the impact of louder sound (at a common frequency) generates the sound waves of higher intensity and vice-versa. The methods of collective *japa* or chanting of *mantras* seem to have been designed according to this principle of synergistic

amplification of intensity. These are found to induce magnificent impact on the gross and subliminal domains of life....

The research on sound therapy carried out by Dr. Leislier Lasanio of Vienna has also been significant in terms of investigation into an ancient branch of knowledge through modern scientific means. His experiments on *yoga* along with recitation of “*Oam*” have shown very positive effects on a large number of patients in his sanatorium.

Similar research projects in some other advanced laboratories have shown that specific sonic vibrations (and hence the *mantras* in particular,) have intensive effect on the endocrine glands. The musical sound of Nature such as, the music of winds, soothing sound of the smooth flow of rivers, the melodious sound of the birds....etc., is also found to have positive effects on the physical and mental health. These findings are like ‘another step’ towards the realization of the unique bequest of the Almighty bestowed upon us in the form of *Nāda* existing in the Nature. Ancient scriptures on *Nāda Yoga* and *Śabda Yoga* would offer deeper insight for more meaningful research in this direction.

The *ṛiṣis* had described the *sāadhanās* of *Śabda Brahm* - *Nāda Brahm* as effective modes of linkage between the individual consciousness in the mortal world and the divine realms of supreme consciousness. In-depth study of the treasure of knowledge provided by them and research-experiments on sound, *mantra vijñāna* and spirituality promise majestic support for the ideal ascent of life....

Impact of Śabda on Mind and Intrinsic Character

The physical world consists of five basic forms of energies, viz. sound, light, heat, electricity and magnetism. They are convertible into each other and follow the universal law of conservation of energy. Hence, logically, they all could be regarded as different manifestations of a unique perpetual energy.

The Indian philosophy and science of spirituality describes a unique cosmic energy – the Supreme Consciousness, as immanent in every form of life and physical energy. This omnipresent subliminal energy is said to have generated from *Śabda*. Its genesis and absolute expansion is known as *Śabda Brahm* – *Nāda Brahm*. The eternal source of this cosmic sound is referred as the *anāhat nāda* of *Oam*. Enormous manifestations of the powers of sound – including that of refined voice (*vāka śakti*) are said to be the manifestations of this *anāhat swar* of *Śabda*.

The significance of speech – is experienced by all of us in our day-to-day life in terms of the ‘reactions’ to the ‘spoken words’. This gives us a glimpse of the marvelous role of the gross (physical) manifestation of the sonic energy of *Śabda*. The history of human society has ample examples illustrating this power of syllables and sound.

Few words (spoken or written) of inspiration can enthuse a soldier to win the losing battle. The terrific effect of Mr. Winston Churchill’s ‘V for Victory’ motto had changed the fate of England in the IInd world war. Similar events were associated with the power of the courageous words of the little Corporal, Napoleon Bonapart. The power of syllables is electrified by the inner strength and confidence with which they are spoken. The motivating slogans like..... “*Tum Mujhe Khūna Do Main Tumhe Āzādī Dūngā*” expressed by Mr. Subhash Chandra Bose and “*Swarāja Hamārā Janma Siddha Adhikāra Hai*” by Lokmanya Tilak....., have installed glorious phase of Indian independence movement and are still alive.

Mahatma Gandhi’s speeches had a power to hypnotize the listeners; to drive millions of people, even though these speeches would not be

outstanding in terms of eloquence or breadth of knowledge. The power of syllables manifests itself according to the intentions and inner force of the speaker (or writer). Few scornful words of Draupadi had triggered the ego of Duryodhana...., and thus resulted in the devastating war of *Mahabharata*. This last example clearly signifies the calamitous effects of the negative use of the immense power of *Śabda*.

In the language of anatomy, the ‘hearing and speech’ (including the speech of thoughts, i.e. thinking and imagination) system gets top priority in the brain and occupies about 50 to 60 % portion of our brain’s active (functioning) area. The functions of the creative activities of the hands get the next priority and so on.....We also should give top priority to controlling the words spoken, written or heard (and hence ‘stored’ in the memory) by us – to avoid the misuse of the precious power of our brain. Spiritual disciplines indeed give crucial importance to the practices of *satsaṅga*, *saṁyam*, *swadhyāya* and *manana* for enhancing the purity, integrity, austerity and piety of hearing, speaking, reading, writing and thinking.

At higher levels of spiritual refinement, the power of spoken, thought-of or written forms of the gross manifestation of *Śabda* expresses itself in terms of the effective blessings or curses. The *ṛiṣis* used to hear, speak and think absolute truth and were therefore endowed with the supernormal talents of using this power at will. The birth of Lord Ram and his brothers by Śringi *ṛiṣi*’s blessings and the death of King Parikṣit due to the curse of Lomesh *ṛiṣi* – are some of the well-known examples in this context available in the ancient Indian scriptures.

Most importantly, the latent power of *Śabda* stimulates the subtle nuclei of consciousness inside our body and has significant effect on our mind. The auspicious words – e.g., the prayers offered to divine powers, the holy quotes or the preaching of great saints, create corresponding positive effects on our mind and sentiments. Sacred thoughts and deeds are directly linked with such boons. The practice of uttering and writing the auspicious words before the beginning of any important work is common in almost all religions and seems to have its roots in the realization of the above effects by our ancestors....

The harmful effects of abusive language and dirty words on our conscious mind are obvious. We might utter such words while quarreling or in anguish or when our mind is excited...; the reaction is easily seen in the deformation of the otherwise pleasant face-expressions or almost shaking posture of the limbs.... etc. The ill-intentioned, vulgar or erotic words get latently registered in our subconscious mind and assimilate insidious impact in terms of maligning our *samskāras* (inherent and intrinsic tendencies) and thus may pervert our character in the long run.

While the serene and inspiring words can touch the inner sentiments of ordinary mortals like Kalidāsa and convert them into great scholars....., the substandard, abusive words could, with equal potential, turn the innocent children into dreaded criminals.... The choice is ours! If we want to see a better future for our society then we must preserve, practice and propagate the righteous teachings of the great saints and social reformers and struggle to eliminate the inciting erotic literature and obscene audio-visual creations from our world for ever....

Elements of the Science of Vowels

Before going into the details of *mantra vijñāna* let us focus here on the sonic power of some basic vowels used in the Sanskrit and Devanagari Languages. Whatever be the type of our language, we do come across with a large number of such accents (and their phonemes) or various combinations of these in our day-to-day conversations. Because of the special sonic effects, the proper use of the basic vowels and syllables of the ancient Sanskrit language can also be regarded as an elementary exercise in *Śabda Yoga*.

The properties of some of these basic vowels are as follows:

a: Pronunciation of this vowel has a direct, though subtle, impact on the heart. The pumping action of the heart – especially its operation of exhaling pure blood – is supported by this accent. Repeated loud enunciation of this vowel at constant amplitude helps regulate the supply of pure blood from the heart to various part of the body. In *mantra vijñāna* this vowel is regarded to possess creative power.

ā: The sound of this vowel affects the chest and the upper parts of the *lungs*. Its impact strengthens the upper *ribs*, helps clean the digestive canal and also energizes the mind. Controlled and repeated enunciation of this vowel would be very useful towards the cure of asthma and chronic cough.

ī - ī: Stretched pronunciation of these has a direct positive effect on the throat and its connections with the brain. This activates upper chamber of the heart. Cleaning of the respiratory tract and the intestines is performed by regular stimulation by the continuous sound of these sharp vowels. People suffering from chronic headaches or cardiac ailments should benefit from consistently exercising the repeated ‘chanting’ of these vowels. Short-tempered or mentally depressed persons are also advised to follow the practice of rhythmic recitation of these accents.

u - ū: Pronunciation of these vowels has direct positive impact on the organs in the middle and the lower part of the body – namely, the liver, stomach and the lower intestine. It reduces the weight of the belly. Constipation can be cured by regular recitation of these vowels

over a continuous stretch of time. Women suffering from the diseases of the abdomen would also benefit from such exercises.

e - ai: The sound of these vowels has an impact on the kidney and also on the junction of the throat and the respiratory tract. Repeated pronunciation of these vowels helps cure of renal (urinary) diseases. Rhythmic enunciation of these strengthens the soft membranes inside the vocal cord and hence it is very useful for the singers or teachers who have to sing/speak, at a constant pace, for relatively longer intervals of time.

o - au: The natural functioning of genital organs and the muscles and veins of its peripherals are strengthened by the sound of these vowels. The regular practice of chanting these vowels also stimulates the central part of the chest and is useful in supporting the cure of pneumonia and pleurisy.

am: Inhaling of oxygen with the humming sound of this vowel indeed helps increase one's vital energy. It also activates healthy increase in the RBCs and purifies the blood. The practice of *prāṇāyāma* is an integral part of all *yoga* exercises; prolonged pronunciation of 'am' is the root of perfection in the former. While pronouncing the 'a' part of this vowel our lips and mouth are kept open and the lips are closed at the time of 'm' This should be practised with a feeling that – all our evils have gone out in the first phase and we have closed their re-entry in the second phase. Regular practice of this simple exercise is very beneficial for psychological uplifting too.

ah: Its pronunciation titillates the tongue and the upper frontal part of the palate and creates useful conduction effects in the brain. Recitation of this vowel under deep meditation stimulates the secretion of specific hormones that regulate the harmonious functioning of all components/organs of the body. Open laughter also serves repeated enunciation of this vowel. This is the secret of the "laughing exercise" being so effective a remedy against stress and depression.

Apart from inducing positive effects on the body and the mind, specific practices of chanting these basic vowels (accents) help spiritual development as well. These aspects are covered in the context of *Nāda Yoga* and Music.

Relation of Vocal Sound with the Panca Tatvas⁸ :

Prof. Dobson and some other linguists have hypothesized that the primary speech of human race must have originated in the form of a verse because rhythm and accent of the vocal presentations seem to be universal vis-à-vis their implications in any language. Prof. Dobson had got this idea after observing that – if he would recite a French poesy before his German students and German poesy in front of French-speaking students, both the groups of students were able to get the central idea and feels of the poems. Whereas the prose in the same foreign languages were non-comprehensible to these students.

That *phonemes* (and sound in general) would have a relation with matter (which belongs to the *pṛathvī tatva*) is obvious from the fact that when any kind of material form is beaten it produces vibrations. The type of vibrations (and hence the quality of sound generated by them...) produced by the same impact of beating would be different for different types and shapes of matter. For example, the sound produced by a thin wire of *sītāra* is different from that of the leather-sheet of a *dholaka*....., etc.

The role of air (which belongs to the *vāyu tatva* in the group of the five basic elements) as a medium for the realization and propagation of sound is well known. The controlling effect of air in maintaining the quality and type of sound is also obvious – as seen in *whistling* or in playing of the musical instruments like flute. The use of water as a medium for communication by several *marine species* and also in some musical instruments (like the *jal taranga*) similarly explains the relationship of sound with the *jal tatva*.

The physical relationship of sound with heat and light – constituents of the *agni tatva*, can be seen/ measured with the help of the scientific instruments like the retrometer, spectrometer and the tonoscope. The implications of their subtle relationship are well experienced by most of us in our day-to-day life; for example, ‘the heated exchange of words in quarreling ...’ or, ‘the enlightenment of mind by an inspiring lecture....’, etc. That sound reflected in the form of music affects our sentiments – is an evidence of its relationship with the subtlest, the cosmic element – *ākāśa tatva*.

As the universe in general, and the individual being – i.e., the body, mind and the manifestation of consciousness in it, in particular, is

constituted by the *panca tatvas*, its intimate relationship with sound is quite natural.

In fact, our body as a whole and especially the vocal cord is like a sophisticated musical instrument. Its thin muscles, membranes and other particles get vibrations from the *apatatva*; when we speak, the *currents* of *apatatva* are received from the omnipresent sonic power of *Nāda* around us. When we think, this sublime element is generated by the *Śabda*, which is indwelling in the conscious core of our mind. This is the reason why our mind talks to itself while in the thought process....

The infinite dimensional *apatatva* is immanent in the *ākāśa tatva*. This is also regarded as the source of the physical existence of sound in our space. However, the presence of other four basic *tatvas* affects its realization in the eternal form. The human mind has so far experienced/ recognized about forty-nine different kinds of natural phonemes *swaras* – seven of which are regarded as the basic vowels and the others are *komal* (soft) and *tīvra* (high notes) configurations of them. Various combinations of these *swaras* have been compiled into eight basic *rāgas* (classical tunes of *shastriya* music) and so on..... The gamut of phonemes and varieties of sounds (musical or otherwise) have been generated thereby.

The *panca tatvas* existing in these varieties of sound do affect our body and mind according to their own natural properties. Excessive presence of *agni tatva* in the sound heard or produced by us enlightens our *prāṇa* by a subtle red color and gives physical effects like that of the thermal energy and the psychological stimulation.... Similarly, the *jal* and the *vāyu tatva* offer blue and white colors of *prāṇa*, *prathvī tatva* induces yellow color and the *ākāś tatvas* absolute black... Each generates associated impulses in the physical and emotional environments.

What is important for us to understand from the above descriptions is – the significance of the immense power of *Śabda* and its intimate eternal relationship with our life. With this, we must begin to make our speech and thoughts as pure and true as possible. This would be our first step towards the realization of the paramount significance of sound as a manifestation of *Śabda*.

The Śabda Yoga

The *Vedas* specify that – “Lord Brahma (the Supreme Creator) expressed *thy* wish in sublime sound of *Śabda*, to manifest *thyself* in the infinity... Whence the universe came into existence....”. The other religious scriptures like the holy *Kurāna* mentions – ‘*Khudā* (the Supreme Power) said.... “Be...” and All that happened....’; and “The Angel” states — ‘The absolute word (sound) was there when nothing was there... All has originated from *thy word* (eternal sound)....’.

The above maxims imply the eternal power of *Śabda* at the origin of everything.

Our internal or external desire expresses itself (to our own self or to the others) via the medium of words, which, themselves are nothing but manifestations of *Śabda*. If the desire has emerged from the *soul* then its expression will be embedded with the true power of the *Śabda Brahmā*. Such an inner wish will not remain unfulfilled provided the dissipation of its power – due to our negative feelings and thoughts – does not reduce the original impact of the former. Often, our lack of confidence in our own self or our materialistic cravings and attachments, passions and untoward thoughts subtly disturb our mind and induce the negative effects of this sort with the accelerating force of the evil instincts and assimilated untoward tendencies.

We must realize that our consciousness is a part of the divine consciousness..... That, divinity indwells in us and therefore our words can also be so powerful that they could ‘communicate’ with the Nature and with the eternal Creator.... Human society has never been deprived of the existence of great personalities who had aroused the divine power of *Śabda* by practicing absolute truth in their sentiments, thoughts and deeds. Their supernormal potentials – of offering blessings... or creating and transforming matter by mere chanting of some *mantras* – were simple manifestations of this unlimited power.

Loud sounds at the peak of the very high snow-mountains can make the surrounding snow melt and thus result in a landslide! Similarly,

the power (of *Śabda*) indwelling in the words of a prayer – emerging from the deep sentiments can even penetrate the ‘skies’ of the sublime consciousness... (Do we really know about the presence of this immense power in ourselves...?)

The power of the words ‘uttered’ by our subconscious mind manifests itself in the infinite varieties of creations in the world of our dreams and imaginations. The psychological effects of the latter are enormous.... There is also a close relationship in the *Śabda* of our conscious and the subconscious mind.... For instance, whenever we talk about or hear of a natural calamity or an epidemic..., our mind simultaneously starts thinking about it via the language of imaginations.... and vice-versa. The elementary *yoga* practices of self-hypnotism are indeed based on a creative utilization of this relationship and have been found very effective in improving one’s psychology.

There is a saying in Sanskrit – ‘*Yathā Manasā Manute Tathā Vācā Vadati*’; meaning– as we think so we speak. Our mind (conscious as well as subconscious) never remains silent. It keeps talking to itself even when we are silent.... These thoughts continue to leave their subtle impressions in our overall personality. Sometime the thoughts will also leave an instant impact on our face-expressions. Often, the state of mind (or mood) can be ‘read’ through such face expressions. For example, it shows wrinkles on the fore-head in the state of tension....; a blushing face becomes pink...; face turns yellow in the state of real fear... etc. Some spiritual saints and *yogis* can know one’s overall character just by reading the subtle expression of his thoughts (and the internal desire at the root of these thoughts) on his face.

Realizing the psychological importance of *Śabda* we must, at least, begin to speak, hear and think in a manner that will have positive effects on our mind. Cautious use of words and thoughts may be regarded as the first step towards the practice of *Śabda Yoga*. Further, we must develop the confidence that, by sacred sentiments and thoughts and by the sincere practice of truth, we can strengthen our voice (internal as well as external) so much that it becomes the divine master of our own destiny.

Energies of Śabda in the Living Laboratory of Human Body

The human body is a wonderful ensemble of a large number of interacting systems – those constituting its anatomy and conducting the physiological, biological and molecular functions at the gross physical level and those involved in the processing of the brain and the mind towards regulating the former and the multiple activities of life. The harmonious functioning of these components would be sufficient for the maintenance of routine life – like that of any other species in its natural domain.

More important parts of this unique laboratory of life in the form of a human being are — the *mana* (conscious and subconscious mind), *buddhi* (intellect), *citta* (unconscious mind), *ahṁkāra* (the sense of being) and the *antahkaraṇa* (super-conscious mind and the inner self) – in the sublime realms of mind. Those in the executive domain include – the *ṣaṭ cakras*, the twenty four *upatyikās*, the three *granthīs*⁹, the *idā*, *pingalā* and *suṣumā nāḍīs*¹⁰, the *panca kośas*¹¹ the *kundalinī*¹² and the *sahasrāra*, the subliminal nucleus (hidden in the inner core of the upper brain) of linkage with the divine consciousness.

In their quest for absolute truth, the *ṛṣis* used to carry out all experiments and investigations in this ‘living laboratory’, which, as they found, contained the projection of the whole universe in itself. Rather than depending upon others, or using external means or consuming natural resources (to develop sophisticated devices/technologies....) and upsetting the ecological harmony, they preferred a truly self-reliant approach to develop and perform the spiritual experiments of the science of life on their own body and mind. They performed *upāsana*, *yoga*, *sadhanā* and *tapaścaryā* for this purpose. Their endeavors bestowed multiple boons of – the knowledge of the self, knowledge of the universe, realization of the absolute truth and, most importantly, the achievement of their noble goal of creating divine ambience in this mortal world.

The most remarkable result of their invaluable research was the decipheration that – the eternal energy of *Śabda* and *Nāda* is the basic source of the origin and functioning of the miraculous living laboratory existing in a human being.

The manifestation of the power of *Śabda* in our vocal sound is called *baikhari vāṇī*; and that expressed via gestures and in the language of thoughts is called *madhyamā vāṇī*. The ‘voices’ of the deeper cores of the mind and the soul are termed respectively as *parā vāṇī* and *paśyanti vāṇī*.

The powers and effectiveness of these *vāṇīs* grow exponentially from *baikhari* to *paśyanti*. The words spoken by someone would become absolute if his *baikhari vāṇī* is empowered by the *paśyanti*. Spiritual endeavors of *Śabda Yoga* and *Vāka Siddhi* include purification and training to effectuate this evolution of *vāṇī*. The *japa* of *mantras* are perfect only if uttered through such a refined voice.

As mentioned earlier, the creation (compilation) of *mantras* is based on a splendid combination of the science of syllables and vowels emanated from the realization of *Śabda Brahm* and the science of the rhythmic impact of specific patterns of phonemes and musical notes – the science of *Nāda Brahm*. The effectiveness of the *vācika japa* of *mantras* is proportional to the spiritual refinement of the *baikhari vāṇī*. The consistent observance of truth, austerity, piety and selflessness in thoughts, deeds and conduct is essential for effective success in the practices of *mantra-japa*. A *mantra* recited in a spiritually refined voice is said to be perfect like the unfailing arrow of the *Gāṇḍīva* – the divine bow of *Arjuna*.

Our body is also like a superb musical instrument gifted by Nature. In fact, its functional structure can be simulated with the *vīṇā* and *sitāra*. These instruments have several wires connected with the wooden components. Analogously, the brain, tongue, stomach etc together with the tactile skin, vocal cord, ears and the network of interconnected nerves constitute our body’s instrument. This musical body (termed *Gātra Vīṇā* in the scriptures) is well equipped with the sensors for receiving and transmitting enormous varieties of sonic currents.

The *swara* (accent) of the musical notes is generated in the *Gātra Vīṇā* of our body by vibrations in the specific *cakras* and energy plexus described earlier. The talented musicians produce varieties of melodious patterns and musical compositions from the instruments

like the *vīṇā* and *sitāra*. The experts of *Yoga Vidyā* too, by the dedicated *sādhana*s of *Nāda Brahm*, ‘play’ (stimulate) the *ṣaṭ cakras* and generate vibrations in the ‘fibers’ (latent linkages) of the inner body. This induces spiritual transmutation and arousal of supernatural powers (*riddhi-siddhis*) of physical as well as transcendental dimensions.

Perfection in listening and tuning the *Nāda* of the living *vīṇā* of our body helps understand and regulate the gross physical as well as the subtle functions of our life. This expertise could be attained rather easily by *Nāda Yoga* as compared to other ascetic and enduring *sādhana* procedures of *yoga*. The *sapt deva* (seven Gods), *sapta ṛiṣis* (the seven *ṛiṣis*), *saptloka* (seven heavenly realms of existence), *sapt sāgara* (seven ‘oceans’ of life), *sapt meru* (seven mountains of divinity), *sapt sādhana*s (seven levels of spirituality) — existing in the subtle world of our body – are said to vibrate according to the divine *sapt swaras* (the octave of cosmic music of eternity) generated by the *Nāda Brahm*.

A group of distinguished scientists in Toronto (Canada) has initiated innovative research on the ‘sounds’ within the human body. Their sound-proof laboratory is well equipped to perceive and make audible, the different sounds produced by the processes of respiration, heart beating, flows of liquids and gases in the digestive system...., etc. The analysis of the rhythmic interplay between these sounds and the physical state of the body has offered them significant information. Similar research in modern branches of audition and acoustics should also be carried out to scientifically analyze the psychological factors with respect to the gamut sounds inside the body.

Renowned physicist, Dr. Charles G. Van Ripher has thrown light on the subtler aspects of the internal sounds of the human body in his book entitled – ‘An Introduction to General American Phonetics’. In his views, the mysterious levels of consciousness could be grasped only by understanding the spectrum of sonic (audible as well as subliminal) vibrations of the living system. Prof. Ripher states that – as light, heat, gravity and magnetism affect the physical phenomena in Nature and the states of the living bodies in it, similar or even higher should be the impact of the sound energy because it ‘enfolds’ the

optical and the thermal energies as well. The presence of some minimum level of sound, including that produced due to the continuum of periodic physiological functions, is as essential for maintaining bio-energy, as that of air, water and food.

From their physical appearance, the muscles appear as mere bundles of ‘threads’ made up of blood and flesh.... However, the sounds produced by their periodic contraction and stretching are wonderful. One can sense these sounds by meditating upon the intra-body functions – without any disturbance of any kind of external sound. Perfecting such meditations enables one perceive these sounds in the happy and healthy state of the mind and body as melodious tunes produced by the divine *vīṇā*. This sound loses its order and becomes unclear in the negative states of tension, anger, sickness, etc.

Some of the sounds produced by various physiological and physico-chemical functions inside the body can be amplified and heard or sensed with the help of the modern instruments like the echocardiogram. With the advent of technology for perception of infra- and ultra-sounds, some scientists have been able to record and analyze the above mentioned sounds produced by the muscles and other parts of the body. Celebrities like Dr. Joshua F. Jaffe of the Mount Sinai School of Medicine, has successfully recorded some of these sound waves – up to 1000 hertz frequencies – with the help of an electro-mechanical stethoscope. His recordings include the orderly echos (sounding like “*Lap-Dap - Lap-Dap*”) of the heart beats and the grumbling sound produced in the lungs.

Prof. G. I. Taylor’s auto-correlation studies carried out at the Cambridge University have provided in-depth quantitative analysis of the waveforms of the signals recorded during the controlled experiments on intra-body sounds. Using the computational methods of Fast Fourier Transforms, Prof. James W. Cooley of the Princeton University has successfully recorded the digital waveforms of the rhythmic sound produced due to the periodic contraction and stretching of muscles.

The next step of the front-line research in related biomedical sciences would focus on the prognostic and diagnostic studies using the

parametric analysis of the waveforms of the sounds of different kinds of physiological tremors under the normal and the diseased conditions of the body.

Experiments on other creatures have also shown major role of their biological sounds in governing their vital functions and vice-versa. Dr. Nelson of the Zoology department, California University has investigated that – if a shark is in a state of danger, her ‘shout’ for help is sent to her partners via the signals of her muscles’ sound; the friends at the other end also communicate via similar signals. Dr. M. A. Winsey of Britain obtained analogous results when he experimented on the eggs of Japanese Quails. He found that the sound waves transmitted from an egg are heard by its mother about four days before the birth of the offspring. He also observed that if an embryo of this quail is kept in a transparent plastic bag near its egg, in which, an offspring is struggling hard to come out, then, the orderly sound produced inside the embryo would send ‘energy signals’ to help the offspring break the shell of its egg with greater ease..... An experimental Zoologist, Dr. Goldpink, concludes that – such phenomena are the ‘demonstration’ of the fact that the conscious energy in a living body is indeed a part of an omnipresent (supreme) force.

In his dissertation entitled ‘Phisicomathice de L’humane’ an Italian scientist, Dr. Francisco M. Grimaldy has thrown light on some yet unknown (hence ‘mysterious’!) features of the music of the body’s *vīṇā*. He considers the specific pattern of the body-sounds of a person to be correlated with his psychology and sentiments. His emphasis on the emotional and sentimental aspects brings his theory closer to the philosophy of our ancient scholars. Any kind of sophisticated experiment in our body can be performed only if this wonderful laboratory is cleaned and upgraded by physical fitness and refinement of our thoughts, sentiments and deeds.

All the disciplined practices of *yoga*, ranging from *āsana–praṇāyāma* and *dhyāna–dhāraṇā* to the higher levels of *sādhana*s, are aimed at activating the linkage between the individual and the supreme consciousness... The physiological tremors play a key role in increasing the levels of vital energy during the elementary exercises of spiritual

yoga. The *japa* of *mantras* also makes use of these sound waves in order to penetrate the ‘otherwise unused’ latent core of consciousness (in the hidden fold of the human brain) towards creating a communication link with the cosmic layers of *Śabda*.

The disciplines of self-restrain, chastity and specific *prāṇāyāmas* help regulating the order of the physiological tremors in total harmony with the bio-rhythm of Nature. This also bestows the opportunity of enlightened development of personality. The internal power of our ears could be stimulated by elementary practices of *Nāda Yoga* so that they could sense (‘perceive’) the otherwise subtle sounds inside the body. Consistency in meditation upon the internal sounds of the body accompanied by thorough practices of introvert analysis inspired by *upāsanā* and *swādhyāya*¹³ eventually leads to activation and illumination of the *subtle* and *astral bodies* too. Arousal of inner strength and virtuous talents together with intellectual radiance are immediate consequences of accomplishing these *sāadhanās*. Further evolution of the individual consciousness by the *Nāda Yoga sāadhanās* effectuates the manifestation of supernormal faculties.

The Suprasonic Power Hidden in Mantras

Mantra Vijñāna as developed by the *ṛṣis* – the Indian sages of yore, is a science based on the realization of the omnipotent power of *Śabda* – the eternal sound.

Mantra Cikitsā has been an important branch of ancient Indian Medicine. This is a sublime sound therapy and science of healing of the body and the mind derived from the principles of *Mantra Vijñāna*. Even today, the use of this ‘esoteric’ mode of treatment is quite popular – especially in the interior parts of India, for eliminating the poisonous effects of biting by the snakes, scorpions, dogs or lizards etc. *Mantra* therapy is also applied here for curing a variety of diseases including jaundice, typhoid, epilepsy, hysteria ... etc. An article entitled ‘*Śabda Brahm Kā Pratīka Mantra*’ is worth mentioning in this context. In this article (c.f. The Hindi digest ‘Kādambini’; December ‘67; pp. 18-), the author, Shri Govinda Shastri has also described one such incident in detail where he had witnessed a complete and quick (just in two days!) cure of severe jaundice by the *mantra cikitsā*. The following quote of *Yoga Vasiṣṭha* (Śloka no. 6|1|8|1|39) throws light on the power of *Mantra Cikitsā*:

*Yathā Vireka Kurvanti Haritakya Swabhāvataḥ |
Bhāvanāvaśataḥ Kārya Thatā Paralavādayaḥ ||*

Meaning: As *Harra* (a medicinal herb) activates the digestive system by almost instantaneous cleaning of the stomach, the enunciation – accompanied by thorough mental concentration and faith, of the special syllables like “*Ya*”, “*Ra*”, “*La*”, “*Va*”..., of the *mantras* also create definite effects on the body.

The limitless power of *Śabda* enfolded in the specific compilation of the *Vaidika Mantras* was deeply realized by the *rishis*. They were therefore known as *mantra draṣṭās* – the visionaries of *mantras*. They had experienced, experimented and expanded enormous applications of the science of *mantras*. While teaching different modes of *mantra-sādhana*¹⁴, they had also warned concerning the precautions necessary to avoid any improper use of such *mantras*. Prof.

Bever, a noted scholar from Germany, has also expressed similar opinion about the immense subliminal power indwelling in the *mantras*.

The quality of sound we hear in different ways does have a direct bearing upon our mental and emotional reactions. This could be seen in our day-to-day encounters too. For example, the roaring sound of a lion or the trumpeting of an elephant does create a feeling of fear even if it is heard for the first time or even if the listener does not recognize 'what sound is that?' Similar is true of the 'irritating' voice of a crow. On the contrary, whenever heard, the sweet warbling sound of a nightingale is going to generate soothing effects only.... The latent vibrations of *Śabda* immanent in every kind of sound, can stir the ocean of surrounding energy waves to separate out and expunge the forces of opposite (insidious) quality....

Mantra Cikitsā is indeed a science based on the deep understanding of the latent power of *Śabda* and its intimate relationship with the consciousness and the vital energy centers in the body. Before going into the details of the structure and functional mechanisms of *mantras*, let us consider the evidential examples of the power of sound in terms of the wide range of its applications in modern medical technology.

Whenever a bell is struck, its chiming continues for some time because of the vibrations in the atoms of the material of which the bell is made.... Almost infinitely many types (i.e. different frequencies) of vibrations exist around us but our ears can 'hear' only those as 'sound' which reach them at audible frequencies. As mentioned earlier, every kind of vibration produces sound (sonic wave) and there are infinite types of sounds that we cannot perceive.... The ultra- and infra-sounds fall under this category of 'subtle' or 'latent' sound. The sound produced by vibrations in the frequency range of about 8×10^5 to 10^6 cps is identified as ultrasound. The ultrasound waves are so powerful and fast that they could penetrate and cut the hard materials like diamonds and bones in negligible fraction of a second. With the development of advanced technology for the controlled generation and perception of such waves, ultrasound has offered significant applications right from heavy industries to delicate surgical operations of the internal organs and tissues since the past few decades.

The early applications of *ultrasound* in medicine and surgery had received worldwide publicity. Some reported incidents in this regard include the following: A severe backache of a lawyer in Paris was cured in just five minutes. The late American president Mr. Kennedy had once suffered from backache and muscular stiffness while he was participating in a tree-plantation programme somewhere in Canada. He was instantly treated by ultrasound therapy used by his personal doctor, Dr. Trawell. The physical disabilities of over ninety children, who were suffering from Polio or Arthritis, were cured in Paris by the same therapy. The otherwise 'permanent' mole of a patient in Germany was completely removed in a fortnight by a regular treatment by ultrasound for few seconds every day.

The first experiment on ultrasound treatment of wounds was conducted on twenty-seven patients, whose body parts were cut during accidents...., in the Sallpetrie hospital in Paris. The wounds of about eighteen of these patients were cured completely while about eight had recovered partially. Some German doctors also succeed in applying ultrasound therapy to cure some diseases of ears that were incurable by medicines or surgery. In their initial attempts on a sample of sixteen patients, the doctors had achieved almost instantaneous success in the case of six patients and an equal number of patients showed partial but positive response.

Ultrasonics has found significant place in advanced medical technology today. Although the existence of these waves was discovered within two year since that of the X- rays (in 1895), their first successful application was registered by Dr. Karl T. Datzic's work in 1942. Soon after this, Dr. H. Hubert of the Geology division in a University of California had also demonstrated the use of ultrasonic vibrations in cleaning delicate old bones that were lying (stored) in brittle state. Similar contemporary works had triggered multifaceted research and technological developments and the domain of ultrasonic applications had soon expanded to the areas ranging – from cleaning and washing, to the cutting of heavy metal sheets...; from engineering tools to delicate surgery ..., etc.

When the subtle and high-speed vibrations of ultrasound are charged electrically, their penetrating power is intensified tremendously so that

they could pass through the atoms of any kind of ultra-dense material. This rare property has given rise to a unique application of ultrasound, *viz.* – sonography. It has been found to be more useful than the X-ray radiation both in terms of the noninvasiveness and the accuracy and fineness of scanning. Even in the earlier days of its development in the high-tech countries, the medical applications of sonography had helped successful diagnosis of several intra-body ailments/ abnormalities where X- rays had failed.

Apart from the applications in surgery and sonographic recordings, the sophisticated use of these super fast ultrasonic waves in medical biotechnology include cell-membrane treatments and RBC upgradation. Some researchers at Los Angeles (USA) and in Germany have also successfully experimented for using these waves along with intravenous drug injecting and infrared radiation therapies.

Development of ultrasound transducers has further advanced the ultrasonic applications at the cellular and molecular levels. The ultrasound transducers convert electrical energy into sonic energy and generate sound waves at a speed higher than 20,000 per sec. These waves, when collide with an object, produce a ‘reflected’ image of the same. This image can then be recorded and processed by other energy medium(s) as well. Techniques based on ultrasound transducers have been very useful in tissue culture processing and analysis.

Dr. Joseph Holmes’ research at the Colorado University, USA, was among the first few successful experiments on such noninvasive techniques. Ultrasonic transducers are now a common tool in advanced research on deciphering the cellular and molecular mechanisms of various diseases ranging from tuberculosis to several types of cancers.

The above examples of modern scientific utilization of the power of sound give us sufficient reason to find substance in the power of *mantras* especially in the context of – *mantra* therapy for the elimination of a number of disorders, ailments and toxic effects... etc. These also evince the possibilities of hypnotic control of other person’s mind by the *mantra*-based *tāntrika* techniques like *māraṇa*, *mohan*, *uccātana*... etc. The historical scriptures like Mahabharata

describe the use of *mantras*-based weaponry that used to be more powerful in effect than the atomic bombs... This too appears feasible vis-à-vis the modern concept of sound-bomb.

In the present times of technological developments, the physical powers and electronic devices are used to produce ultrasonic vibrations... During the ancient era of research on *mantras*, the *ṛiṣis* used to generate, perceive and extract the power of eternal sound in the *mantras* with the help of their own body and mind. The vital energy that enables functioning of the body-system and the spiritual power of the inner sentiments and the unconscious mind were the principal source of their experiments on *mantra-sāadhanās*. Among the spiritual saints of the modern India, the revered names of Maharṣi Raman and Maharṣi Aurobindo are often cited in the context of creative use of the boundless power of *Śabda* hidden in one's thoughts and sentiments.

Sri Aurobindo's mental waves are said to have invited, inspired and controlled a large number of great souls who had descended in India to initiate and successfully excel India's non-violent struggle for freedom.... Maharṣi Raman similarly is described to have had the supernatural power to influence the thoughts and sentiments of others by his mental and latent spiritual 'messages'. Many people have 'witnessed' the demonstrations of his power – he was even able to communicate, guide and share the sentiments with the animals around him and his Ashram.

The force of *Śabda* rooted in the thought waves and emotional currents is evolved and works in the subliminal domain of the *Manomaya Kośa* – the Mind Cell (the mental sheath of the soul). Its power that gives rise to sonic vibrations has tremendous potential to affect everything, including, the energy spheres on the farthestmost planets in the cosmos.... Focused generation and adept control¹⁵ of this power is essential for creating specific effects that could be manifested and perceived in the sentient world. Our *ṛiṣis* had detailed knowledge of the complex structure and the immense powers of the human body and mind. Their spiritually beatified intellect had a reach in the gigantic expansion of the cosmos too. Their intrinsic knowledge and realization of the subliminal impulse of *Śabda* and its manifestation in

Nature had enabled them quote the *Vaidika Mantras* in specific phonetic patterns and also devise specific scripts to represent the latter. They also invented the modes of rhythmic enunciation and chanting of these *mantras* for generating and regulating specific streams of the eternal power of *Śabda*. The *vaidika* hymns (*ṛacās*), though appearing like simple prayers with different combinations of syllables, are, in fact, like subtle devices that are scientifically designed to extract and use the power of *Śabda* immanent in sound.

The universe is described as an unlimited ocean of sonic vibrations of infinitely many types of subtle and physical sounds. The latter include – the solar noise, the sounds produced by the gigantic motion of planets and by meteoritic explosions, ‘cosmic noise’ produced by the gigantic flow (motion) of the galaxies and the uncountable varieties of other sounds of smaller intensities. The superb super-impositions of these infinite sonic vibrations continuously give rise, and also get ‘absorbed’ into the self-existent eternal sound of *Oam*. The spiritual *sāadhanā* of *Śabda* helps realization and intrinsic perception of this omnipresent sound.

When the (ultra) sound, externally produced by the electrically induced vibrations in a tiny *Brazilian Quartz* itself could offer so many applications of immense importance in medicine and technology then what would be the potential of the eternal supernatural sound of the evolutionary impulse of the universe? The advanced scientific research into higher dimensions of sound should leave no room for doubting the supernatural experiences of the *ṛiṣis* who had attained (by *Śabda Yoga*) the ability to reach the cosmic dimension of omnipresent sound.

Some scientific experiments on investigating the latent power of sound throw light upon its linkage with the willpower. Authentic reports on interesting examples in this regard include the following demonstration which took place in Australia only a few years ago. Two researchers named Graham and Nile had conducted this demonstrative experiment. Thousands of people witnessed that – a loud and consistent (i.e. at a constant amplitude) utterance of the word **START** indeed resulted in the starting of a 5 -7 tons heavy car; shouting of the word **GO** triggered this car to move along the road at full speed with-

out a driver.... Equally surprising was the observation by the spectators that the car also instantaneously obeyed the oral order of “HALT”! The scientific principle in the above experiment was – the conversion of sound into electrical energy. The demonstrator was holding a tiny (of the size of a matchbox) transistor that was transmitting his voice (i.e., the ‘sound’ of the ordered words) at appropriate frequencies, via electrical power to the control unit connected beneath the dash-board of the car. The electromagnetic effect of the same was utilized by the ‘car-radio’ connected to this unit on the one side and the controller unit (the engine, brakes etc.) of the car on the other.

Rigorous scientific analysis of the power and properties of sound has become feasible with the advent of the technology for *Spectrography*¹⁶ of the recorded (perceived) sound. In a series of experiments, Dr. Lawrence Castro of the AT & T Bell Labs (USA) had found that – the *spectrograph* of an individual is specific to himself and will not be identical to that of any one else. If the same sentence was spoken by different persons, the respective spectrographs were also found to be different. Even if the frequencies and amplitude of the spoken sound was the same, the types of line segments in the graphs corresponding to different persons’ voices were different. If a sentence was spoken by a single person under different states of the body (e.g. normal, having high fever, under common cold etc.), the *spectrograph* remained the same. Further experiments on spectrographs showed that the *sound waves* are independent of the effects of rainfall, storm, temperature, pressure etc.

The sound waves generated by even the subtlest sound are spread instantaneously and can traverse thousands of miles along with other vibrations of similar frequency in a matter of a few seconds.... In this process some waves could also be reflected back with the vibrations of matching frequency moving in other directions.... Thus, each good or bad word spoken by us carries its influence everywhere around and it would eventually reach back to us with the corresponding magnified effects.

The science of *Mantra* is based on the realization of the ‘original energy currents’ subliminally indwelling in *Śabda* without any amplification or control by external (e.g. by electrical impulses) energies.

The recent invention of *retrometer* by Dr. Neuman E. Thomas of the National Aeronautics and Space Administration (NASA) research center at Langley, USA, has helped scientific investigations on the inherent energy of sound. The photosensitive cells of the *retrometer* help conversion of light into electricity and the latter is converted into sound energy by appropriate transducers and receptors..... Conversion and transmission of sound into light is carried out in this instrument by a reverse operation analogously.

Experiments conducted with the help of the instruments of the above types have shown that the super-sonic (including ultrasonic and infra-sonic) waves are similar in nature to the light waves. This similarity increases with a reduction in their wavelengths. The supersonic waves can be reflected and transmitted in different mediums with greater ease (i.e. with lesser energy).... Moreover, as these waves traverse a dense medium at a faster pace than a rare medium, they could attract the power of different kinds of sources of light by a complementary process.

Every *mantra* in the *Vedas* has been linked with a *devatā* that symbolizes an eternal energy field of specific flow of cosmic consciousness. Whenever a *mantra* is enunciated or chanted in a specific rhythmic manner, its associated sonic waves expand in a specific pattern and after traversing across the layers of energy-particles in the surrounding space reach and penetrate the corresponding cosmic nuclei of divine powers.

The subtle energy of mind generated through meditation while performing a *japa* of the *mantras* helps transformation of the sound waves into electromagnetic waves for necessary cosmic transmission. The collision of the *mantra*-waves with the corresponding divine power center results in the reflection of the desired (as per the aim of the associated *mantra*) cosmic radiation. The latter return back to the physical and subtle energy cores in and around the *sādhaka*¹⁷, or, reach at some other 'point' in the universe as directed by the specific chanting pattern of the corresponding *mantra*.

The above process of transmission and reception or 'communication' between the *sādhaka* and the divine center(s) is slow and shows

negligible effects in the beginning. Its impact gradually increases in a compounded manner with the dedicated practice and perfection in the *upāsanā* and *japa* of the *mantra* along with a rise in the intrinsic faith, mental piety and concentration and continence of the *sādhaka*.

Savitā – the subtle body, the eternal source of energy for the Sun – is supposed to be the *devatā* of the great *Gāyatri Mantra*. A truly devoted, spiritual *sādhaka* of this *mantra* receives the vital energy, inspiration and divine illumination from *Saviā*. Apart from the natural gains of the physical and mental vigor and discerning intellect, his attitude gets enlightened and likewise the solar rays, his inner mind can envision and reach (realize) everything existing in the universe. The internal piety and moral strength of sentiments and the divine faith of the *sādhaka* help faster attainment of these miraculous powers through the *japa- sādhanā* of the *Gāyatri Mantra*.

Immense Power of Śabda Used in the Sādhanaś of Mantras

Mouth is described in the *Āyurveda* as the locus of the *agni cakra* – the subtle centre for the generation of metabolic powers and thermal energy. The group of energies¹⁸ required for various metabolic and physiological processing is described to have its field of action beginning from the mouth and spreading up to the stomach. The mechanical role of mouth and its energy (utilized in the process of chewing and gulping, for instance) in the digestive system is well known. More important is its role as linked with the *vocal cord* and hence with the functions of speaking and singing.... The power of speech is among the most significant gifts bestowed upon the human species. Its importance can be very well understood simply by realizing the limitations and disabilities of a dumb fellow.

At the gross level, the *agni cakra* of mouth performs the initial phase of digestive mechanism, at the *subtle* level, it ‘produces’ voice and helps pronunciation. At the *astral* level it generates divine flows of the ‘currents’ of *Śabda* in the individual consciousness. While the first two are well known to most of us, the third and the most significant role is experienced only by the experts of the *japa yoga* – the spiritual endeavors associated with *japa* and meditation of *mantras*. The inlet of mouth is also regarded a living *havan kuṇḍa*¹⁹ with respect to the divine importance of the sonic energy as a source of expression of multiple manifestations of *Śabda*. One would be surprised to note that the enormous impact of *japa yoga* is based on this sublime power of his mouth.

That words spoken could well become the cause of an affectionate relationship or of hatred and hostility – illustrates the fact that the words are not only the carriers of information but they do retain and convey the sentiments of the speaker. The currents of consciousness of the speaker endowed in his speech flow with the sonic vibrations produced by the pronunciation of these words. These elements produce ‘conscious-effects’ at the destination with which the associated sound waves collide. While the acoustic effects could be studied by physical means, the ‘conscious-effects’, being latent and subliminal in nature, can only be realized and analyzed through spiritual practices of *yoga sādhanaś*.

Extraction of the essence of the conscious power of the words (sound) is aimed at in the *japa yoga*. The physical vibrations generated by the sound of rhythmic enunciation (*japa*) affect the body of the chanter (*sādhaka*) and his surrounding space and the associated conscious elements induce his mind and the inner self and ‘titillate’ the related conscious-energy centers in the cosmic domains.

The science of *mantras* is founded on the science of the ‘conscious currents’ of the *Śabda* inherent in the musical sound generated by a conscious being. The meaning of the *mantras* has negligible importance as compared to the specific configuration of syllables/phonemes in them. The *Gāyatri Mantra* is regarded as supreme of all the *Vaidika Mantras*. In terms of linguistic meaning, it is a universal prayer of arousal and illumination of righteous intellect in all. Many other divine prayers written in different languages might also imply similar meanings, but it is the unique sonic pattern that gives a unique importance to this *mantra*.

The subtle sonic pattern of this *mantra* is supposed to generate specific vibrations in the gross as well as the mental and causal bodies of the *sādhaka* and in his surroundings. These vibrations empowered by the spiritual force of the *sādhaka*’s purified inner self conjugate with the extrasensory impulse of the supreme consciousness.... The single lettered (*bīja*) *mantras* like *Hṛīm*, *Śrīm*, *Klīm*, *Ai*, *Hūm*, *Yam*, *Faṭ* etc. are of basic importance in the science of *mantras* because of the special conscious as well as ‘mechanical’ (*tāntrika*) effects of their sounds.

The cyclic enunciation (or chanting) under different rhythms, pitches and intensities is practiced in the *japa* of a *mantra* to make different uses of its (*mantra*’s) sonic vibrations. In *Mānasika Japa* the *mantra* is uttered silently (mentally); the level of ‘perceivable’ sound increases gradually (e.g. from the silent movements of the lips and the tongue to murmuring and humming) in the *upāṅsu* and *vācika japas*. As described in the previous sections, the *Vaidika Mantras* also have specific *swaras* (classical musical accents) associated with them that offer varieties in their *japa* and hence in their effects..... The *Sāma Gāna* (*vaidika* modes of collective chanting) of these *mantras* indeed creates powerful currents with latent but inducing impacts at the physical and the subtle levels of matter and consciousness.

The consistent *japa* of the *mantras* has dual effects: externally, it generates vibrations in the surrounding space and internally, it stimulates the extrasensory energy centers (*cakras*) and subtle endocrine glands inside the body. The impact of these effects amplifies significantly with continuous repetition of such rhythmic enunciation at a constant pace. Laboratory experiments have shown the physical strength of rhythmic sound that can empower a small cork to push a heavy iron rod..... A large number of examples of the Doppler effect given in the earlier sections should suffice to evince the physical potential of the superimposed sound waves.

The internal creative effects of *japa* can be illustrated by simple analogy with the functioning of a typewriter. When a key of a typewriter is pressed, its impact results in the printing of the corresponding letter or symbol on the paper. Similarly, the vibrations produced by silent or vocal enunciation of a syllable or combinations of the syllables of a *mantra* make specific impressions on the subtle energy centers and nerve-bundles and stimulate them. Regular repeated practice of the same *japa* under adept disciplines is indeed the root of the enormous potential gained during different spiritual experiments of *Mantra-Vijñāna*.

That friction gives rise to the thermal and electrical (static) energies – is well known to every student of physics. The internal vibrations produced by the sonic waves of *japa* create similar effects and activate the otherwise unused latent glands and extrasensory energy centers inside the body of the *sādhaka*.

The advanced scientific applications ranging — from remote control of the space-crafts by electromagnetic waves; delicate surgeries to heavy metal cutting by the Lasers..... etc clearly illustrate that it is not the equipment or the device but it is the ‘power’ of the (energy) waves that induces such wonderful effects. The supernatural effects of the supersonic waves generated by the *japa* of *mantras* are more remarkable and are still beyond the reach of the advanced instruments (generators and the sensory devices) developed so far.

In terms of the modern (material based) science or acoustics, sound is generated by vibrations produced in any physical medium. The

modern psychologists have gone one step ahead by accepting the latent power of voice that affects the minds of the speaker and the listeners.... (e.g. the effects of harsh or affectionate voices of same frequencies and intensities are drastically different....). These are only the crude and restricted manifestations of the power of *Śabda*. The dimensions of *Śabda* expand far beyond the physical, psychological and inner sentimental levels.... They include the sublime realms of consciousness and therefore form a subject of investigations by the spiritual scientists.

The *japa yoga* aims at using the physical as well as the spiritual power of *Śabda* with the help of the specific sonic patterns of the *mantras*. The subtle energy waves generated by the *japa* of a *mantra* reach at the specific cosmic center (linked with the *devatā* of the *mantra*) and attract the supernatural currents of cosmic consciousness in proportionate amounts.

The whole universe is like an ocean of the electromagnetic and conscious energy waves. The flow of thoughts and sentiments takes place via the latter kind of omnipresent waves. The sublime energy waves produced along with the 'physical' sound waves by the *japa* are spread in the cosmos and they reach back (with an amplified impact) to the *sādhaka* after being superimposed and further 'electrified' by the subtle waves of similar nature existing along their cosmic path....

The divine or the evil thoughts generated by an individual mind influence the fields of thoughts in the surrounding by attracting the thought waves of compatible quality and repulsing those of the opposite quality. The thought waves form their own field of attraction that adds to the expansion of the corresponding (divine or evil) currents of thoughts in the cosmic domains as well. Similar is the effect of the waves of consciousness generated by different kinds of sentiments and emotions.

The waves of thoughts or sentiments/emotions of an individual are strengthened in the similar (matching) fields traversed by them during their cosmic journey. And, because of the periodic nature of the movement of waves, they eventually reach back their origin. Completion of each such cycle amplifies the intensity of the associated good or

bad effects. These inducing effects, though subliminal in nature, indeed play an important role in inspiring and shaping one's character and hence in building one's destiny too.

The subtle waves generated by the *mantra-japa* are often more powerful and faster than the thought waves of the *sādhaka*. If generated repeatedly, in a consistent cyclic manner, these supersonic waves help create serene and divine ambience within and around the *sādhaka* with strong field of attraction to influence the other waves of thoughts and sentiments that might collide with them.

It is well known that the compounded magnetic effects of similar atoms (particles) gives rise to their dense collection. This clustering eventually results in the formation a mine, which gets richer by the augmentation in its power of attraction by successive increase in its repository of similar atoms (particles). Equivalently, the domain of influence of the subtle sonic waves generated by the *japa* of a *mantra* expands and becomes more powerful with the increase in the number of persons of similar spiritual levels who perform collective *japa*

The amplification of the radio waves by powerful transmitters at the relay centers makes their broadcast possible across the globe. Analogously, the force of the conscious energy in the waves generated by the *japa* intensifies along with the increase in the faith, sincerity, strength and piety of thoughts and sentiments of the *sādhaka(s)*.

The lack of knowledge about the spiritual dimensions of *Śabda* and the non-applicability of the existing scientific instruments in sensing or measuring the domains of the subtle sonic waves make it practically impossible to conduct usual laboratory-experiments in the science of *mantras*. This is why the subject matter of *Mantra-Vijñāna* is often attributed to philosophy, mythology or blind faith or its study largely remains confined to controversial or inconclusive 'intellectual' arguments alone. The misdeeds and perversion of the medieval era in the name of 'spirituality' have been most detrimental, as these have led to destroying and shrouding the real knowledge and widening the gap between the 'materialistic' and 'spiritual' sciences. This has severely hindered the possibility of scientific research into this branch of knowledge with an open mind.

Several examples demonstrating the power of *mantras* are however reported – including popularly witnessed incidents, in the modern century. For instance, it was reported a couple of decades ago, that the women magicians called *Vamohas* had successfully stopped and prevented the heavy rainfall for the desired number of days on a play ground during a Commonwealth sports festival in Quallalampur (Malaysia) and also on a shooting site of an American film company.

The advanced science of today has realized the power of the super sonic waves and has also conceded the limitations of the material based research with respect to a complete decipheration of the immense potential of the functioning of the human-brain and mind. This is the right time that the subtler forms of sound existing in *Śabda* be investigated scientifically. The *Mantra Vijnñāna* should be studied in the light of the fact that — this ancient science was developed by the *ṛiṣis* who began their research by focussing on the fields of consciousness rather than matter (or perceivable entities). The intrinsic research conducted by these scientists of yore had helped them realize the eternal origin and the ultimate expansion of sound – the *Śabda Brahṁ*, in conjunction with the cosmic consciousness.

The *mantras* devised by the *ṛiṣis* were not only perfect with respect to the compilation of specific sonic patterns, these creations also contained the formulae for awakening the specific nuclei of the supreme consciousness subliminally existing in the universe. Having realized all the dimensions of the eternal sound, the *ṛiṣis* had referred it as *Śabda-Brahṁ*, the omnipresent and omnipotent *thy* sound.

The script designed by the *ṛiṣis* to assign syllables suitable for the compilation of the *mantras* was also perfect in terms of the correspondence of the shapes of the syllables with the associated ‘geometry’ (spectrograph) of the phonetic pattern (of the syllables) and the sonic waveforms. This script was also unique in terms of the compact representation of the latent meanings and the multiple modes of *japa* and chanting. The in-depth analysis of the available forms of the ancient scripts used in the *Vedas* and study of its scope in advanced applications (e.g. for knowledge- representation in the intelligent computers) – has become an active area of research in the modern times. We shall look into various aspects of the creation and effects of *mantras* in the following sections.

Structure and Implications of Mantras

Swami Ramatirtha had once stated that – ‘One may become a God but one can never see or show *thee*...’. The same is true of the subtle elements, they can be experienced or felt-in but can’t be seen or shown in a laboratory. Flow of radio waves through the *ether* is well known though no instrument has been able to measure or demonstrate the ‘appearance’ or ‘existence’ of *ether*. We do feel the effects of chill, heat, happiness, sorrow... etc. in our day-to-day life but we can never see or show these effects in visible or otherwise perceivable forms.

Recitation of the *mantras* is only a means for arousing the omnipresent subtle power of *Śabda*. When we awake somebody by pushing him by our hand, the hand simply plays the role of a tool, it is not a part of the process of awakening. Similarly, the specific configuration of syllables and the sound (including the sublime sound) produced by the *japa* of a *mantra* is only a means for activating specific field of the cosmic energy of *Śabda*. Which *mantra* is suitable for awakening what kind of subliminal energy center – is described in the *viniyoga* (structural classification) of that *mantra*. All of the *Vaidika* and the *Tāntrika Mantras* have distinct *viniyogas*. The ancient scriptures of *Āgama* and *Nigama* describe the *viniyoga* part along with the details on the methods (and *sādhana*s) of the *japa* of the *mantras*. Before reciting a *mantra* one must read and understand its *viniyoga*.

The *viniyoga* of each *mantra* has five components – (i) *Riṣi*, (ii) *Chanda*, (iii) *Devatā*, (iv) *Bīja* and (v) *Tatva*. The first component contains the names of the *ṛiṣi*(s) or the spiritual saints who had discovered, compiled and/or completely mastered that particular *mantra* and who therefore are regarded authorities on all the knowledge associated with the spiritual practice of that *mantra*. Such spiritual saints are the ideal *gurūs* (guides) for the disciples who endeavor a *sādhana* of that *mantra*. Recalling this first component of the – *viniyoga* of a *mantra* also implies that revered devotion for those *ṛiṣi*s and adept guidance of a noble *gurū* is essential for practising (the *japa* of) that *mantra*.

The *chanda* indicates the rhythmic composition for the enunciation or chanting of the *mantra*. As described earlier, each *mantra* can be

practised with different combinations of *swaras* (musical accents) and *gati* (amplitudes). *Mānasika*, *Vācika*, *Upāṁśu*, *Udātta-Anūdātta*, *Swarita*...., etc are some of the many modes of *japa* that are also described in the *chanda* for a *mantra*. The specific pattern of sonic waveforms generated by the *mantra-japa* depends upon the syllables of the *mantra* and the type of *chanda* used. The assignment of appropriate *chanda* for the spiritual *sādhana* processes of practising a *mantra* is called – *yati*. The selection of a *yati* and hence of a *chanda* for a given *mantra* is decided with respect to the purpose of the *sādhana*, the configuration of the *mantra*-syllables and the mental and spiritual level of the *sādhaka*.

The third component, the *devatā* represents the specific cosmic field (– of the subliminal energy of *Śabda*) in the limitless expression of the supreme *thy* consciousness – that is aimed to be reached (realized) by the *japa-sādhana* of the associated *mantra*. We all know that out of the different programmes being broadcast via the radio waves, a radio set can catch (receive) only the ones whose frequencies it is tuned for. Similarly, from the different streams of the conscious power of *Śabda* present in the universe, a *mantra* can be used to link the individual consciousness with the *devatā* of that *mantra*.

As the practice of the *mantra* involves devoted meditation upon the *devatā* along with the specified (according to the *chanda*) rhythmic enunciation or chanting, the *ṛiṣis* had assigned visible forms to different *devatās* – representing different manifestations and subliminal expressions of the One, Eternal, *Thy* Consciousness.... Some of the *ṛiṣis* also recommended worshipping the idols – of these forms of the *devatās* – in sacred atmosphere before commencing the *japa* of the *mantras*.

Worshipping an idol of God often facilitates proper meditation and creation of the internal emotions to strike the intrinsic core of absolute faith that is necessary for confluence of the individual consciousness with the cosmic flow of divinity. This type of rituals (called *sākāra upāsana*) do help conditioning the minds of the disciples who find it difficult to meditate upon the subliminal forms of *Śabda* in the *śūnya* – the absolute void, the ultimate, the ‘non-existent’ but eternal realms of *thy* conception.

The *bīja* represents the origin of the *mantra*. It may be understood as a group of those syllables that contain, in compact coded form, the gist (*tatva*) of the *mantra* and thereby imply the latent existence of the specific power of *Śabda* in that *mantra*. The *japa* of the *bīja* generates the ‘energy’ essential for initiating the activation of the ‘power’ of the associated *mantra*.

The understanding and expertise of the science of *mantras* had illuminated the minds of the *ṛiṣis* with supernormal sagacity. They could therefore grasp the knowledge of the limitless expansion of the universe and completely ‘visualize’ the structure and function of the tiniest part of the over 72000 nerves and glands mysteriously folded inside the human body and could also accomplish remarkable spiritual realizations. They also presented different streams of their intrinsic knowledge in the ancient Indian scriptures via prose consisting of the hymns of *mantras*.

The scientific significance of the sound produced by specific syllables has attracted many researchers to study the special features of the sonic waveforms generated by the recitation of the *mantras*. The *ultrasonometer* developed by Dr. Fristlov is used for triggering different chemical reactions via the effect of ultrasound. The stirrer used in this device can be made to stir (by the obvious effect of ultrasound!) so fast that in no time it can make the steady water – contained around it – churn violently like that during boiling at maximum pace. As far as the sonic effects are concerned, the subtle power of a *mantra*, if focused, can be more ‘explosive’ than the nuclear power.

The *yogis* often use the vital power of the air-element (*vāyu-tatva*) and gain supernatural physical powers. A *māntrika*²⁰ works at the highest level (*ākāśa*²¹) – in the hierarchy of the five basic elements and he can therefore be more powerful than other *yogis*.

Apart from the physical power of *Śabda*, the *mantras* are also endowed with the ‘magnetic’ power of the conscious energy of *Śabda*. The emotional linkage – through absolute intrinsic faith (*śraddhā*) – with the *devatā* of the *mantra* attracts the subliminal energy of *Śabda*.

The devotion and prayers of the *devatā* of the *mantra* are performed to initiate this linkage. The rhythmic enunciation or chanting of *mantras* gives rise to two types of subtle fields of influence – one, the ‘sphere’ of sonic effects, and the other, of emotional (conscious) effects. The expansion and the power of attraction of these fields intensify with continuous (cyclic) *japa* of the *mantras* in specific rhythm in a consistent manner. So powerful their force of attraction could be that, any kind of material or conscious form entering into their peripheries could be transformed according to the influence of the *mantra*. The use of *mantras* for enlightening the mental and sentimental domains of all the human beings may therefore be regarded as a scientific possibility, a spiritual endeavor, rather than a myth or a daydreaming.

Mantra Yoga: Effects on Gross Body

A human being is defined to be an ensemble of the gross (physical) body, subtle (mental and energy) body and the astral body (the inner self or the domain of the soul). The existence of three perennial expressions of *thy* powers of the trinity Gods – Brahma, Vishnu and Shiva, is said to be vital for the manifestation of Nature and life. The existence of the three bodies is similarly an integral part of the existence of any living being in this world. The three bodies, like the *triveṇī* – confluence of the holy rivers *Ganga*, *Yamuna* and *Saraswati*, are separate as well as one – being the interwoven segments of a single individual self.

The refinement and development of any one of these bodies would be incomplete without the other two. Therefore, when we talk about the role of *Śabda* or *Mantra Vijñāna* in human-life, we must analyze the respective effects on each of the three forms (bodies) of a human being.

As discussed earlier, our world is physically constituted by three basic energies *viz.* Sound, Light and Heat. According to the electromagnetic wave theory, the ever-expanding universe is described as a limitless ocean of energy waves. Grasping and utilization of some of these has given rise to the inventions and discoveries like radio, telephone, television, X-rays, radio-rays, laser, gamma-rays, ..., etc. Enormous combinations of superimposition of compatible waves are supposed to give rise to the energy particles, various subtle particle-states and ultimately to the atomic and molecular forms of matter. The root cause of the existence of different physical forms/states of any kind of material – howsoever subtle or gigantic it might be – is the ‘collision or superimposition’ of some of these omnipresent, ever vibrating, energy waves.

The eternal forms of sound and vibrations are synonymous with respect to their physical existence. Noting this, a natural conclusion of the above theory would be that — *Śabda* and *Nāda* are the origins and the ultimate controllers of everything that exists (in a gross or subtle form) or happens (including the manifestation of life and death) in this universe. Our gross, subtle and astral bodies are thus naturally affected by ‘sound’.

Our gross body is a physical system consisting of bio-physicochemical components. The impact of sound on this system results in corresponding vibrations in the molecular, cellular (e.g., an enzyme in a cell or a membrane, or a hormone...) or organ (e.g., the liver, uterus or ears.....) components and generates isolated or cascade effects (positive or negative, depending on the type of sound) on the interconnected subsystems. Several examples of the negative physical effects of the impact of sound on the gross body have been described earlier in the context of the Doppler effect and noise pollution.... Examples of the positive physical effects (on the gross bodies of any living being), apart from those described earlier, include – increase in the immunity of human beings under specific therapies based on sound; acceleration of the growth rate of vegetation by special music...; increase in the reproduction rates of some varieties of fishes and hens under certain music-based treatments....

Out of the three most familiar manifestations of *Śabda* in energy forms, sound directly affects our gross body and heat and light influence our subtle and astral bodies respectively. The latter two types of effects often remain unrecognized because of the random and instantaneous vibrations in our conscious and unconscious mind and irregularities in our physical activities vis-à-vis the large number of stochastic interactions in the ever-dynamic modes of our sublime interaction with the above energies in Nature. Even if the supernatural effects (of *Śabda*) are observed, these are often attributed as ‘coincidences’ owing to the lack of sufficient knowledge or scientific data to analyze the causes...

A proper synchronization of a consistent state of our body and mind with any one of the above powers of *Śabda* for a given span of time and at a selected space, free from other (random) disturbances – is necessary for conducting scientific experiments to study some such effects, even at a gross level. The philosophy, discipline and practices of *prāṇa yoga*, *mantra yoga* and *dhyāna yoga* should be studied deeply under adept guidance and gradually applied for conducting feasible experiments of the above *yogas* on the gross body, subtle body and the astral body.

A large number of *yoga* exercises under different branches of spiritual disciplines are known to exist in this world. All of these can be

classified into the three major types – *prāṇa yoga*, *mantra yoga*, and *dhyāna yoga*. Interestingly the most common and challenging hindrances in the successful practice of any *sādhana* or spiritual experiment of *yoga* can also be classified into three parent groups viz., *lobha* (greed), *moha* (selfish attitude and possessive attachments) and *ahamkāra* (egotism). Moreover, the essential virtues which help the individual self struggle against these internal enemies also fall under three major categories – *sāhasa* (courage), *saṁkalpa* and *saṁvedanā*²²

The methods of *Mantra Vijñāna* help refine, by sonic effects, the state and functioning of the gross body or any kind of material that exists physically. The mode of utilization and the performance of these methods depends upon three major factors — (i) the structure of *mantra* in terms of the configuration of syllables and vowels *i.e.*, the sonic pattern of the *mantra*; (ii) the overall character and personality of the *sādhaka*, and (iii) the faith of the *sādhaka* in the *mantra* by which the power of *mantra* amplifies and penetrates the innermost energy centers of the *sādhaka*.

The *Vedic Mantras* were originally created and compiled by the *ṛṣis* who were spiritual *yogis* and sages of the science of *Śabda*. Therefore, the coding of the sonic patterns in these *mantras* is perfect with respect to the impact of *Śabda*. Many a times, the realization of the syllables for subtle sounds (*Nāda*) in the etheric ocean had occurred to the *ṛṣis* through an afflatus or intuition in their intrinsic inspirations or the *mantras* were just ‘heard’ by them in the state of trance. This is the reason why most of these *mantras* are known as – *Śruti* (‘heard’) or as – ‘conveyed by the *Ākāśa Vānī* – the cosmic voice’.... The *Gāyatrī Mahāmantra*, *Kalmā-Śarīṇa*, *Bapatismā*, *ṇāmomkāra* and the syllable *Hum* in the *Maṇipāda* in different religious scriptures are examples of such self-generated eternal *mantras* or divine messages.

The *tantra yoga* is a special branch of *mantra yoga*. It deals with the development of ‘mechanisms’ for direct, fast and high-intensity ‘physical’ impact of the power of *Śabda* on specific targets. Compilations of the ‘harsh’ vowel “*am*” with some ‘hard’ syllables of the Sanskrit script are commonly used here. The single-letter *mantras*

like – *Kaṁ, Khaṁ, Gaṁ, Ghaṁ, Yaṁ, Chaṁ, Jaṁ, Jhaṁ, Paṁ, Faṁ, Baṁ, Bhaṁ, Śrīṁ, Klīṁ, Hrīṁ, Phaṭ* etc.– are frequently used as *bīja* (the seed syllable) in the creation of a *tantra*. Because of the high-energy fields of the vibrations generated by the pronunciation (at specific intensities and speed) of the *tāntrika mantras*, their physical effects bear intense and direct impacts at significantly rapid pace.

The extrasensory *cakras*, *upatyikās* and *granthis* in the body are suddenly stimulated by cyclic enunciation of the *tāntrik mantras*. Little carelessness or lack of control or mistake in practising the *tantras* might therefore result in reciprocating reactions. The constructive or destructive effects of a *tantra* can be well understood from the example of the nuclear power... Thus, if a *tantra* is targeted for ill-intentioned goals to harm others, its user would risk – irreparable imbalance of hormonal secretions or activation of undesirable bio-electrical processes that could result in insanity, physical disability for torturous sufferings or even a sinner's death.....

If thoroughly understood and used under adept guidance for noble goals, the knowledge of *tantra vijñāna*, could offer enormous support and benefits to the ailing human society today.

Sound Therapy: Ancient Knowledge

The three vowels *a*, *u* and *m̐* involved in the *Om̐kāra* (the omnipresent *nāda* of “*Oam̐*”) represent in terms of the power of *Śabda*, the three perennial tendencies of Nature and consciousness – *sat*, *raj* and *tam*. The divine powers of the trinity Gods, Brahma, Vishnu and Shiva are symbolically represented as the powers of *Śabda* subliminally enfolded in these vowels – to signify the absolute completeness of this the self-existent syllable *Oam̐* (in Sanskrit) and its eternal musical sound “*Om̐kāra*”....

The four Vedas and other Indian scriptures of yore including – the *Āyurveda* – the ancient medical science and the *Gandharva Veda* – the ancient art of music and dancing, are supposed to be the most original and richest sources of knowledge on the perceivable powers of *Śabda* and *Nāda*.

The *Caraka Sanhitā* and the *Suśruta Sanhitā* – of *Āyurveda* mention a great deal on *mantra* based therapies against delirium, high-fever, asthma, diabetes, jaundice, tuberculosis and some kinds of cardiac-diseases and mental deficiencies. The *Sāma Veda* focuses upon different methods of composing the rhythms for the *vedic mantras* that play important role in sound therapy. The modes of pronunciation of *mantra*-syllables and the methods of chanting of the *mantras* in musical orders – for therapeutic applications – fall into the category of *Śābdika Bhaiṣaja*.

There are four types of *Bhaiṣajas* described in the *Bhaiṣaja Tantra*, a Treatise on the ancient Indian medicine and pharmacology. These are categorized as the *pawanaukaṣa*, *jalaukaṣa*, *vanaukaṣa* and *śābdika*. The mechanism by which *tantra* and *mantra* affect the gross (including the activities at the points of contacts at the tongue, palate and the throat during the pronunciations....) and the subtle components (e.g. the endocrine glands) of the human body are also discussed in detail in these and related treatises. Each *mantra* is designed here in a highly specialized manner to generate specific energy and functional potential.

Scientific investigations show that the vibrations produced by large scaled collective *japa* or chanting of a *mantra* collide with the ionosphere and thus affect the geo-magnetism and the Schumann’s reso-

nance too. The echo of the reflected vibrations affects the earth's atmosphere. It is interesting to note that the electromagnetic waves generated by the Schumann's resonance have the same frequency (around 7 – 13 cycles per sec) as that of the *alpha-waves* recorded in the EEG of a person performing the *japa* of the *Gāyatrī Mantra* in a state of deep meditation. The supersonic effects of *mantras* are said to effectuate – (i) the spiritual expertise of cursing or blessing respectively, to cause or cure the physical and psychological ailments/disabilities; and (ii) the *tāntrika* means of influencing one's body and mind by *māraṇa*, *mohana*, *uccātana*, *abhicāra*, *katyaghāta*..., etc. These should be analyzed along the lines of the electromagnetic manifestations – which have a direct bearing upon the functioning of the brain, of the *japa-sāadhanā* of the selected *mantras*.

Another stream of *Śabda* with enormous potential in sound therapy deals with its melodious form indwelling in music. The soothing effects of sonorous music in giving instant relief from mental tension and in curing some psychological disorders are well known. More importantly, the *tāla* (rhythm) and *swara* (accent or basic note) of the musical patterns offer a wide spectrum of compositions which could be designed for curing or controlling specific hormonal disorders and associated physiological and mental aberrations.

The Indian classical music is enriched with a variety of such compositions (*rāgas*) that could be made more effective if played along with the strong company of the classical instruments like – *sitāra*, *vīṇā*, *tabalā*, *mṛadangaṃ*, or *tānapurā*. Six ancient *rāgas* (tunes/compositions) of the Indian classical music have been signified in the *Gandharva Veda*; namely, the – *Śrī Rāga*, *Bhairava Rāga*, *Hindola Rāga*, *Malkaunsa Rāga*, *Vihāra Rāga* and the *Megha Rāga*. About five to six varieties or subclasses of these *rāgas* are also considered to be of fundamental importance. The ancient musicians have also devised several other compositions by specific combinations of these *rāgas*. The modes, moods and timings associated with the applications of such compilations are also described in the *shastras*. The *Gandharva Veda* cites –

Japādi Aṣṭaguṇama Dhyānadḥ Dhyānādi Aṣṭa Guṇaṃ Tapaḥ /
Tapasā Aṣṭa Guṇaṃ Gānaṃ Gānāta Partaparam //

The success of the deep impact of the vocal music necessarily depends upon the (spiritual) levels of the consciousness of the singer and the audience. This fact should be kept in mind while designing any experiment on the supernatural effects²³ of the significant *rāgas*. Several research laboratories around the world – including the Maharshi Gandharva Veda Vidyā Pitha and the Brahm Varchas Research Center, Shantikunj, Hardwar in India – are engaged in conducting experiments to analyze the effects of the rhythmic chanting of some *veda-mantras* upon human body and mind. It is quite likely that the audio disks and cassettes of the ‘*Vaidik Hymns* in different *rāgas*’ would become integral parts of the health support systems in the sanatoriums and intensive care units of future.

How the musical sound would affect a disorderly (diseased) state is explained in detail in the ancient scriptures. The basic principles of *Āyurveda* have emerged from the concept of defining/ classifying a human body’s system in terms of three basic natural properties – *vāta*, *pitta* and *kafa*. Corresponding to the characteristic features of these three tendencies, there is a mention in the *Gandharva Veda* about their respective musical properties viz., *samyak tārātā* of *vāta*, *samyak tīvratā* of *pitta* and *samyak mādhyura* of *kafa*.

As *vāta*, *pitta* and *kafa* have a direct bearing upon the intra-body functions that are based on the use of air (e.g. O₂ in oxidation reactions), heat (e.g. in various thermodynamic regulations) and water (e.g. the aqueous medium for bio-molecular binding) respectively, so have their musical analogues – the *tārātās*. The ancient Indian schools of medical sciences had recommended the study of the treatise on music and sound – like the *Gandharva Veda*, as an integral part of the study of *Āyurveda*. The expert *vaidyas* (the *Āyurvedika* doctors) those days used to have an expertise and practical efficiency in the Indian classical music as well.

Some treatises on relationship between classical music and *Āyurveda* mention that – *Rāga Bhairavī* is most suitable in curing the diseases caused by the imbalance of *kafa*; *Rāga Malhāra Saurat* and *Jaijaivantī* have positive effects in controlling mental instabilities, short-temper, ..., etc. The following *rāgas* are also prescribed as

‘effective remedies’ – *Rāga Assāvarī* for purification of blood; *Rāga Bhairavī* for eliminating the physical sufferings due to tuberculosis, asthma, chronic cough and some other diseases of the respiratory system; *Rāga Pancham* for the treatment of the ailments of the liver, stomach and the whole digestive system; *Rāga Hindola* for increasing and purifying the lymph and serum and strengthening the liver and spleen. Famous examples of related applications include – King Rāja Singh’s relief from insomnia because of the *Rāga Puriya*, sung by the great singer Baijū Bāvarā; Instant cure of the insomnia of the dictator Mussolini by the effects of the classical *rāgas* sung by Pt. Omkāranath Thakur.... etc. Similar historical incidences are said to be associated with the eminent musicians like Pt. Pulaskar and the Dagar brothers.

Inspired by the impact of ultrasound in medical technology, some modern scientists have also begun to experiment on the power of music in maintaining the normal (healthy) functions of the body. Some examples cited earlier in connection with the positive effects elucidate the encouraging outcome of this research. Significant experiments on use of music as a promising therapy have also been conducted at the center established by Dr. Ralf Lawrence Hoy in Pittsburgh. Dr. Podolsky and Dr. Berner Macfeden also make use of sonotherapy for effective treatment of their patients.

Modern science should collaborate with the ancient sciences of *mantra vijñān* and classical music to offer more fruitful use of the vital power of *Śabda* in improving the *prāṇa*-levels and hence the natural health of all the living beings.

The Phonetics of Collective Chanting Described in the Vedas

Phonetics and sonic principles have been given maximum importance in the compilation of the *mantras* that encode the supreme knowledge compiled in the four *Vedas*. The *Sāma Veda*, in particular, emphasizes the most on the rhythmic patterns of the chanting of the *vedic mantras*.

Specific symbols are used in the *Vedas* to represent different accents and amplitudes. The savants note that because of a highly compact symbolic representation, each letter of the *vedic-mantras* can have as many as eighteen different forms of phonemes associated with its pronunciation. A complete decipheration of this self-sufficient phonetic code has not been possible by the scholars of later times. Some symbols have been decoded to identify the *swaras* (accents) with the help of the main principles cited in Mahāmuni Pātanjali's *Mahābhāṣya*. For instance, the vertical and horizontal lines around a syllable of the Veda-script are found to indicate the levels of high (*udātta*), medium (*anudātta*) or low (*swarit*) accents.

The scholars of the *vedic* literature have largely interpreted that the symbolic representation serves the main purpose to help decide a chanting pattern for collective singing of *mantras* during a *yajña*, or, to guide designing specific modes of *japa* for creating specific acoustic effects to meet the desired purposes. It is also found that a single word would have multiple meaning and impact because of the specific context of these symbols in the same or different *mantras*.

The treatise on the Sanskrit grammar and the *vedic* literature available to the scholars of our times are too difficult and vast in terms of – (i) identifying the correct and the most logical meaning of a word (in a *vedic mantra*) from amongst the possible multiple meanings; or (ii) generalizing the principles for such interpretations. Different schools of thoughts have different styles of translations. This sometimes leads to controversies in the interpretation of the meaning and/or identification of the best chanting patterns of the *vedic mantras*. The book entitled '*Vedic-Swar Mīmāṃsā*' presents critical analysis of the mistakes in deciphering the *vedic phonetics* incurred in some of the widely used scholastic works on translations (*Bhaṣya*) of *Vedas*.

Few excerpts from the above works are given below in their original forms to indicate the extent of difficulties in the correct interpretation of the *Vedic Swaras*.

“Sāyaṇācārya’s *Rig-Veda Bhāṣya* is based on a superficial knowledge of the *Vedic Swaras*.... Most often his interpretations seem to have been blindly copied from the *Swar Prakriyā* (rules for identification of accents or phonetic patterns) defined by Bhatt-Bhāskara in *Taittirīya Samhitā*. His independent interpretations are almost 50% erroneous; about 4 to 5 mistake per hymn is common in his work.... For instance, a word ‘*doṣā vastah*’ in a hymn of the first *maṇḍal* (part) of the *Rig-Veda* has been, because of the erring knowledge about the *vedic* accents (symbols), interpreted by Sāyaṇācārya as ‘morning and evening’ instead of ‘fire’.... This mistake appears to have been adopted from the meaning of this word cited by Bhatt Bhāskar in ‘*Taittirīya Samhitā*’ – 1|5|6|2. Similar meaning of this word is mistaken by Shrinivas Jha in his compilation of ‘*Swar Siddhānta Candrikā*’ – 9|2|27. Venkat Madhav’s *Laghu Bhāṣya*, as edited by Dr. Lakshman Swaroopa also contains the same mistake”.

Shri Venkat Madhav is regarded to be one among the most erudite scholars of the *vedic swaras*. His consistency and in-depth analysis of the symbolic arrangements clearly indicates his excellence in his *Brhadā Bhāṣya* of the *Rig-Veda*.... Still if the compilation or extension of his *Laghu Bhāṣya* contains misinterpretations (like the one cited above) of the *vedic swaras* then one might wonder whether the available versions of his *Laghu Bhāṣya* is defiled from its original form...?

The book also points out the controversies in the works of some modern scholars. For instance, it mentions – “The patterns for decoding of the *vedic swaras* as introduced by Shri Pt. Padmanarayana Acharya, Shri Pt. Ghareshwar Shastri, Shri Pt. Satavalekarji and Shri Pt. Vishwa Bandhuji Shastri are not consistent with the original (ancient) Indian Scriptures because, the meaning of several hymns implied according to their definitions and rules go against the basic and true philosophy of the *Vedas*. Pt. Padmanarayana Acharya and Pt. Vishwa Bandhu Shastri are influenced by the style used in the

related (Veda-translation) works of the European scholars. This deviation from the original (Shastric) style makes their works incomplete with respect to the interpretations of the latent meanings. This further deforms the available knowledge of the *Vedic Swara Prakriyā....*”.

Most of the interpretations and translations of the *Vedas* available to us today are based on Acharya Sāyaṇa’s approach. Eminent foreign scholars like Mr. Maxmular, also, despite dedicating over twenty years of diligent search for maximum literature (commentaries) on *Vedas*, had to largely rely upon Acharya Sāyaṇa’s work because of the non-availability of the earlier treatises in the original or complete form. The scholars of modern age have used Maxmular as the principal reference for their translations and commentaries of the *vaidika mantras*. However, in view of the serious criticism of Acharya Sāyaṇa’s understanding of the *vaidika swaras* as cited in the above mentioned book, one might be confused about the authenticity of any of the literature on the *Vedas* that is available (in published or written form) today.

Apart from the arbitrary variations in the styles of various schools of thoughts, the printing mistakes add to the erroneous interpretations. Some earlier (namely, 1st to 5th) editions of the *Veda*-compilations – published by a printer in Ajmer, under the auspices of the Arya Samaj – are cited in the above mentioned book as examples in this regard

It would therefore not be an exaggeration to infer that – “Access to the most original *Bhaṣya* of the *Vedās* and a foolproof analysis of the phonetic- symbols used in the *vaidika script* will not be possible in the present era, unless the spiritual *yogis* of today invoke deeper acumen like the *ṛiṣis* and endeavor realizing the perfect meanings and *swaras* through the inner intellect”.

Difficulties in Rhythmic Enunciation of Vaidika Hymns

As stated earlier, the original forms of the *vaidika* phonemes and the associated accents (*swaras*) for the chanting of any syllable, were classified into eighteen different types. The ancient experts – the ṛiṣis were able to pronounce each of these *swaras* distinctly for the purpose of collective chanting of *Veda-Mantras* during different *yajñas*. Owing to the adoption of artificial life style and lack of spiritually high value system, the natural sublime capabilities in the *vocal cord* got suppressed and our ancestors, few thousands years ago, began to use only seven out of these eighteen *swaras*. The seven types were identified as – *udātta*, *udāttara*, *anudātta*, *anudāttara*, *swarita*, *swaritodātta* and *śruti*.

Over the years, this number was further reduced to three. Namely, the *udātta* (high), *anudātta* (medium) and the *swarita* (low) accents seemed to have been in existence since the time of *Mahābhārata*. These three *swaras* are practised by the experts and only one chanting pattern (in single *swara*) is now recommended for the collective recitation of *mantras* by the masses. The correct identification and pronunciation of even the three *swaras* – depicted by different symbols in the *vaidika* script – is so difficult that hardly 5 to 10 authentic experts of *Rig-Veda* are believed today to possess the true potential of vocally distinguishing them during the recitation of the *vaidika mantras* today.

The controversies in the current system of coding the *vedic swaras* further complicate the problem. For example, in some of the *Rig-Veda Samhitās*, published in the modern times, vertical lines above a syllable are used to indicate the *swarita swara*; whereas in a *Maitraiyani Samhitā*, such a symbol is supposed to code for a *udātta swara*..... Many *Samhitās* use horizontal lines below a letter to code for the *anudātta swaras* but the available versions of Śatpath Brāhmaṇa use these lines as symbols for the *udātta swaras*.

The book entitled “*Vedic Swara Mīmāṃsā*” discusses the above difficulties and controversies in detail. As cited earlier, the erudite author of this book opines that ‘the symbolic patterns used in the currently available *Sāma Samhitās* appear to be the most confusing

and inconsistent to a beginner'. A consistent symbolic representation for the *Vedic Swaras* should be based on the in-depth study and sagacious analysis of the descriptions and implications cited in the available *mantras* of the *Sāma Veda*.

Lord Krishna in the holy *Gītā* honors the importance of the *Sāma Veda* where he reveals that – '*Vedānām Sāma Vedosmi*' (among the four Vedas, I am the *Sāma Veda*). It may be recalled here that *Vedas* are not just some scriptures, volumes or treatises, rather, they represent the divine voice and *thy* knowledge that was intrinsically realized by the *ṛiṣis* of the spiritual era. In this context, a logical interpretation of the above quote would be that – '*Sāma Veda* is that stream of the absolute science, the realization of which can be equivalent to experiencing *thy* presence in music and in consciousness....'. This also implies the importance of sentiments and intrinsic feelings rather than linguistic details in grasping any aspect of the *Vedas*.

Wisdom or intellect alone can only help critical analysis and rational interpretations of the *mantras*, as superb 'linguistic formulae', containing supernatural knowledge and unique power of sound. The true realization of the divine knowledge of the *Vedas* is possible only by a perfect combination of pure intellect and *śraddhā*²⁴. It is said that – '*Bhāvohi Kāraṇama*'; meaning – 'God lives in the serene sentiments and therefore could be experienced only through the sacred feelings of the inner self...'. The difference between 'emotional excitements' or 'sentiments born of selfish attachments' and the 'true sentiments emanated from the deeper cores of the inner self' should be well understood before accepting these implications.

The saintly scholar *Goswami Tulasidāsa* begins his writing of the Holy *Rāmāyaṇā* with the following prayer of Goddess Parvati as the inspiration of *Śraddhā* and Lord Shiva as the source of *Viśvāsa*²⁵. Divine faith coupled with spiritually enlightened intellect represents an absolute combination that enables one realize *thy* luminescence in his inner sentiments. One, who has unperturbed faith in absolute truth and practises it through pure intellect in deeds, indeed finds *thee*....

Linguistically, *sāma* means – music, which has an intimate connection with emotions and sentiments, and *veda* means – perfect knowledge, which could be grasped only through the enlightened, discerning, pure intellect.... This way as well, *Sāma Veda* has a direct linkage with *Śraddhā* and *Viśvāsa*. We all must have experienced some time or the other in our life that – “what musical effects easily ‘convey’ to us via emotional impact that might never be expressible by written or oral words...”. The reach of sentiments and emotions is much wider and deeper than the domains of knowledge expressible by human intellect. The *vaidika ṛiṣis*, despite having represented their intrinsic experiences in the form of *vedic mantras*, had finally declared the *Vedas*, as – “*neti-neti...*”, i.e., “beyond the power of expression..., inexplicable...”.

There are three basic forms of vocal expressions – verse, prose and singing. Of which, the last two appear to be more effective means of conveying the sentiments in any language as they lend an emotional sense to the expressions in any language. Prayers offered to the Almighty are always presented in a form of verse or devotional songs, because *thy* presence cannot even be felt without the depth of serene emotions....

The esoteric knowledge embodied in the *Vedas*, being an outcome of the divine inspirations, was naturally presented by the *ṛiṣis* as hymns of *mantras* that could also be sung in enormous rhythmic patterns, making the corresponding sonic impacts penetrate through the inner emotional cores. The detailed knowledge of the rhythms of the divine music (of *Nāda Brahṁ*) and formulation of the chanting patterns for the *vaidika mantras* is encoded in the *Sāma Veda*.

Sāma Gāna: Chanting of Vaidika Mantras

The unlimited expansion of the Universe and the ever-evolving Nature are described in the Indian scriptures as the expressions of *thy* will. The omnipresent reflections of *thee* could be felt only through the deeper depths of the inner self. We, like the other beings are expressions of the infinite impulse of eternal consciousness but recognize our existence as individual self in a closed domain of our own intrinsic, inherent and self-created sentiments.

The energy waves of a magnetic or electrical force always complete their 'circuits' in the respective energy-fields. The same is true of the subliminal currents of emotions and sentiments. The nature and the strength of what we receive from the people around – as their reactions, support or emotional intimacy towards us, or from the omnipresent realms of the Supreme Consciousness – in the form of afflatus, inspirations or intrinsic urge..., depends upon what we transmit in the subtle domains of sentiments. The great *ṛiṣis* had understood this sublime science of emotions through depths and had also attained the spiritual power to induce refinement of the subtle world of consciousness and sentiments. Their collective endeavors are said to have educed pious sentiments in all the beings and thus enabled the descent of a divine era in the Vedic Age.

Some distinguished psychologists of the modern times have focussed their research on the latent effects of emotions. The series of experiments conducted by Dr. Laurence D. Wallace are notable in this context. Different samples of people suffering from depression, tension or anxiety were selected in some of these experiments. The subjects were trained to feel that they are living in an emotionally energized field of peace and happiness, which is penetrating their minds to induce similar effects.... The subjects, due to their accumulated negative sentiments of jealous, ego, impatience etc., found it difficult initially to concentrate on positive thoughts and feelings... However, by receiving the adept guidance and support from the Doctor, they began to enjoy the experiments after a few sittings. Almost all of the subjects (in the random samples of sizes around fifty each) responded positively at the end. Their attitude and feelings towards themselves and the circumstances of life had improved significantly

within a year. They began to enjoy the nectar of the same life, which, they once wanted to be relieved of....

This sequence of successful experiments was extended in a new direction when Dr. Wallace organized a series of ‘goodwill meetings’ of a group of people, who possessed strong willpower and inner urge for altruist service and welfare of all. These special experiments were organized in different parts of the state. During each experiment, all the members of the group collectively endeavored to focus their thoughts upon the soothing feeling that their serene sentiments of love and peace are spreading in the surroundings and purifying the ambience. Surprisingly, the systematic and statistically justified surveys conducted in the corresponding localities showed that such experiments did result in influencing the surrounding areas in terms of reduction in the rates of crimes and suicides.

The above kinds of experiments may appear to be crude in terms of through scientific standards and may stand as naive and negligible vis-à-vis the spiritual experiments conducted by the *ṛiṣis*. Nevertheless, they mark a good beginning and generate the hope that the use of the natural power of emotions would be studied more rigorously and applied for the betterment of life in the years to come. The positive role of music would be inevitable in this regard because of the natural intimacy of music and emotions.

The three streams of expression of the esoteric knowledge encoded in the *Vedas* are termed as *Veda Trayī*. The contents are divided into four *Vedas* that are classified according to the type of *mantras*. Broadly speaking, the Riga Veda consists of the *mantras* of the hidden knowledge and prayers of — the eternal powers of *thee* and the genesis and expansion of divine virtues. The Yajura Veda consists of the *mantras* of the philosophy, science and the methods of performing *Yajñas*. The Sāma Veda is a collection of the *mantras* containing the secrets of *swaras*, music and the chanting patterns for all the *vaidika* hymns. The Atharva Veda presents the *mantras* of the ultimate spiritual knowledge of the Supreme – the *Brahm Jñāna*. The *Veda Trayī* classification according to the possible modes of expressions of *mantras* is found to be more suitable for describing the associated *sāadhanā* practices in the *vedic* science of spirituality. Of these,

the stream of knowledge pertaining to the rhythmic enunciation and chanting of the specific collections of *mantras* in the *Sāma Veda* is of predominant significance for the human society, as it directly deals with the science of emotions, which hold the essence of life.

The ancient Grammarian and founder of the science and philosophy of *yoga*, Mahrṣi Pātānjali mentions of thousand branches of the schools on *Sāma Veda*, as he refers to ‘*Sahastra Vartmā Sāma Vedaḥ*’; several scholars of the later ages also affirm this. The names of all the thousand branches are not available in any of the *Purāṇas* or other shastrika scriptures available today, and, some critics even interpret the word ‘*Vartmā*’ above to simply indicate different musical patterns of *Sāma Gāyan* (collective chanting). Still, while considering the potential of numerous creations – in terms of the musical aspects of *Śabda* and *Nāda* – in *Sāma*, the existence of over thousand varieties of the *Sāma Samhitā* appears to be quite logical.

It is unfortunate that most of the ancient branches of *Sāma Veda* are no longer seen. As per the available versions of *Prapamca Hṛadaya*, *Divyāvadāna*, *Caranvyūha* and *Jaimini Gṛahya Sūtra*....., etc, only thirteen schools of *Sāma Veda* seem to have been active in the present era. The names of the corresponding ācāryas are remembered at the time of performing the ritual of *Sāmatarpaṇa*. The schools of only three of these thirteen ācāryas have been found to be having disciples in the recent past. Brief introduction of these three branches is given below.

It is interesting to note that – although the names, Prācyā (meaning, eastern) and Udīcyā (meaning, northern), of the most ancient branches correspond to the geographical locations of the places of their origin, no school on *Sāma Veda* is now in existence in the eastern or northern parts of India. Whereas, some scholarly activities on the available schools on *Sāma Veda* are still alive in the Western and Southern states. Noted among these are – the Kauthuma School, Rāṇāyanīya School and Jaiminīya School.

Study of the ancient scriptures like the *Purāṇas* and the *Brāhmaṇas* show that the original number of the *mantras* and the *sāma gānas* in the *Sāma Veda* was very much larger than those available in the

Saṁhitās of the schools of the modern era. For instance, the Śatapath Brāhmaṇa mentions of four thousand *brahātī mantras* – ‘*Athetarau Vedoṁ Vyohata | Dwādaśaiva Brahātī SahastrāṇI Aṣtau Yajuṣā Catwāri Sāmnām ||*’ (*Brah.* – 10|4|2|23); meaning: 4000 X 36 (= 1,44,000) of the *sāma mantras*. The number of original *sāmas* (rhythmic hymns) is mentioned to be around 8000 and those of the *Sāma Gānas* as 14820. As, most of the authentic scriptures cite the same numbers, they appear to be true indicators of the vast expansion of the *Sāma Veda*.

Schemes of Sāma Gāna:

As described earlier, the *mantras* in the *Sāma Yoni* were used by the *ṛisīs* to design the *mantras* for musical *japa* and collective chanting. There are four major categories of the singing pattern here viz., (i) *grāma gāna*, also known as *prakṛati gāna* or *veya gāna*, (ii) *āranyaka gāna*, (iii) *ūha gāna* and the (iv) *ūhya gāna* or *rahasya gāna*. The *mantras* in the first five chapters of Pūrvārcika are chanted under the different styles of *veya gāna*. The *āranyaka gāna* is applicable for the *mantras* cited in the Aranya Parva and the *ūha* and *ūhya gāna* are used for the specific *mantras* in the Uttarārcika as indicated in the corresponding branch (or version) of the Saṁhitā. The distribution of *mantras* specified by the two main schools under different categories of *gāna* these days is as follows:

The origin of the Indian classical music is based on these *Sāma Gānas*. The significance of the effects of this music and the fact that it is derived from the subtle scientific principles is well recognized today. It is indeed unfortunate that such a great development of yore was so much neglected over the centuries that the analysis of its founder principles now appears to be ‘impossible’ or ‘non-comprehensive’ and ‘beyond reach’. The near total absence of experts, especially those with an in-depth knowledge about the *swaras*, of *Sāma Gāna* has worsened the hopes of research in this area. Nevertheless, if a dedicated classical singer, having perfection of voice to the tune of *Murchanā*, *Āroha* and *Avaroha*, practises a *Sāma Gāna* with due concentration and devotion, he would feel the divine inspiration and emotional enlightenment even if the exact meanings of the involved *mantras* are not known to him.

According to the classical system of *Nārada* there are following classes of *swaras* of *Sāma*: seven basic *swaras*, three *Grāmas*, twenty-one *Mūrchanās* and forty-nine *Tānas*. The seven *swaras* of *Sāma* and the *Veṇu* (the octave of musical notes) have the following correspondence:

<i>Sāma – Swara</i>	<i>Veṇu</i>
<i>Pratham</i>	<i>Madhyam (ma)</i>
<i>Dwitīya</i>	<i>Gāndhāra (ga)</i>
<i>Tṛatīya</i>	<i>Raṣabha (re)</i>
<i>Caturtha</i>	<i>Ṣadja (sā)</i>
<i>Pancama</i>	<i>Niṣāda (ni)</i>
<i>Ṣaṣthama</i>	<i>Dhaivata (dha)</i>
<i>Saptama</i>	<i>Pañcama (pa)</i>

The serial numbers one to seven (in the script used in the written versions of *sāma*) are placed against various words or segments of words of the *mantras* to indicate the *swaras* for the *Sāma Gāna*.

The *Sāma Yoni Mantras* are chanted according to a *Sāma Gāna* after a little variation in the syllables or words of the *mantra*. This variation is performed according to the indicated phonetic operations. There are six types of such operations of transformation often applied to the *mantras* in the *Sāma Yoni*; these are as illustrated below:

1. **Vikāra:** This would ‘deform’ a linguistically correct word or a segment of words for appropriate pronunciation (suitable to a specified chanting pattern for that *mantra*....). For example, the Sanskrit word ‘*agni*’ would be pronounced as ‘*Augneya*’....
2. **Viśleṣaṇa:** Decomposition of a single word or a compound word formed by liasions in a *mantra* with repetition of some parts.... Such as – the Sanskrit word ‘*vītaye*’ will become ‘*voyitoyā voyitoyā yi*’ for chanting under this operation.
3. **Vikaṣaṇa:** Prolonged accent of one or more *swaras*; e.g., ‘*yeyāyi*’ will be pronounced (or sung) as – ‘*Ye Yā ā ā Yi*’. In this example, the vowel “*ā*” in the center is being pronounced at a frequency one –third of that set for the other vowels in that word.

4. Abhyāsa: Repetition of a word in a *mantra*....; e.g. read /sing a single word ‘*Toyāyi*’ as – ‘*Toyāyi Toyāyi*’, etc.

5. Virāma: Give pause at some syllables or vowels of a word in a *mantra*. For example, in the chanting of ‘*Gṛaṇāno Havyadā Taye*’ one might apply a pause at the pronunciation of ‘*Ha*’ if the *virāma* operation is symbolized against this letter.

6. Stobha: Insert specific sounds, like that of “*o*”, “*Hovā*”, “*Āuvā*”,, etc against certain markers in *sāma* -patterns.

Stepwise Division of Sāma Gāna:

The exact methods of *Sāma Gāna* are too difficult to be described here. Dedicated long term study and practice is required for grasping even a bit of it. However, for the purpose of general information, we have mentioned a few main points of the relevant subject matter. Continuing along these lines, we find that any scheme of *Sāma Gāna* can be divided into five successive parts as indicated below:

1. *Prastāva*: This is the first part of the hymn (*ṛicā*) of a *mantra* that begins with a Sanskrit syllable “*Ha*” and is chanted by a *Ritvija*²⁶ who is of the rank of a *Prastotā*.

2. *Udgītha*: This portion (of a *mantra*’s-*ṛicā*) is sung by the *Pradhāna* (main) *Ritvija*. Its chanting begins with an “*Oam*”.

3. *Pratihāra*: This is like a portion, which links the next parts (steps) of the *ṛicā* with the previous ones. Specific *Ritvija* called *Pratihartā*, sings it. Sometimes, this part of the *mantra* is broken into two before chanting.

4. *Upadrava*: This step is sung by the *Udgātā*.

5. *Nidhana*: This represents the last two steps (parts) of the *mantra* (or its hymn) or only the self-existent syllable, “*Oam*”, at the end of the *mantra*. This is ‘sung’ jointly by the *Prastotā*, *Pratihartā* and *Udgātā*.

Illustrative Example: Consider the following *mantra* (from *Sāma Veda*-1),

Agna Āyāhi Vītaye Gṛaṇāno Havyadātaye /
Ni Hotā Satsi Barhirṣi //

The above stated five parts of this *mantra* (hymn) under a scheme of *Sāma Gāna* would be as shown below.

Prastāva: *Hū Augyāi*

Udgītha: *Oam Āyahi Vītaye Gṛaṇano Havyadātaye*

Pratihāra: *Ni Hotā Satsi Barhirṣi.*

(This portion is again sung – in the next two steps, after being decomposed into two parts.)

Upadrava: *Nihotā Satsi Barhirṣi*

Nidhana: *Barhirṣi Oam*

Scriptures on Sāma Veda:

The following scriptures, though not all in their original forms, are available (or have been mentioned as references in the available treatises) on the *Sāma Veda*.

The Brāhmaṇas: (1) Tāṇḍya Brāhmaṇa, which is also called the Prauḍha or, because of its twenty-five chapters, the Pañcaviśa Brāhmaṇa. (2) Śaṁviśa Brāhmaṇa. This Brāhmaṇa is also regarded as the 26th chapter of the Tāṇḍya Brāhmaṇa; hence the name. It is also named as Adbhuta Brāhmaṇa or the Anubrāhmaṇa. This name is given because large numbers of supernatural stories are compiled here. (3) Sāma Vidhāna Brāhmaṇa. (4) Ārṣeya Brāhmaṇa. (5) Devatādhyāya Brāhmaṇa. (6) Upaniṣada Brāhmaṇa (also known as the Saṁhitopaniṣada Brāhmaṇa or the Mantra Brāhmaṇa. (7) Vamś Brāhmaṇa.

The Tāṇḍya Brāhmaṇa and the Chāndogya Upanishad together constitute the Tāṇḍya Mahābrāhmaṇa. The *Jaimini* School also includes *Kenopaniṣada* in its version of the Upanishad Brāhmaṇa. As the *Jaimini* branch is also called the Tavalkāra branch, the Kenopniṣada is also referred as the Tavalkārīya Kenopniṣada. The Sūtras: (1) Maśaka Kalpa Sūtra. (2) Kśudra Sūtra. (3) Lāt Yāyan Sūtra. (4) Gobhiliya Gṛahya Sūtra. (5) The Sūtras under the *Rāṇāyanīya* branch – namely, the Drāhyāyaṇa Śrota Sūtra, Khādir Gṛahya Sūtra and the Puśpa Sūtra.

The Sūtras of the Sāma Veda are also termed as ‘*Prātiśākhya*’ and should, as the name suggests, be studied thoroughly, in order to begin a systematic training and research on the *vedic swaras*.

The Secret of the Power of Mantras

For a substantial understanding of the effects of *mantra-japa* the knowledge of the science of sound, air and electricity is required along with that of psychology and spirituality. The importance of *Śabda* or of its manifestation in sound – is recognized in one form or the other by almost all known schools of religion in this world.

Even the sound produced by the matter has its effects of varied orders and types. That thunder bolt affects the bio-rhythms in the animals as well as the human beings – is a well accepted claim of homeopathy. The psychologists would agree that the soft sound of the flow of a river does influence the poetic and nature-loving minds in a creative fashion....; and that, the roaring sound of lions induces fear in some and stimulates the valor of a few...., etc. These are some examples of the natural impacts of sound.... Some specific effects of resonance of sound of different frequencies have also been discussed earlier. Just imagine of the synergistic conjunction of the psychological effects with those wonderful effects of sound...!

The words spoken with hatred, anger or affection would create corresponding ‘matching’ effects in the listeners; even animals respond in accordance with this fact. Because of the linkage between psychological and sonic effects, the silent words of thoughts are equally effective like the spoken words. For instance, if a person with sacred and serene mentality is sitting near someone who is engrossed in cruel or erotic thinking, the former would definitely get some kind of irritating or repulsive feeling.... The creative and destructive effects of sound in the form of music are well known. Some more examples in this regard are listed below that throw light on the interconnection of music and psychology.

While singing a devotional song, lady Levy had seen the Notre-dame Mother Mary in France. The mental absorption in singing and listening of the *Bhairav Raga* has many times resulted in visual encounter with the godly manifestation of *Bhairav*. Several other reported experiences of these kind include – depiction of different figures in the sand on some beaches in Italy when specific musical tunes were

sung or played; different figures were found to be drawn depending upon the type of the music and the moods of the singer(s) and listeners. Mrs. Bats Heinz is also known to have demonstrated such 'visible effects' of emotionally empowered music in Lord Litton's Chamber.

Telepathy, mesmerism, and hypnotism also work on the sublime linkage of the subtle and gross powers of sound with psychology. The role of air and electricity (via the electromagnetic waves) is important in spreading the sonic waves in the space. The bio-electricity and the bio-magnetism play creative role in the transmission and propagation of the subliminal counterparts of these waves beyond all barriers.

There are five forms of pronunciation or expression of thoughts – (i) Vocal, in which, one speaks out audibly; (ii) Mental, in which, the words are pronounced without lifting the tongue and the sound produced remains inside the throat...; (iii) In this form, only the respiration produces the desired words (sound); (iv) The words communicated through the deepest inner self (i.e., through the *antaḥkaraṇa*) – which, although sublime, can reach anywhere in the cosmos and vibrate the aimed nuclei of the omnipresent Supreme Consciousness...; (v) *Anāhata* – this non vibrant eternal expression of *Śabda* is indeed the form of the self-existent *Nāda* and this cannot be realized without the attainment of ultimate success in the *Nāda Yoga*.

It is amazing to note that the *ṛiṣis* had thoroughly incorporated all the scientific aspects of sound and its linkage with spirituality, psychology and the physical energies in different manifestations of *Śabda* in the development of *Mantra Vijñāna*. The scientific research into the *Mantra Vijñāna* should focus on these multifaceted dimensions and study the possibilities of making use of the *mantras* for positive effects on the radar of human body and mind while also counter-balancing the noise pollution created by the unchecked modern materialistic development.... It should again be remembered that linguistic analysis of the *mantras* as pieces of verse can not give any information except inconclusive controversies.

The essence of *Mantra Vijñāna* lies in making use the power of *Śabda Brahm* on the basis of the subtle science of consciousness and linking it with the inner purity and divine dignity of the human self. While the sound waves in general are spread in all directions via transverse motion, the specific configurations of the syllables in the *mantras* make the generated sound waves move upwards. The sound waves generated by the *Gāyatri Mantra* are found to proceed upwards in a spiral shape. The vital energy linked with the spiritual force of consciousness of the *sādhakas* exalts these waves up to the cosmic center of *Savitā*²⁷, which is defined to be the *devatā* of this great *mantra*.

When the sonic waves of this *mantra* are reflected back (reverberated) from its cosmic center, they are endowed with the light, electricity and the thermal energies ‘emitted’ from the sun and the supreme radiance of *Savitā*. This unique confluence of the gross and subliminal energies of the sun induces divine impact and inspiration and enlightens the body, mind and the inner self of the devotees. The dedicated *sāadhanā* of the *Gāyatri Mantra* thus leads to an overall elevation of life towards the higher realms of human dignity and awakens the divinity existing in the human self.

The enunciation of *mantra* brings miraculous effects only if the *vāñī* of the reciter is refined up to the level of *vāk*²⁸ – a pure, true and spiritually sublimated form of voice. The latter can be achieved by simple practices of *Śabda Yoga* provided the prerequisites of the refinement of mentality, character, deeds and emotions are maintained by the *sādhaka*. These could be attained only by consistent observance of self-control and righteous living – endowed with truth, piety, serene love and altruist compassion. This *ātma sāadhanā* empowers one’s voice with the strength of absolute truth. Words uttered by a perfect *vāk* indeed come true. It is said that the Goddess Saraswati herself ‘resides’ on the tongue of such an accomplished *sādhaka* of *Śabda Yoga*.

The correct pronunciation of the *mantra* and adept maintenance of the disciplines prescribed by a noble guide (*gurū*) are the other two important components essential for absolute success (*siddhi*) in the *mantra-sāadhanā*. The fourth and the most important factor, is the level of *śraddhā* of the disciple in the particular *mantra*.

The 'elements' of ether are highly sensitive subtle 'particles' which can vibrate at a frequency up to 34×10^9 cps. At the absolute high frequencies these oscillatory particles constantly emit a unique light. The radiation of this light can travel with a velocity of 10^7 miles per second.

The vibrations of the etheric elements never stop. They are supposed to stabilize at the outer layer of the earth's gravitational sphere and continue vibrating there at constant ultra high frequencies. They attract the weaker waves of similar frequencies and get attracted by more powerful ones of the same range of frequencies. In either case, the superimposition of such compatible vibrations gives rise to an extremely powerful field of attraction. The 'influencing power' of this force of attraction is also bestowed upon those whose 'thought waves' match with these supersonic waves.

In the advanced stages of *mantra-sādhana*, the *sādhaka* attempts to communicate with the superior spiritual experts of the corresponding *mantra* and tries to tune his own body, mind and sentiments so as to match the 'frequencies' of the impulse of his inner self with those of the divine radiation of *Śabda*. The *sādhana* processes of *anuṣṭhāna* and *puraṣcarana* fall under this category. The time periods, methods and disciplines for performing such *sādhana*s are pre-decided and are specific to the type of *mantra* and the spiritual level of the *sādhana*. Every action of the daily routine – including the type and quantity of food to be consumed per day etc – are to be strictly followed as per the disciplines of the relevant *sādhana*.

The disciplined *japa* (in purified *vāni*) of a *mantra* for long time produces enormous energy by arousing the immanent power of *Śabda*. This is amplified by the continuous impact and friction generated by the vibrations (of the *japa*) that contain the sublime energies of the will-power and faith of the *sādhaka*. The strength of such energy fields is exponentially magnified during the dedicated and determined ascetic *sādhana*s (*anuṣṭhāns*) of the same *mantra*, as compared to that due to *japa* for lesser number of times without any ascetic disciplines. The centrifugal force of attraction created by the circular, cyclic and upward movements of the associated sonic waves (produced by the *japa*) also is more significant in the former and it induces the 'potential' to link the *sādhaka's* consciousness with *thy* consciousness.

It is a well known scientific principle that continuous movement of any kind ultimately results in a circular motion. The orbit and shapes

of all the planets in the universe are almost round (or elliptical closed contours) due to this simple effect. It is by the same principle that continuous (non-stop) *japa* of a *mantra* creates a circular domain. The '*Taila Dhāravat Sutra*' describes that – 'If oil is dropped at constant speed for some time continuously, its flow forms a steady stream. Similarly, the repeated rhythmic enunciation of the same word (or a string of words) forms a continuous (without an end or boundary) segment of words'. A popular story in the *Rāmāyaṇā* also gives a simple supportive example here. It describes that *ṛṣi* Valmiki's non-stop chanting of the word *marā marā*... offered him the saintly effect of the *japa* of the name of the God — "*rāma rāma*"

The *vaidika mantras* are usually recited in specific rhythms as per the *vaidika swaras*. However, during the process of *japa*, the recitation of all the *mantras* takes place at constant amplitude without any break or pause. So regular and constant should be the speed that one can count the number of *japas* by measuring the time taken for one completion of the *japas* in one sitting. It is this consistency and continuity that gives a cyclic motion to the sonic waves generated by the *japa*, and thus helps activation and focusing of the related powers of *Śabda*.

That circular motion generates energy – can also be observed in day-to-day life; for instance, the movement of the toy 'top', or the functioning of machines by the movement of a flywheel, etc. Continuous *japa* of a *mantra* in consistent manner, for sufficiently long periods of time per day, can generate energy in and around the *sādhaka* that would keep his physical and subtle body creatively active for the rest of the day....

Fast circular motion at a regular pace generates a centrifugal force. Demonstration of this force can be seen in a circus – in the rotating swings or the circular motion of a motorbike rider in the 'well of death', etc. Similar effect helps generation of a supernormal 'sphere' of sonic energy by the cyclic *japa* of a *mantra* repeatedly while maintaining the consistency of the pace by thorough engrossment of the mind.

The Gravity of Japa

As mentioned earlier, *japa* or chanting of divine hymns has been regarded as an important spiritual practice in almost all the religions of the world. In the Indian scriptures of yore the *japa-sādhana* of *mantras* has been designated as a *yajña*. God Krishna has therefore indicated it a paramount *yajña* by stating (in the Holy *Gītā*) – ‘*Yajñanām Japa Yajñosmi*’; Meaning: Among all the *yajñas* I am (existing in) the *Japa Yajña*.

Lord Manu has mentioned (Manusmṛiti 2|87) that disregarding what other spiritual practices one performs, a true *Brāhmaṇa*²⁹ can attain supernatural powers only through a dedicated endeavors of *japa*. Mahābhārata (Ashva. 44|8) quotes that — “The *Vaidika Yajñas* performed by herbal sacrifices in the fire along with disciplined chanting of *mantras* are indeed important. However, the *Japa Yajña* alone, without any other requirements (of fire etc.) is sufficient for realizing *thy* love”.

In the later centuries as well, many saints and experts of the Indian Philosophy have expressed similar views on *japa*. The following quote by Goswami Tulasidas, though written in a simple language, conveys a lot about the significance of *japa* – ‘*Nāma Japata Mangal Disi Dasahūam, Japahi Nāmu jan Ārata Bhāri, Mitahi Kusankata Honhi Sukhāri*’. Meaning: the *japa* of the omnipresent *thy* name eliminates the evil tendencies and generates blessed happiness.

Japa is a spiritual exercise, it affects our mind and intellect by a subtle scientific procedure. Increase in inner strength, self-confidence, clarity and refinement of thoughts and sentiments etc. – are its definite effects that gradually lead to the illumination of the innermost core of the individual self. The following excerpts from religious and spiritual scriptures on Indian Philosophy further signify the great role of this apparently simple practice.

From Ling Purāṇa (8|5|124-125) – “One who sincerely performs *japa* would never face any calamity. The devil powers of *Yakṣa*, *Rākṣasa*, *Piśāca*, *Bīṣaṇa* (ghosts, witches etc.) can never reach near him. *Japa* helps uprooting the *kusamskāras*³⁰. *Japa* also excels one’s virtues and destiny”.

God Krishna preaches in the Holy *Gītā* – ‘Trayat Mahto Bhayāt’ ;
Meaning: Practising *japa* can destroy the mighty fears...

The *Manu Smṛiti* (4|146) mentions – “One who sincerely practises *japa* will never perish’. It also states that – “*Japa* cultivates divinity in the inner self”. Further (c.f. *Manu Smṛiti* 5 - 86),

Ye Pāka Yajñascatwāro Vidhiyajñanaḥ Samanvitaḥ |
Sarve Te Japa Yajñasya Kalā Nāhinti Pādraśīma ||

Meaning: The *Yajñas* like the *Darśa*, *Paurṇmāsa*, *Jyotiṣtoma*, *Rājasūya* or the rituals of *Vaiśvadeva*, *Balikarma*, *Dainika-Sādhanā* etc carry only one-sixteenth fraction of the benefits as compared to those of the *japa* of the *thou* name with true faith.

Maharṣiṇām Bhṛaguramaḥ Girāmasyekamakṣaram |
Yajñanām Japayajñosmi Sthāvarāṇām Himālayam ||
–Gītā

Meaning: Among the great *ṛṣis*, I (God Krishna) am *Bhṛagu*; among the apparent powers of *Śabda*, I am *Oamkāra*; among the *Yajñas*, I am the *Japa Yajña* and among the great mountains, I am the Himalayas.

The following *śloka* from Bhārdwāja Gāyatri Vyākhyā further emphasizes the importance of *japa*:

Samasta Saptatantubhyo Japayajña Parah Smṛataḥ |
Hinsānye Pravartante Japayajñe na Hinsayā ||
Yāvantah Karma Yajñsca Dānāni ca Tapānsica |
Te Sarve Japa Yajñasca Nāheti Śoḍaśikalām |
Japane Devatā Nityam Stūyamānā Prasīdati ||
Prasannā Vipulān Bhogān Dadhānmuktinca Śāśvatīma |
Yakia, Rākṣasa, Vaitālah Bhūtapretapiśācakaḥ ||
Japāśrayīm Dvijam Dṛaṣṭā, Dūraṇte Yānti Bhūtitaḥ |
Tasmājjapah Sadā Śreṣṭhaḥ Sarvasmatpurāya Sādhanāt |
Ityeṣam Surwathā Jñātvā Vipra Japaparo Bhavet ||

Meaning: *Japa Yajña* is superior to all *yajñas* as it does not involve any material sacrifices. Different religious acts like devotional alms,

charities, sacrifices (of luxuries) for *thy* service and observance of continence etc, are only as significant as the one-sixteenth fraction of the *japa*. All the mighty powers of the devil are scared of the *sādhaka* who, endeavors disciplined *japa* every day. *Japa* is therefore the best source of enhancing the *punyas* (good fortunes). Knowing this, a true *Brāhmaṇa* must always practise *japa* through the heart (i.e. with complete faith and sincerity).

*Māsa Śatatrayaṁ Viprah Sarvāṅkāmānvāpnuyāt /
Evaṁ Śatottaraṁ Japtvā Sahastraṁ Sarvamāpnuyāt ||*

Meaning: Enunciation of the *Gāyatrī Mantra* for about three hundred times per day performed this way – i.e., under proper discipline, faith and control of the body, mind and emotions – regularly over a period of one month, helps attain significant success. A more devoted and ascetic practice of this *japa* at a consistent rate of over eleven hundred *mantras* per day for specific periods (spanning over several months), indeed leads to the complete fulfillment of all noble desires.

*Rūddhā Prāṇamapānaṁ Ca Japonmāsaṁ Śatatrayaṁ /
Yadicchetadavāpnōti Sahastrātparamāpnuyāt ||*

Meaning: A devotional *japa* of thousand *Gāyatrī Mantras* per day continuously for a month along with proper controlling of the *Apāna Prāṇa*³¹ during the *japa* fulfils all the worthy desires of the devotee.

*Eka Pādo Japedūrdhwaṁ Bāhurūddhānila Vaśaḥ /
Māsa Śatamavāpnōti Yadicchediti Kauśikaḥ ||*

Meaning : The *japa* of hundred *Gāyatrī Mantras* per day – performed regularly for a month – under the discipline of standing on one leg alone, keeping both the arms up towards the sky and restraining³² the respiration to the maximum possible extent during this daily practice, takes the devotee to the desired noble goal.

*Evam Śatatrayā Japtwā Sahastram Sarvamāmapnuyāt /
Nimajjyāpsu Japenmāsam Śatamistamavāpnuyāt //*

Meaning : Consistent performance for a month of the *japa* of the *Gāyatri Mantra* – at a regular rate of about thirteen hundred *mantras* per day, along with a (*Haṭha Yoga*) discipline of dipping (plunging) the body inside the water – certainly results in the attainment of all the noble desires (of the *sādhaka*).

Linguistic Meaning and Types of Japa

The word *japa* in the Sanskrit language is defined as – ‘*Japa Vyaktāyām Vāci*’ and ‘*Japa Mānase Ca*’; Meaning: enunciate clearly and also say it mentally. Repeated rhythmic enunciation of a *mantra* with unperturbed mental concentration is defined as the *japa* of that *mantra*. The Agni Purāṇa explains this as below –

Jakāro Janma Vicchedaha Pakāraḥ Pāpa Nāśakaḥ |
Tasyājajapa Iti Prokto Janma Pāpa Vināśakah ||

Meaning: ‘*Ja*’ implies the transition of birth (life) and ‘*pa*’ means – calling for *thee* through the inner heart. Thus ‘*japa*’ is equivalent to be the spiritual endeavor that destroys all sins and the bonds of birth and death.

Swami Ramakrishna Paramhansa explains it more perspicuously as – “*japa* means recalling *thou* name in silence, through the mind and the inner self”. *Japa* is described by some scholars as the procedure for the realization of the Almighty and is therefore also defined as – ‘consistent illumination of the deepest inner self’.

The practice of *japa* can be performed in several ways. The different types of *japa* suitable for every one are described below in brief.

1. *Nitya Japa*: The regular practice of *japa* is as essential for the daily exercise of the subtle body as the processes of bathing and eating etc for the healthy sustenance of the physical body. The *Nitya Japa* is performed as a necessary part of the daily routine. The specific *mantra* as guided by one’s spiritual master is enunciated everyday for specified number of times, while meditating upon the *devatā* of that *mantra*. The time slot and the place for performing this daily spiritual exercise should also be regular. The sitting posture during the *japa* is also supposed to be the same every day as prescribed under the *japa*–disciplines. *Sukhāsana* with erect spinal cord is supposed to be a universally suited posture for this purpose. In the state of physical illness or during travelling..., etc, these disciplines are relaxed as per the circumstances and the *japa* is performed mentally during the specific time period every day.

The consistent practice of *Nitya Japa* gradually wanes out the evils existing in the *sādhaka* and prevents the entry of the new ones. Simultaneously, it strengthens the subtle power of the *sādhaka* at a steadily increasing pace.

2. *Naimittika Japa* : This type of *japa* is performed with the noble aim of expressing gratitude towards the – ancestors or the relatives and friends or great saints or dedicated social reformers etc – who are no more. Specific *mantras*, as quoted for this purpose in the *Vedas* and the related scriptures, are recited during the period of *Pitr̥ a Pakśa*. The type of the *mantra* and the methods (disciplines) for its *japa* depend upon the type and the emotional level of the gratitude. The effect of this *japa* offers peace to the concerned departed soul(s). The *Naimittika Japa* is also performed to offer prayers with a feeling of gratitude to *thy* power on some auspicious days/time periods like *Amāvasyā*, *Pūrṇimā*, *Ekādaśi*, *Śivarātri*, *Navarātra* etc.

3. *Kāmya Japa*: The *japa* performed for some special purpose – such as attainment of a noble worldly or spiritual goal – fall under this category. The period and disciplines for this *japa* depend upon the nature and spiritual level of the *sādhaka* and the purpose of his endeavor. Because of their materialistic attachments, some people often find it attractive to perform such *japas* for mere worldly achievements; they, however, should note that – the true benefit of *japa* comes in the form of sacred improvement in one's own qualities and attitude towards the altruist goals of global welfare. This *japa* educes divine inspirations in the *sādhaka* which 'guide' the path towards spiritual evolution.

4. *Niṣiddha Japa*: As mentioned earlier, in every kind of *japa*, like in any other spiritual practice (*sāadhanā*), the observance of certain disciplines is a must. The success of the *japa sāadhanā* remains doubtful without proper disciplines and faith.

A common set of necessary disciplines to be observed during the period of the *sāadhanā* includes – purity of the body, mind and character; self control over temper (mood) and worldly desires; avoidance of erotic excitations; maintenance of restricted and austere diet or fasting and observance of couple of other *Yama–Niyama*, like,

nonviolence, honesty, self-reliance in routine activities, sincere participation in some activity of service and help for the true welfare of the society as a whole.

Above all, devotion and faith in the *mantra*, in the *gurū* – who has inspired and initiated (via *dikṣā*) the *sādhaka* towards the *japa-sāadhanā*, and in the omnipresent *thy* power, *thy* generosity and disciplines are also integral parts of an adept *japa-sāadhanā*. The feeling of oneness with the divine source and power (*devatā*) of the *mantra* during the *japa*, ensures the success of such a *sāadhanā*.

Any kind of *japa-sāadhanā*, performed without the observance of the essential disciplines, is regarded improper and is therefore called a *Niṣiddha* (prohibited) *Japa*.

5. *Prāyaścita Japa*: According to the Indian philosophy – “Life is an eternal and continuous process. The soul has to transit through different forms of life depending upon the accumulated effects of the *karma* in the previous births....”. The assimilated mental instincts of the previous lives and the inherent effects of the actions conducted in those lives may continue to show their presence as different kinds of *samskāras* (intrinsic tendencies) in one’s present life too. The *kusamskāras* might trigger one to commit some inhumane acts/sins. Even the unconscious thinking and sensual desires of the human body in the present life could also contribute in this direction. The elimination of such inherent and acquired *kusamskāras* and sins is a must towards the refinement and true progress of one’s materialistic as well as spiritual life as a human being.

The Indian science of spirituality gives significant importance to the *sāadhanās* prescribed to meet the above objective. The *Prāyaścita Japa* belongs to this class of *sāadhanās*. Here, *Japas* of specific *mantras* under different kinds of disciplines are advised (by the *Gurū*) depending upon the type of sins or evil or amoral deeds for which the *prāyaścita* (penance, atonement) is sought for and upon the spiritual level of the *sādhaka*.

6. *Acala Japa*: In this kind of *japa* the determination of the *sādhaka* is of predominant importance. One begins this *japa* with a pledge like

– he will not change the posture (sitting or standing) until a fixed, sufficiently large, number of *japas* of the specified *mantra* are completed..... The resolution is followed consistently every day for a long period of time till that becomes a habit. These types of *japas* substantially enhance the willpower, courage and mental stability of the *sādhakas*.

7. *Cala Japa*: This name corresponds to the *japa* (of a specified *mantra*) that could be performed anywhere at any time as per the suitability of the *sādhaka*. This *japa* should be performed every time whenever the mind is free or not occupied in any scrupulous work..... This *japa* helps prevent the diversion of mind towards unnecessary thoughts and controls its fickle nature and thereby sharpens the *sādhaka*'s mental concentration. As the mind is naturally engaged in recalling *thy* name during the *japa* of any *mantra*, it is automatically trained and tuned to receive the sacred *thought waves*..... This type of *japa* is the easiest and should be practiced by each one of us.

8. *Vācika Japa*: In this kind of *japa*, the *mantras* are recited in such a manner that they could be easily audible to the other people in closed vicinity. Lord Manu has described this *japa* as ten times more effective than the *vidhi yajña*. This is a simple and elementary kind of *japa*. This *japa* is often advised for the beginners because, it is easier for them to concentrate the mind while they utter the given *mantra* loudly....

The *Vācika Japa* is also performed – under certain disciplines of rhythmic enunciation, consistency of amplitude and pitch etc – as an exercise in some *Śabda Yogas* to train the *vāṇī* (voice and its subtler reflections) for specific purposes. It is also endeavored to awaken the *varṇa bīja* (the latent power of consciousness) in the *ṣaṭ cakras*.

9. *Upāṇśu Japa*: According to the descriptions in *Manu Smṛati* (2|85), this type of *japa* is the one in which the enunciation of the *mantras* is carried out in such a way that the movements of the lips of the *sādhaka* may be seen but his voice would not be audible. Lord Manu has cited the importance of this *japa* to be hundred times greater than the *vidhi yajña*. The *sāadhanā* (disciplined practice with faith and serenity) of the *upāṇśu japa* makes one introvert and helps in the realization of the subtle body.

10. *Bhramar Japa*: The specialty of this *japa* is that the selected *mantra* is enunciated by humming in the style of a *bhramar* (large humming bee)..... The lips and ears are kept closed, even the tongue need not move. This *japa* is performed only with the help of the *prāṇa vāyu* inhaled by breathing.

The above kind of *japa* is an important part of the initial practices of the *Nāda Yoga*. This *japa* also helps attain *yogika tandrā* (a state of trance) and a gentle activation of the *ṣaṭ cakras*. In the successful state of this *japa-sādhana*, the *sādhaka* can see (feel) the presence of a unique divine light inside the body. Trenchant rise in his intelligence and the power of prudent discretion....., etc, are mere offshoots of this success.

11. *Mānasika Japa*: This *japa* is performed silently only in the mind. The syllables of the selected *mantra* are mentally visualized and along with this mental recitation, the mind is focused upon the meaning of that *mantra*. The importance of this type of *japa sādhana* is quoted significantly in the *Manu Smṛati* (2|86), *Viṣṇu Purāṇa* (9|56), *Vṛada Pārāśara* (4|57). The effect of this *japa* is described as thousands times more powerful than that of the *vidhi yajña*.

According to a noted scholar, Pt. Dinanath Shastri, the voice (namely, the *Baikhari Vāṇī*,) used in speech has a limited power as compared to that of its successively subtler forms – the *Madhyamā*, *Paśyanti* and *Parā Vāṇīs*. As the *Mānasika Japa* involves use of the subtle *vāṇī*, it is significantly more effective than the *Vācika Japa*.

As per the ancient quote – ‘*Mantri Gupta Bhāṣaṇ*’, the sublime power of a *mantra* can be activated by the *mānasika japa*. The *sādhana* of this *japa* helps the activation and proper utilization of the *bioelectrical* field inside the body of the *sādhaka*. This *japa* also affects the *etheric vibrations* with the help of the latent power of *Śabda* indwelling in the *mantra*.

12. *Akhaṇḍa Japa*: Although the word-meaning here suggests some kind of *non-stop japa*, but, practically it implies that – apart from spending time on the daily routines essential for the healthy maintenance of the physical body, the *sādhaka*'s mind should always be

engaged within the domain of *mantra-japa*. This means that the mind should be consistently engrossed in either of the following: (i) mental or vocal enunciation of the specified *mantra*; (ii) practising meditation (upon the *aim* of the *mantra*); (iii) deeper introvert pondering for self-analysis; or, (iv) *swādhyāya* – study of spiritual or other inspiring literature pertaining to the refinement and realization of the individual self and altruist service of the world, etc.

The word ‘*Akhaṇḍ*’ (meaning, without pause or break....) is used here to represent the continuous controlling of the mind. Simple guidelines for this type of *japa* are given by the *ṛṣis* in the following *Ślokā*:

Japācchāntaḥ Punardhyāyēd Dhyānācchāntaḥ Punarjapet |
Japādhyān Upariśrānta Ātmānam Ca Vicārayet ||

Meaning: If one (the *sādhaka*) is tired of the *japa*, he should begin meditation....; if tired of meditation then *japa* should be re-started...; when tired of both, one should begin self-analysis or *swādhyāya*.

Sincere practice of the *Akhanūa Japa* has been defined as a kind of *tapa*³³ whose success leads to great spiritual accomplishments.

13. *Ajapā Japa*: With normal respiration rate we breathe (in and out) about 21600 times per 24 hrs. While inhaling, it sounds like ‘*Soa*’ and makes a natural sound of ‘*Ham*’ upon exhaling. This way the *Hamṣa Mantra* – ‘*Soham*’ is always being ‘practised’ by us in a natural way with our each breathing cycle..... This cyclic ‘*japa*’ with due concentration and feeling of exhaling the ego and vices with the sound of “*So*” and inhaling and absorbing *thy Śabda* with the sound of “*Ham*” — is termed as the *ajapā japa* of the *Gāyatrī Mantra* or the *Atma Mantra*.

The practice of meditation to realize the flows of the vital energy along with each *ajapā japa* is defined as a prominent *sāadhanā* of the *Prāṇ Yajña*. The holy *Gītā* also affirms it as – *Prāṇāni Prāṇepu Juvhati*. Swami Sridhar has defined the *prāṇa yajña* as the spiritual process of *ajapā japa*. The scriptures of the Nath Cult and the Buddhist literature on the spiritual practice named *Ānā-Pānasati* mention a great deal on this important *sāadhanā* – the *ajapā japa*.

The *Hamsa Mantra* is described in the *Hamsopaniṣada* (5) as –

*Sarveṣu Deveṣu Vyāpta Vartate
Yathā Hyagniḥ Kāṣṭheṣu Tileṣu Tailamiva /
Ta Divitwā Namṛtyumeti ||*

Meaning: The *Jīva*³⁴ constantly but subliminally ‘chants’ the *ajapā japa* in all the living forms. This process is as natural as the inherent existence of fire in the wood or that of oil in the sesame seed. One who attains the true knowledge of this *japa* can gain control over death.

14. *Pradakṣiṇā Japa*: The enunciation or chanting of a *mantra* while consistently moving along the circular boundary/ path around *jyotirling*, temples or around any of the sacred trees like the *Baḍa* (Banyan), *Audumber* or *Pipala* – is termed as a *pradakṣiṇā japa*.

The process of *pradakṣiṇā* (encircling) symbolizes the eternal cycle of the *Brahm* (reflected in the cycle of life and death.....). If performed with faith and sincere sentiments engrossed in the divine thoughts of the *Brahm*, this simple process of *japa* offers remarkable benefits at the spiritual level.

Practices & Effects Associated with Japa

Engrossment of mind in the meaning, implication, or the divine feeling associated with a *mantra* – is essential for adept practising of any kind of *japa*. This, not only trains the mind for sharp concentration and deeper meditation, but also helps its purification via removal of the assimilated *kusamskāras* – pertaining to the evil instincts of jealous, lust, anger, arrogance and insidious addictions etc. Once the mind is cleaned the intrinsic afflatus and effects begin to mark their impressions on it.... This subsequently results in the cultivation of virtuous mental abilities and creative talents together with distinct moral elevation. *Japa* is described in almost all religions as the best exercise for the preliminary training and enlightenment of mind.

By repeated and continuous movements, even a rope, used for fetching water from a well, can leave its mark on the stones around the wall of the well. Domestic animals, even if let free, return back to their masters just because of habit.... The animals of the circus companies become master performers by rigorous training and repeated practice. Be that a wrestler, a good student or a dedicated scientist...., each one gains success only after a scrupulous effort and sincere practice..... Continuous collection of small drops can fill the whole tank... These and similar well known examples signify the necessity as well as the sufficiency of regular practice for the achievement of perfection in any training.... The same holds true for the conditioning and refinement of mind by the *sāadhanā* of *japa*. The disciplined endeavor of *japa* is therefore also termed as a *yajña*. Meditation (*dhyāna*) and *japa* are mutually complementary and essentially co-existing in every kind of *mantra-sāadhanā*.

The Significance of Śabda Sāadhanā:

Japa is regarded as a prominent spiritual endeavor towards the realization of the subtle power of *Śabda*. The ancient scriptures indicate this fact as –

*Vāgeva Viśvā Bhuvanāni Jajñe Vāca,
Itsarvamamṛataṁ Yacca Martyaṁ |
Śabdeṣvevāpitā Śaktirriswāsyāsyā Nibandhanau ||*

As *Śabda* is attributed to be the eternal source, the root cause, of the creation of the cosmos, any attempt for the realization of the subliminal dimensions ‘beyond’ the universe would be futile without making a perfect use of the omnipotent power of *Śabda*. Accomplishing the *śabda-sāadhanā* or the *japa-yoga* is said to take the *sādhaka*’s mind in a state beyond the periphery of ‘time and space’, in the higher dimensions of *Śabda*.... The scriptures on the science of this *śabda-sāadhanā* (*mantra-sāadhanā*) have described four kinds of *Vāṇīs*³⁵, namely, *Baikharī*, *Madhyamā*, *Paśyanti* and *Parā*.

The *baikharī vāṇī* refers to our usual voice (used for conversation, oration etc); the other three are its successive subtler forms. *Madhyamā* is identified as the silent voice of thoughts and intuition and is a medium for gradually traversing from the level of the *baikharī* to *paśyanti* by dedicated *śabda sāadhanā*. The *paśyanti vāṇī* is the ‘voice’ of inner sentiments, inspirations and intrinsic messages. The *yogis* describe the functional domain of *madhyamā* as expanding from the *sahasrāra cakra* to the *hṛdaya cakra*³⁶. Realization and perfection over the use of *madhyamā* evolves the individual self from the state of animal instincts to the state of divine instincts. It leads to the liberation of mind from selfish, materialistic attachments, and helps further evolution of the *vāṇī* as the voice of the “self beyond the gross being”. This is the state of realization and expression of *paśyanti* and eventually of the *parā*. The *parā vāṇī* (or *vāk*) is the absolute expression of *Śabda* in the cosmic consciousness.

The Shastras cite –

Śabda Brahmāṇi Niṣṇātaḥ Parbrahmādhigacchati /

Meaning: Knowledge of the *Śabda Brahm* is indeed the realization of the *parabrahm* – the omnipresent, eternal supreme consciousness.

(Noting that the *japa sāadhanā* is an integral part of the *śabda-sāadhanā*, its importance becomes all the more significant.)

A regular and sincere practice of *japa* results in gradual decrease in the mental instability, illusions, mental infirmities and ill tendencies –

including erotic thinking, jealous, fear, ego, avarice, etc. The positive effects of *japa* are also accompanied by a simultaneous increase in the trenchancy of mind, piety of thoughts and sentiments that are manifested in the virtues of honesty, modesty, illustriousness, farsightedness, fairness, peace and love etc.

In the higher stages of *sāadhanā*, the effects of *japa* generate spiritual power in the *sādhaka* (devotee). The ancient scripture on *yoga darśana* (c.f. sections 4|1, 1|14, 1|28-29 for instance) state that – ‘The properly disciplined and devoted *japa sāadhanā* can take the *sādhaka* into a state of deep trance. It eliminates the obstacles from the path of spiritual elevation of the *sādhaka* and illuminates his inner self by the divine radiance. The *sādhaka* eventually enjoys the beatified bliss that can never be attained even by the mightiest, wealthiest and the happiest (in worldly sense) person in the world. The noted saint, exceptionally brilliant scholar and social reformer, Swami Ramtirtha, upon reaching this stage, used to describe it as – “This has made me a Ram Badshah (i.e. the happy and mighty ‘king’ of the world)”....

The spiritual practice of *japa* can be attempted by anybody, anywhere.... Patience, faith (without any fear or selfish interest) and the sincerity and purity of mind are the only preconditions. In fact, the level of these qualities also begins to improve if the *japa sāadhanā* is being performed under adept disciplines.

Modern scientific experiments have confirmed that the *japa* regulates the reciter’s respiration in a way similar to that offered by some of the exercises of *prāṇāyāms*. It reduces the breathing rate to half its normal average. That means, on an average, one hour’s disciplined practice of the *japa yoga* would augment the life of the *sādhaka* by about five hundred breaths at least! *Japa* therefore could also be advised as an important health-exercise.

As mentioned earlier, the effects of *japa* awaken one’s inherent virtues that naturally result in an overall improvement in his personality, and amelioration of his physical and mental potentials. These positive effects can be used for noble success in terms of worldly progress as well. It is the willpower and the vision, aroused by the *japa* that ‘transform’ the difficult circumstances and obstacles into minor ones in a miraculous manner.

Some Scientific Points:

The subtle (mental) body likewise the gross (physical) body of every human being consists of a complex network of interconnected extra-sensory ‘nerves’. The vibrations produced during a *japa* are not so significant in the gross body as that in the subtle body. Its ‘latent nerves’ do vibrate in complete harmony with the sonic pattern of the *mantra*. These subtle vibrations stimulate the specific nodes of the extrasensory operations. The activation of these nodes (sublime centers of inner consciousness) is indeed responsible for emergence of astonishing inner strength and supernatural faculties of the *sādhaka*.

The gradual and controlled arousal of the subtle nuclei of *prāṇa*³⁷ elevates the *sādhaka*’s individual self into higher spiritual realms endowed with divine virtues. It is said that the people of Vedika Age in India were ardent ascetic *sādhakas* of such noble caliber that each one of them was a living expression of divine powers — whence the mention of 33 crores manifestations of God in the Shastrika Literature.

Essential Disciplines for Japa Sāadhanā:

The aforesaid supernormal benefits of *japa* are attainable only if the *japa* is performed as a spiritual *sāadhanā* – with absolute faith, sincerity and piety (of thoughts, sentiments and conduct) under unperturbed observance of the prescribed disciplines.

Some common disciplines essential for every kind of *japa sāadhanā* are – the cleanliness of the body and mind of the *sādhaka* and that of the place and its surroundings where the *japa* is performed. The calm and stable state of the *sādhaka*’s mind is a natural requirement for meditation during *japa*. The following guidelines are usually prescribed to meet these pre-requisites. *Japa* should be performed in a neat and tidy condition of the body, after having bath, wearing clean cloths etc. The clothing should also be such that the body would be free and relaxed while sitting in the posture of *sukhāsana*³⁸, which is supposed to be the most soothing sitting posture for *japa*. Wearing shoes or use of leather is also prohibited during all *japa sāadhanas*. The *sādhaka* should sit on a clean cloth sheet or *kuśāsana* spread over the floor in a silent corner of the house or any suitable place outside, which is neat and peaceful.

While performing a *japa*, the *sādhaka* should let his mind free from every kind of negative thinking, anger, jealous, excitement, etc. The *sādhaka* should face the East in the morning, North in the noon and the West in the evening and should feel the presence of the divine illumination in the corresponding direction. According to the scripture entitled “Tantra Sāra”, the purity and engrossment of the mind and continence over the body-functions — is a must for a sincere practice of *japa*. The Kulāṇava Tantra adds that the *sādhaka* should eat self-earned austere vegetarian (*sātvika*) food.

The speed of *japa* should be normal and set at one’s natural frequency of speech. It should not be too slow so as to cause dullness, neither too fast that would cease the clarity of pronunciation. The *Śāstras* also mention that grasping control over the bodily actions, vital energy and mental agility and strengthening the *śraddhā* and *viśvāsa* in the presence of *Śiva* and *Śakti*³⁹ is necessary for the attainment of ultimate success (*siddhi*) in a *japa-sāadhanā*.

Pictures and idols of the manifestation of God in whom the *sādhaka* has affectionate faith, or, posters/ photographs of some saints and great personalities often provide inspiring company at such places. Performance of some rituals of worship, presence of fresh flowers and plants in the surroundings add to the purity and serene beauty of this atmosphere. With gradual progress in the *sāadhanā*, the refinement of the sublime domains of consciousness in and around the *sādhaka* also becomes more important. In order to maintain the sacred ambience, only the people of high moral character and piety of mind should be allowed to visit the place of *sāadhanā*.

According to the Ling Purāṇa (85|106-8) the *japa* performed in the house gives average benefit, that performed on a bank of a river is over one lakh times more effective and this positive impact is further enhanced if the *japa* is performed at a spiritually energized temple or *āśrama* of a saint, at a mountain of the holy Himalayas or in front of – a cow, the divine *Dhruva Tārā* (the pole star), rising Sun, fire of a *havan kuṇḍa*, or a *dīpaka* (a lamp of refined ghee). The effect of *japa* is maximized if it is performed with an awakened feeling of *thou*-presence in the *sādhaka*’s own inner self.

All the disciplines essential for a *japa* are nicely explained by a sage of yore in the following quote:

*Nāma Hī Japa Śūnya Mana Dharai,
Pāncō Indriya Vaśa Karai |
Brahmā Agni main Homai Kāyā,
Tā Kain ViŚṇu Pakhārain Pānyā ||.*

As mentioned earlier, *japa* is incomplete without meditation. The *sādhaka* should meditate upon the meaning, implications and the *devatā* of the *mantra* which is being enunciated; the intensity of this mental engrossment should increase to the extent of ‘feeling of unification with the divine radiance and the power hidden in the (soul) of the *mantra*. The scripture named *Yoga Darshan* (1|18), describes that a *japa* performed with immense faith and deep mental concentration effectuates the experience of trance and endows the *sādhaka* with beatified bliss.

Experiments on Mantra: Interaction of Sound with Thermal Energy

Maharshi Aurbindo has stated that – the human intellect has, no doubt, achieved a lot by deciphering, through scientific developments, the secrets of Nature at certain cosmic as well as atomic and micro levels. However, the greater part – that, dealing with the consciousness, still remains to be seen. We shall focus here on some such aspects in the context of *mantra sādhanā*.

Vāṇī – voice, including the speech of the thoughts and the emotions – happens to be most significant among all the apparent or latent potentials of consciousness bestowed upon the human beings. This divine bequest has been at the root of making the communication and expansion of knowledge and information possible in real terms. It would be frightening to imagine the status of the human society without this wonderful gift of *vāṇī*. Apart from its obvious role at the social and educational levels, the *vāṇī* – being a tool for manifestation of *śabda* – also plays a crucial role in spiritual developments. As mentioned earlier, the *mantra-sādhanā* triggers an ‘explosion’ of the power of *śabda* via the medium of refined *vāṇī*.

It is well known that we are able to pronounce uncountable variety of phonemes and syllables with enormous flexibility of pitch and amplitude because of the simultaneous movements and associative functioning of the lips, teeth, throat and the vocal cord along with the tongue. If it were only a single component, say the tongue alone that produced ‘voice’ then the human beings would have been able to utter only a limited number of phonemes (sounds) like most animals and birds too. The simultaneous movement of several interconnected components of the vocal system also creates vibrations in the linkages of the latter with the nervous system and the brain and thus makes the human voice so special. These vibrations (generated by the flow of our *vāṇī*), because of their connections with the brain, also induce micro-subtler effects on many many intra-body functions as well.

As mentioned earlier, the combination of specific syllables and vowels in the *mantras* is so designed that the *japa* of a particular *mantra*

would have definite effects on some specific functional centers and domains of the hidden source of life. The latter include – the *ṣaṭ cakras*, the three extrasensory ‘knots’ (*granthis*), the three *nāḍīs* (the latent energy currents/canals along the endocrine column), *daś prāṇas* (ten streams of *prāṇa*), 72000 nerves and muscles and the 54 *upatyikās* endowed in a living human-body.

The dreaded dangers of noise pollution on the one hand and the amazing applications of the ultra and infra sound on the other, illustrate that – the syllables and words spoken or heard are much more than mere carriers of information. That, music is more powerful as a means for creativity, sentimental thrust, medical therapy, improvement in agricultural production and psychosomatic health than as a tool for entertainment – is also well recognized by the world. Music has now become an important part of school education in the high-tech countries like Japan in order to help create the feelings of compassion, co-operation and discipline among the children.

It is a scientifically established fact that sound is a source as well as a form of energy. It is found that even the ordinary audible sound, if repeated continuously at a constant frequency and amplitude can produce so much thermal energy as would be produced by the boiling water. The principles and methods of *Mantra Vijñāna* are aimed at sublimation of sound to its original expression – *Śabda*, and constructive orientation of the enormous energy generated by such explosions. The different practices of *japa* and *homa* (i.e. a *havan* or *yajña*) associated with the *mantras* are devised according to the *mantra vijñāna*. While the role of sonic and (bio)electrical energy is evident in the *japa* processes, that of the thermal energy is more evident in the *yajña* based practices.

The different types and steps of *japa* have been discussed earlier. Before looking into the meaning of *yajña* and its relation with the *mantra vijñāna*, it should be further emphasized that apart from the generation and use of the physical forms of energy, the most significant and unique field of the science of *mantras* deals with the sublime force of consciousness and the associated realms of supernatural energy. The role of inner faith and emotional and sentimental depth, together with mental concentration is therefore given more importance in the

practices of *mantra vijñāna* and several ‘rituals’ are advised towards necessary training exercises before practicing a *mantra*.

At the gross level, the sonic waves of a *mantra* generate specific currents of energy by vibrating even the tiniest particle in and around the *sādhaka*. At the subtle level, via the spiritual power of *śraddhā* of the *sādhaka* in the *mantra*, it gives rise to a ‘conscious force’ that educes a sublime ‘magnetic’ attraction.... Thus the *sāadhanā* of a *mantra japa* generates two types of energy spheres. These spheres of energy are termed respectively as the sonic sphere (*dhwani vṛatta*) and the emotional sphere (*bhāva vṛatta*). If performed with a steadily intensifying *śraddhā*, the expansion, and strength (the power of attraction) of these energy fields gains cosmic dimensions by long-term regular repetition of the *mantra* under prescribed spiritual disciplines. The *Sudarśana Cakra* depicted in a hand of God Vishnu indicates the eternal power of these ever-active energy- spheres of the gross and the subtle energies of *Śabda*.

Absolute salvation of the soul (*mokṣa*) – is referred as the ultimate goal of many spiritual experiments. Considering that omnipresent eternal ocean of consciousness is an infinite dimensional ensemble of the perpetual currents of the waves of *Śabda*, it should be understood that the subliminal (conscious) energy sphere (*aura*) spun by a *mantra sāadhanā* is a kind of orbit. Continuous engrossed movement in this orbit could drive the mind and the inner self freely across the unbounded ocean of *śabda* by eliminating (via counter flows) the thralldom of the other fields of attraction – e.g. those of worldly cravings, ego and related passions, etc....). This liberation of mind is a real *mokṣa* for a human being.

Agnihotra and Japa:

Performing some kind of *agnihotra* or a *yajña* is essential before commencing and after completing the determined spiritual experiments of *anuṣṭhāna* with *mantra japa*. In some *mantra sāadhanās* this needs to be performed every day along with the regular *japa* processing.

Agnihotra or *yajña* is a simple process of sacrificing selected dry herbs in the fire kindled in a specifically designed small inverted pyra-

mid shaped pot (or pit) called *havan kuṇḍa*. The material used in *agnihotra* – including the dry herbs/ woods – is also purified by *mantra japas* and some *sāadhanās*. The naturally broken dry woods from only a selected varieties of trees are allowed to be used. The valid types of medicinal herbs also are the ones that nourish and induce good health and do not cause any kind of insidious effects like poisonous vapors or polluting smokes. The material to be used in an *agnihotra* should be collected by the *sādhaka* from the places which are already purified by continuous performances of sacred *sāadhanās* or *yajñas* and *mantra anuṣṭhānas*.....

The electrified particles of the herbal-material sublimated in the *yajña*-fire, because of the special design of the *havan kuṇḍa* move upward in a spiral manner at an ultra fast rate. The *mantra*- chanting performed along with a *yajña* intensifies the thermal and electromagnetic effects of the latter to further energize the sonic vibrations of the *mantra* and expand them at cosmic levels. The effects of the *mantra-japa* thus get compounded magnificently and offer manifold benefits to vast domain.

The thermal energy generated by the *yajña*-fire and the collisions of sonic waves with the thin screen of its flames help exponential amplification of the power of *śabda* in the *mantra* being chanted. The spiral waves of electrons in the *yajña-vapor* play the role of transmitters to ‘communicate’ the ‘signals of the *mantra*’ in the etheric whole. The positive effects of the *mantra-japa* that could otherwise be received in a limited space surrounding the *sādhaka* are thus magnified and spread in significantly large domains — even of cosmic dimensions in specific cases, if the *japa* is also accompanied by a *yajña*.

If such experiments of *mantra sāadhanās* with *yajñas* are performed under adept disciplines, the unique confluence of the thermal and sonic energies linked with the eternal flow of consciousness in the etheric medium — would offer global benefits at physical as well as spiritual levels. Such boons would range from purification of atmosphere, harmonizing the ecological balances, improvement in the physical and mental health of the masses.... to the spiritual enlightenment of all beings.

Possibilities of Scientific Research:

The use of fire and thermal energy in general has been advancing ever since the beginning of civilization. Scientific and technological advancement of the 20th century has also offered tremendous applications of sound. Scientific experiments on the conjunction of these energies – based on the principles of *mantra-japa* and *yajña anuśthāna* – should also be carried out in order to investigate the possibilities of viable global benefits keeping in total harmony with multiple realms of life and Nature. Controlled experiments could be designed in this regard to perform large scale *yajñas* with consistent collective chanting of the selected *vaidika mantras* and test the changes, if any, in the *ionosphere*⁴⁰ thereby.

Comprehensive research in the science of *mantra* and *yajña* would demand an in-depth study of – (i) the physical (including chemical and biological) and subtle powers of sound and heat; (ii) the power of attraction and the gross structure as well as subliminal domain of the cosmic centers associated with the *devatās* of different *mantras*. For instance, the manifold physical and subtle power-currents of the sun and the orgulous effects of meditation on its subtle body (*śavitā*) should be researched in the context of the *Gāyatrī-Yajñas*.....; (iii) fundamental principles of transformation of matter and energy; and (iv) human psychology and the deeper science of inner emotions and sentiments.

While the physical powers of sound and heat have been recognized and used by the modern science at a very advanced level, a lot remains to be deciphered on their sublime fronts. The studies of the cosmic nuclei of *mantras* and those of the sentimental powers would also demand detailed study of the *vaidika* scriptures, before one investigates the scientific methods for experimental investigations and applications of *mantra japa* and *yajña*. Some related excerpts from the ancient scriptures are presented below with relevant commentaries.

The *Yajurveda* (23-42) mentions ‘*Brahm Sūrya Sama Jyotiḥ*’. Meaning: The sun is a manifestation of an element of the *Brahm*. It is the internal and external power of the sun, which is the source for the expression and growth of life on the earth. Be that the thermal (external) or the vital (internal) energy of the Sun – it is certain that

these energy spheres are vibrated by the specific thermal and sonic energy waves generated by the combined effects of different *yajñas* and *mantras*.

The net effect of these vibrations augments the vital elements necessary for maintaining creative synergy between various components of Nature... This is why Nature appears to be exceptionally kind and friendly in the regions where *yajñas* (with *mantra anuṣṭhānas*) are performed regularly for substantially long periods of time. Ecological balance, strengthening of the ionosphere, increase in the quality and quantity of the agricultural products....., etc are obvious offshoots of the positive effects of *yajñas*.

The sublime stream of the energy of the *mantras* is far more magnificent and wonderful. This, if accompanied by the subtle elements of *yajñas*, can expand in the limitless cosmic ‘hole’ and attract the subliminal currents of the corresponding streams of the omnipresent powers of the Supreme Consciousness. This is how the attainment of the desired/resolved noble goals becomes feasible by performing the *mantra anuṣṭhāna* with *yajñas*.

The feasibility of the aforesaid astonishing effects could be better understood if we realize that — sentiments and emotions, being manifestations of *Śabda* also exist as some kinds of ‘super-ultra’ or ‘micro-infra’ sonic waves, i.e., the waves that are finer and subliminal expressions of *Śabda* as compared to the ultra and infra sound waves. Whatever we think deeply or feel intrinsically is indeed an expression in the ‘voice’ of our inner mind.... The *mantras* and *yajñas* are like scientific devices and procedures used to transmit and receive such sound waves at different horizons of the reflections of *Śabda* and *Nāda*.

Power of Mantras: The Divine Source

A *Śruti*⁴¹ states the following –
Devī Vācamajanayanta Devāstām,
Viśvarūpāḥ Pāśavo Vadanti |
Sā No Mandreṣṣamūrgam Duhānā,
Dhenurvāgasmānupasuśtuvaitya ||

Meaning: The *parā vāṇī* (*vāk*) is the Goddess of the universe. It is the mother of all divine powers. All Gods (divine powers) are immanent in the subtle body of the *mantras*. The knowledge of *vāk* encompasses all the sciences. The *vāk* is the true *Kāmadhenu*⁴². Whatever we speak, think, know or feel is possible because of the presence of *vāk* in the inner self; our life exists because of this eternal boon of *thee*.

Spiritual refinement and evolution of *vāṇī* to the level of *parā vāk* is as essential for the live expression of divinity in our inner self as the requirement of healthy food and physical exercises for our survival or that of books and practical training for education. It is the higher level of *parā vāk* that enables the righteous development of the individual self along the path of greatness and divinity....

Śruti also mentions that –
Pākkā Naḥ Saraswaṭi Vājabhira,
ājīnīvatī, Dhonāmāvitryavatu |

Meaning: The *vāka* purified by *tapa* offers piety and trenchancy of thoughts together with creative talents and discerning intellect.

Mantra sādhanā is indeed a *tapa* in which although the *baikhari vāṇī* (our usual voice) is used initially for the *japa* and *madhyamā vāṇī* for meditation. Disciplined endeavor of this *sādhanā* with the great support of *śraddhā* helps gradual arousal and sublime transmutation of *parā* and *paśyanti vāṇī*. The four faces in the idols of Lord Brahma symbolize the four levels of *vāṇī* – namely, the *baikhari*, *madhyamā*, *paśyanti* and *parā*. The allegoric stories in the *purāṇās* mention of the maintenance of the universe by God Brahma's continuous movements upward and downward along the lotus-cord ema-

nated from the ‘navel’ of God Vishnu. This rhetoric description signifies the eternal cosmic impact of the repeated cycling of *mantra japa* in the four *vāṇis*.....

The concentrated powers – of the *baikharī vāṇī* and the *madhyamā vāṇī* – strengthened by the *mantra japa* gradually energize the subtle centers of consciousness and the latter begin to function like the ‘conducting wires’ for the supply of the electrified currents of *prāṇa*....’. This activation eventually links the power of *parā* and *paśyanti vāṇis* with the former two.

When we practise the *japa* of the great *Gāyatrī Mantra* it is usually our *baikharī vāṇī* alone that enunciates the *mantra*. The *japa* therefore may not be as effective for most of us as it is described to be.... Maharṣi *Viśvamitra* had realized this *mantra* by the *param tapa*⁴³ of his *vāk* and was then endowed with all the supernatural powers – including that of creating another universe, which are described to be attainable by the *siddhi* of this great *mantra*.

Dedicated endeavor for the refinement of *vāṇī* is an essential part of initiating a *mantra-sāadhanā*. A sincerely performed *tapa* of *vāṇī* gradually leads to the activation of its successive sublimated forms (from *baikharī*.... to..... *paśyanti*....). The science of *mantras* revolves around the dual aim of the inter-linked *vāk sāadhanā* and *mantra sāadhanā*.

Parā Vāk enables realization of the eternal existence of *Śabda Brahm* and attraction of the desired streams of its unlimited powers. The attainment of success in the *mantra* (and *vāk*)-*sāadhanā* naturally enshowers the boons of *riddhis* - *siddhis* on the deserving *sādhakas*.

The realization of *Śabda Brahm* in the deep inner self is the true state of meeting *thou* and receiving *thy* blessings and boons, or equivalently, it is the state of ultimate beatified bliss and *nirvāṇa*.

Ākāśa – the subtlest of the five basic elements of nature is supposed to be created by *Śabda* and is therefore omnipresent and also regarded as the source for creation of the other four basic elements. These elements (namely, *vāyu*, *agni*, *jala* and *prathvī*) are easily

perceivable by *vāk*. Thus, all the sensory faculties (*tanmātrās*) of vision (*rūpa*), taste (*rasa*), smell (*gandha*) and touch (*sparsa*) etc, as well as the extrasensory functions can be performed by *vāk*.

In terms of spiritual interpretations, *agni* is manifested in the *Bhū Loka* – the physical, material world; *vāyu* in the *Bhuvḥ Loka* – the entire domain of vital energy and creativity; and *varūṇa* – the source of *jala* in the *Swah Loka* – the gamut of sentiments. When the dissipation of the (sound) energy of the *baikhari vāṇī* in unnecessary conversations and excitations is restrained and this *vāṇī* is adeptly controlled, refined and ‘energized’ by regular *mantra-japa*, it begins to link itself with its subtler forms and transmutes to move anywhere in the three *lokas*.

The potentials of the refined *vāṇī* become truly exceptional if activated by the energy of a *yajña*. The *Parā Vāk* equipped with the energy of *yajñas* can ‘illuminate’ the whole world with the light of true and complete knowledge...., and guide it to the righteous path of all round progress, prosperity, peace and happiness. By the very definition of *yajña*, the subtle energy generated by it should always be utilized collectively for the altruist goals of global welfare. The mentioning of – sacrificing *Brahm Haviṣya* in *Brahm Agni* – in the Holy *Gītā*, is a simple representation of the cosmic effects of *mantra* and *yajña*. These effects are described in some *Śrutis* as — the eternal shower of *parajanya* upon performing a *yajña*....

The omnipresent physical manifestations of the energy of *Śabda* include the electrical, magnetic, thermal, photonic (light) energies and their different combinations. Consciousness in the living beings is also a manifestation of the superimposition of the subliminal vibrations of the eternal energy of *Śabda*. The *parā vāk*, when refined by higher levels of *mantra-sādhana*, can induce such vibrations. This is how the ‘words’ enunciated in the *para vāk* become absolutely true like *thy* will. The *parā vāk* of a *siddha sādha* possesses the power to transform any kind of material existence and also control the conscious faculties of mind – such as, thinking, feeling, desiring,etc – in any being. It can thus guide and effectuate the righteous development of the human society and the world as a whole.

The relation between an individual self (*piṇḍa*) and the omnipresent *thy-self* (*Brahmāṇḍa*) is like that between a seed and its tree – each exists because of the other. The *piṇḍa* is a small unit of the *Brahmāṇḍa* and the latter is its manifold, unlimited..., ultimate expansion.... Every soul exists in the *Brahm* and the absolute state of enlightenment and ultimate spiritual evolution of the soul is a reflection of the *Brahm*. This commingling of the individual self with the *Brahm* can be realized by the *parā vāk*. A *Shruti* mentions –

*Viṣṇumukhā Vai Devāichandobhiri-
mānlokānana Pajapyamabhyajapan |*

Meaning: (The power of) God Vishnu subtly resides in the mouth. *Thou* is (an expansion of *vāk* in the form of) a *mantra*. The *mantras* are divine powers that can triumph over everything in a righteous manner. (This quote once again describes the unity between (the soul of) a *mantra* and the omnipresent, omnipotent *thy-existence*).

The power (*śakti*) of *mantras* is classified into four categories – (i) *Pramāṇya Śakti*, (ii) *Phal Pradāna Śakti*, (iii) *Bahulikaraṇa Śakti* and (iv) *Āyāta Yāmatā Śakti*. Maharshi Jaimini has analyzed these aspects in the vedic treatise entitled ‘*Pūrva Mīmāṃsā*’. According to his analysis, the *pramāṇya śakti* deals with the words, phonetics, pronunciations, expression of *thy-* call and the configuration and order of the *mantra*.

The *phal pradāna śakti* implies the power of achieving the desired or determined goal. It is awakened by thorough purification (by prescribed *mantra*-based methods and with due support of inner zeal and sincerity) of the *kunḍa*, *samidhā*, *pātra*, *ājyacarū*, *havi*, *pīṭha*, etc, used in the *yajña*. Arousal of the inner power of the *sādhaka* is inevitable for the success of a *mantra-sāadhanā*. The endeavors of *tapa* required for this purpose necessitate the disciplines of diet-control, *brahmcarya*⁴⁴, etc and sincere adoption of compassion and altruist service for the welfare of others.... This *śakti* activated by the inner consciousness of a true *sādhaka* effectuates accomplishing the *mantra sāadhanā*.

The *bahulikaraṇa śakti*, as the name suggests, corresponds to multiplication, amplification and expansion of the effect of *mantra* via the

energy of *yajña*. We all know that even a tiny drop of oil can spread over a large surface of water; a small quantity of poison dissolved in the blood-stream can diffuse across the whole body; a momentary spark of fire could expand into a conflagration in a matter of just few seconds.... Similarly, the apparently small actions of *mantra-japa* by a single or handful of dedicated *sādhaka*(s) could be orgulously amplified to benefit very large areas and numbers of people by the *bahulīkaraṇa śakti*.

The fourth, *āyāta-yāmatā śakti*, is awakened in a *mantra* by specific kinds of *japa sādhanā* of this *mantra* performed by a *siddha sādhanaka* at a specific place under specific disciplines while using specific tools in the associated *yajña*. The effect of this power is also unique as per the ‘specificity’ of the corresponding *sādhanā*. Maharshi Viśvamitra and Maharshi Paraśurāma had accomplished supernatural gains by the specific *sādhanās* of the *Gāyatri Mahāmantra*. It was the *āyāta-yāmatā śakti* attained by *Śṛaṅgī ṛṣi* that led to the successful completion of the *Putryeṣṭhi yajña* (organized by King Dasharatha), which even Brahmarshi Vaśiṣṭha was unable to guide.

Even a glimpse of the powers of a *mantra* could be realized only if its *sādhaka* has purified his *vāṇī* and acquired complete control over his body and mind and is performing the *mantra-japa* with intense *śraddhā*. A story cited in Mahābhārata illustrates this fact more clearly. It says – Ashwatthāmā and Arjuna both used the *mantra*-based weapons called *sandhāna-astras*.... In order to prevent the limitless devastation due to these dreaded weapons, Maharshi Vyāsa stood between the two and asked both to revert back their *astras*. Arjuna, because of his *tapa* of *brahmacarya*, could easily do so while Ashwatthāmā, because of lesser self- discipline, could not....

Similar incidents – highlighting the role of *tapa* and *śraddhā* – is narrated in the Shatapatha Brāhmaṇa. This mentions of a competition between Namedha and Yarūcchapa with respect to their expertise in certain *mantra*.... During a demonstrative experiment, Namedha was only able to produce smoke from his mouth while Yarūcchapa could generate fire in a wet wood by his *mantra-japa*.... Yarūcchapa then told (Namedha) that – ‘during your

mantra-sādhana you have only practised over the proper and disciplined pronunciation of the *mantra* with meditation whereas I, because of my dedication and *śraddhā*, have also connected my inner self with the soul of the *mantra* ' .

Muni Kautsa has described the *mantras* as specific configurations of syllables whose sonic pattern, and not merely the meaning, is important. He therefore calls *mantras* as *anarthaka* – i.e., without a meaning. For instance, the ‘densely energized and compact’ *bīja mantras* like *Hriṁ*, *Śriṁ*, *Kliṁ*, *Aiṁ*...., etc do not possess any linguistic meaning. It is only the impulsive force of their sound – enunciated by the refined *vāṇīs* – which makes them so special and astonishingly powerful.

The thirteenth section of Naishadha-Charita focuses on the ‘mystery’ of such supernatural sonic-effects in detail.... Almost all the *anuṣṭhānas* and *sādhana*s of a *mantra* include *japas* and synchronized⁴⁵ performance of a *yajña*. The constructive power of sound (enfolded in the *mantras*) specifically coupled with the thermal energy (of the *yajñāgni*) produces wonderful effects in the gross as well as the subliminal domains of life. The miracles of a *mantra-sādhana* materialize with successive activation of the hidden *śaktis* of the *mantra*.

* * *

Cosmic Cycles of the Vibrations of Mantra

The etymology of the word *mantra* indicates several derivations in the Sanskrit Language; such as – ‘*Mantra Manāta*’; meaning, a process or a mechanism regulated by the mind....; ‘*Mantri Gupta Bhāṣaṇe*’, meaning, sublime ‘conversation’ is *mantra*....; etc. The Shatpath Brahmana defines – ‘*Vāgvai Mantrah*’ meaning, the segments of syllables and accents enunciated by a refined *vāṇī*.

In scientific terms, the entire system of a human being in this visible world revolves around two major components – the physical body and the conscious mind. The constant functioning of each of them at multiple levels generates (bio) electrical currents through the brain-system. Major activities of the body are accompanied by mutual interaction between its tiny constituent parts – from organ to cellular and molecular levels. The processes of heart-beating, blood flow through the veins and arteries, inhalation and exhalation of air by the lungs, expansion and compression of the muscles, bio-electrical signal (information) processing through the nerves, etc, all produce some kind of friction or titillation in the associated components. This generates specific kind of thermal energy and static electricity.

The *thought waves* continuously generated from the mind are of electromagnetic type. If we throw a stone in a pond, it will produce certain currents of water, which will flow transversely up to the banks of the pond. The universe also is a kind of ‘a gigantic pond without boundaries’ and hence an infinite open ‘spherical set’ in hyper-geometric sense. The electromagnetic currents produced by our thoughts and emotions are expanded in the limitless domain of this etheric ocean. And, because of the end-less (hence circular) ‘periphery’ of the latter, these waves reach back to their point of origin (i.e., our mind, in this case) upon completing a cycle.

The long journey of the thought waves is not static. A lot of their (bio)magnetic energy is dissipated while interacting with other waves of opposite characteristics (pertaining to the counter or negative thoughts/emotions). Their confluence with the thought waves of similar

qualities, however, strengthens their own power. The super-imposition of these ‘matching’ thought waves indeed creates a powerful region of attraction and builds up a thought layer or field that could influence other thought waves. Our righteous and saintly thoughts and emotions could this way offer benefits to us and the others as well while compounding their power manifold with each cycle. Such layers of divine thoughts are like clouds, which can enshower a nectar of virtuous inspirations on the entire world.

The vibrations of *mantras* carry immense energy that is amplified by the *prāṇa* and bio-electricity of the body and the sublime currents of spiritually refined thoughts and sentiments of the *sādhaka(s)*.

The simple principle behind our speech or the pronunciation of a word by our mouth is that – the collision of air with specific (as per the movement of the associated components of the mouth) portions of the nervous system produces specific vibrations in the vocal-cord. This apparently physiological process is completely regulated by the mind. It is the unconscious mind that guides the controlling machinery of the brain and hence regulates the movements of the components that ‘directly’ participate in the process of speaking or singing etc. The instantaneous difference in our voice and pattern of pronunciation of the same word under different moods (mental states) clearly demonstrates this remarkable harmony between the speech-system and the mind.

If we casually pet somebody’s back then there would be no reaction in general. However, if we do so intentionally or say, in an angry mood, it would naturally hurt that person and may invite repelling action from his side. This simple example illustrates the difference between the effects of a mere physical activity and that of an action associated with unusual mental force. This difference in effects exists because the former involves only the static electricity of the body and routine auto-regulation of the brain whereas the latter bears the special ‘electrified charge’ of the vital spiritual power of the mind too. The words recited by a person with full mental concentration are indeed energized by the bio-electrical energy of the physical body as well as the ‘electromagnetic’ and subliminal *prāṇic* force of his mind.

It is well known that the speed of the vibrations of light is around 186000 per second while the sound waves have so far been found to produce vibrations in *ether* at a speed ranging between very low (subtle) to the ultra levels of 2305793009213693952 vibrations per second. Our ears can normally catch (hear) only the sonic vibrations of average frequencies around 32770 per second. The ultra fast vibrations of sound produce higher energy waves including the X-rays. Likewise any other energy-waves, the vibrations produced by the sound of the words spoken (or sung) by a person also are everlasting.... Where they would reach and continue to reside (exist along with similar vibrations) in the cosmos depends upon the total energy—especially the mental one because it is more specific to the individual self – emitted by the body and mind of the speaker (singer)....

Because of their immense sublimated energy the vibrations of the *mantras* practised by the *ṛiṣis* and the currents of the thought waves of these spiritually refined angelic personalities exist in the supernormal cosmic energy-fields since yore. Rich belts of minerals are formed by the attraction between the particles of same (compatible) category. By similar effects, the above mentioned fields of attraction induced by the *mantra-sāadhanās* of the *ṛiṣis* would continue to be stronger if the matching vibrations of *mantras* are consistently generated with deep *śraddhā* by people endowed with piety of character and inner strength of mind. In their circular journey (cycles), the *sādhaka*'s thought waves and the sound waves generated by his *mantra-japa* are also empowered by these cosmic fields. Thus, while reaching back to their origin, these waves help enhance the spirituality and the overall physical and mental energies of the *sādhaka*.

Thoughts and emotions, being the manifestations of *Śabda*, are also a form of energy like sound and heat. Scientifically speaking, every combination, be that gross or subtle, of vibration and motion gives rise to energy (and matter). Thoughts and emotions also exist in waveforms. These 'energy- waves', if focussed around one idea or faith, naturally form a common class and generate a stronger field of attraction around this center of focus..... At gross psychological levels, the distinct ambience of specific philosophical or political ideologies like those of the religious doctrines or those of capitalism, communalism.... etc, are examples of such centered groups of thoughts and beliefs. In the sublime do-

mains, the focus of a field of the sacred thoughts and inner sentiments – like faith, *śraddhā* and spirituality, is called *adhi devatā*.

Every *mantra* has its (*adhi*) *devatā* that represents a divine power and a cosmic energy center in the field of the genesis, ultimate expansion and sublimated existence of the sonic waves of that *mantra*. It is this *devatā*, which is supposed to be the eternal source (the soul) of the supernormal power of the associated *mantra*. As mentioned earlier, the success of a *mantra-sāadhanā* depends upon how well the *sādhaka* is able to link his soul with the *devatā* of the *mantra*. This is why the ‘success of a *mantra*’ is often described as ‘blessings or boons bestowed by the *devatā*’.

For the purpose of ease in meditation, the *devatās* of various *mantras* were also given visible forms and names⁴⁶ by the *ṛṣis*. The *bīja* and *chanda* described in the introductory part (*vinīyoga*) of a *mantra* similarly correspond to the subtle wave-characteristics and the sonic pattern of that *mantra*.

The *Gāyatrī Mantra* is regarded to be the origin (mother) of all the *vaidika mantras* hence of the Vedas too. This is why it is also referred as a *mahāmantra* and revered as *Vedamātā*. The majestic power of this eternal *mantra* is expanding perpetually, as the *sāadhanā* of this mantra has been constantly practised by millions of spiritual experts since the Vedic Age. Every human being can illuminate his intellect and inner self by the afflatus of *thy-glow* through sincere *japa* and *upāsanā* of the *Gāyatrī Mantra*.

Power of Śabda Aroused by The Gāyatrī Mantra

The Drayāmal Shastra defines the term *mantra* as –

*Mananāt Trāṇanācyaiḥ Madrū Pasyāvbodhanāt /
Mantra Ityucyate Samyak Madādhiṣṭhānata Priye //*

Meaning: That whose mental retention and repetition enables one to know the true form of the world and the Nature. That which liberates the mind from the worldly attachments of ego and avarice and which leads to the path of ultimate success – is called a *Mantra*.

Similarly, *Japa* is defined in the scripture of Yama as –

*Jakāro Janm Vicchedaḥ, Prakāra Pāpa Nāśakaḥ /
Tasmājjaya Iti Proktau Janma Pāpa Vināśakaḥ //*

Meaning: “Ja” implies relief from further *janmas* (Births); “Pa” symbolizes elimination of the sins. Thus *japa* (of a *mantra*) helps destroy one’s evils and liberate the soul from all worldly thralldoms.

The above definitions further intensify the importance of *mantra-japa* described earlier. The scriptures and the experiences of great *sādhakas* of all ages affirm that *mantra-japa* is a spiritual experiment that, if performed as a *sādhanā*, leads to self-realization, self-refinement and ultimate beatitude. From a scientific point of view, one may explain it as follows. As the continuous movement of the motor in a *Dynamo* generates electricity, the cyclic repetition of the *japa* of a *mantra* at a constant pace also gives rise to the circular motion of the sonic manifestation of *Śabda* hence to a centrifugal sonic force and an otherwise latent power of sound.... One who knows the *Mantra Vidyā* indeed knows the secrets of the optimal generation and use of this cycle of energy which is a unique source of physical, mental and spiritual potentials.

The coexistence of the forces of attraction and the circular motions of the planets must be well known to the students of Physics. Because of the fast movements in the charged fields of attraction, each

planet also produces a roaring sound of intensity proportional to its huge size. The superimposition of these planetary roars gives rise to the *cosmic sound* – a manifestation of *Śabda* – which the scientists consider as the major source of power for every kind of ‘natural motion’ existing in the entire universe.

The power of *Śabda* manifests itself in multiple ways in the *sāadhanā* of the great *Gāyatrī Mantra*. This *mantra* is a compilation of twenty-four special syllables/words (in Sanskrit) which are so configured that the enunciation of each gives rise to unique types of vibrations at one or more of the twenty-four important bio-electrical and extrasensory energy nuclei in the *sādhaka*’s body. The collective compounded sonic effects of all of these are so unique and immense that these activate the subtle body too.

The linguistic meaning of this *mantra* is a universal prayer for the divine illumination of the intellect of all to lead the world towards the righteous path..... The *sādhaka*’s mental concentration and pure sentiments are naturally focussed around this meaning (and the associated feelings and inspirations) when he performs *japa* of this *mantra* through emotional depths. This has two prominent effects – viz., the *sādhaka*’s mind achieves higher state of meditation and he also attains spiritual refinement of the inner domains of mind.

The complete effect of the *japa* of the *Gāyatrī Mantra* with true *śraddhā* also purifies the *astral body* of the *sādhaka* and illuminates all facets of his life with a divine glow. Liberation from the evil effects of misdeeds and sins of the past life or previous births are natural bequests of the successful *sāadhanā* of this *mantra*. On worldly fronts, the *sādhaka* lives a truly happy and progressive life and also contributes significantly – without any ego, selfish interest or worldly attachment – towards multidimensional welfare of others.

The *dhiyaḥ* element of the *Gāyatrī Mantra* induces the cosmic vibrations of *Śabda* and the sonic waves generated by the *japa* of this *mantra* traverse through the infinity of *Brahmāṇḍa*⁴⁷. Upon completion of each cycle these waves reach back the *sādhaka* along with the additional effects of – (i) the divine thoughts and sentiments ‘trans

mitted' by the perpetual vibrations of the long-term *japa-sāadhanā* of the super-sagacious spiritual saints like the *ṛṣis* who were *siddhas* of the *sāadhanās* of this *mantra*; and (ii) the sublime radiance of the Supreme Consciousness of *Savitā*. The *sādhaka*'s mind consistently receives the supernormal impulses and sparks of divine force and, as a result, often attains extrasensory knowledge and supramental powers via dreams, intuitions and sudden inspirations.... The *sādhaka* also experiences 'hearing of mysterious sounds...', 'vision the distant and otherwise unseen places and objects', 'flashes of supernatural light', etc.

As stated earlier, the *mantras*, by definition, are sublime carriers of the power of *Śabda* indwelling in sound, thoughts and emotions. The sonic as well as the emotional energy together make a *mantra* alive. While the observance of prescribed elementary disciplines – like, regularity of timings and the number and pace of *japas*...., etc – is a must to generate appropriate sonic vibrations from the *japa* of a *mantra*, the unperturbed engrossment of mind with deep faith and emotional linkage with the *devatā* of the *mantra* – is necessary for awakening the subliminal force of *Śabda* in it.

It may be noted again that for the success of the *sāadhanā* of any *mantra*, it is the piety of character and deeds, the strength and stability of mind and the *śraddhā* – that are the most crucial and important virtues of the *sādhaka* rather than his intellectual eminence or scholastic expertise in the *vedic* scriptures...., etc.

Anybody who sincerely adopts the principle of truth, creativity and altruist service with compassion, generosity and love and who endeavors self-restrain for escalating march towards self-refinement would qualify to commence *Gāyatrī Sāadhanā* under the intimate guidance of a noble guru. If the consistency of *japa* is maintained with adept disciplines and *śraddhā*, the *sādhaka* begins to realize the exceptional psychological and intellectual benefits and truly rare boons of this *sāadhanā* in a short span of time....

Psychological Basis of the Effects of Japa

Mantra-Japa is affirmed by the sages as a powerful mechanism for intensifying the willpower and self-determination. It can thus be regarded as a procedure for strengthening self-control and psychological improvement along with the development of vigorous and virtuous personality.

The human mind at the conscious and the subconscious levels is an ensemble of uncountably many thoughts and emotions of varied quality, stability and impact. Those generated by internal desire or mental resolution or existing because of assimilated *samskāras*⁴⁸ are more intense and cannot be waned out or refined easily. These rather stable thoughts and emotions, if belonging to the evil (or not suitable to the human- dignity) category, cause maximum disturbances and obstructions during meditation. *Japa* helps controlling such perturbations because *japa* is an activity that engages the major faculties of mind with a natural harmony and ‘tunes’ them coherently with the rhythm and vibrations of the *mantra* being enunciated or chanted.

The faith and *śraddhā* in the *mantra* add to the positive effects of *japa*, as they provide a moral support, an emotional linkage and hence an inner courage and subliminal energy to enable the *sādhaka* struggle and diminish the evil instincts and thoughts. It is a principle of psychology that – if a certain thought, lesson or imagination is often repeated before one’s mind, the latter begins to grasp and assimilate the same in the deeper layers of its memory. These thoughts, imaginations or feelings then appear to be ‘true’ to the learner’s mind and may eventually become a part of his nature and belief.

The small *mantras* like – *Oaṁ Hari Oaṁ*; or, *Hari Oaṁ Tat Sat*; or, *Soaṁ*... etc, or the *thy* – names such as – Sri Ram or Allāha....., etc, are like compact formulae or symbols in short-hand scripts to represent and remind of divinity and divine principles and disciplines. The repeated *japa* of such *mantras* or names would naturally (according to the psychological theories of stimulus-response), intensify the divine faith and serene, moral characteristics in the *sādhaka*’s mind. ‘How fast such effects would be realized?’ – this largely depends upon the desire (purpose), the willpower and the intrinsic urge with which the *japa* is being performed.

The same principle is seen working in ‘mob-psychology’ when the repeated shouting of certain motto or slogan – in grand processions, or revolutionary movements, etc – is found to stimulate public mind and motivate the masses towards the associated purpose.... The difference between such responses and the effects of *mantra-japa* should however be well understood here. *Mantra-japa* is an spiritual exercise aimed at the main purpose of the spiritual elevation of the *sādhaka*. This also has subtle effects on the inner self along with the aforesaid psychological effects of recalling and retention.... These results may appear meek initially and seem to occur at a slow pace but are definite, gradually augmenting and everlasting if the *japa* is performed sincerely and regularly.

Japa has been uniformly regarded in almost all the religions or schools of philosophy across the globe as an important spiritual activity or an essential requirement for spiritual enlightenment. The scriptures on Indian philosophy and spiritual sciences focus a great deal on the psychological significance of *mantra-japa* as well. The *Gāyatrī Mantra* is described in all the scriptures of Indian philosophy and the science of spirituality and *yoga* as unique, original and preeminent in this respect too.

Subtle Effects on Human Body and Mind:

The human body is the most complex but complete example of a self-organizing (bio)physical system. Despite significant advancement of Biomedical Sciences and Engineering in the present era, a lot about the structure- function relationships and the interactions of the macro and micro components of this wonderful machine and its brain still remains to be deciphered by the modern researchers.

The *ṛiṣis* by their expertise in the ancient sciences of *yoga* and spirituality had ‘visualized’ the human body as a miniature model of the universe and hence declared that – ‘*Yat Brahmāṇḍe Tat Piṇḍe*’. The extrasensory energy nuclei and streams of the subtle currents of consciousness — namely, the *ṣaṭ cakras*, *panca kośas*, *tri granthis*, the seventy-two thousands *nāḍis* and the fifty-four *uṇṇikās* etc, inside the human body, as experienced and identified by the *ṛiṣis* –

are as vast and phenomenal as the expansion of the planets, stars and the galaxies in the universal 'sphere' of ever increasing 'diameter' above 13×10^7 light years. As discussed earlier, the science of *mantras* deals with the activation – by the sonic waves of *Śabda* and *Nāda*, and specific use of these hidden centers and channels exiting in the human body.

The spiritual experts of yore had described the *Gāyatrī Mantra* as the mother (origin) of all *mantras*. The spiritual saints, eminent scholars and noted great personalities – including Swami Vivekanand, Mahatma Gandhi, Thakur Ravindra Nath Tagore and Sri Aurobindo, of the modern era have also revered this great *mantra* as the eternal source of righteous intellect and inspirations – for the foundation of a world religion and culture of high human values. Cultural and psychological evolution of the masses is essential for a glorious future of the globe and the dignity of mankind. This *mantra* is also special in terms of its unique sonic pattern, the sublime flow of *Śabda* and astonishing physical, psychological and spiritual impacts.

The process of *mantra-japa* smoothly encompasses the following four aspects of training and improvement of the mind as described the modern psychologists. Namely — (i) memorizing by repetition; (ii) retention and recalling; (iii) learning by experience and (iv) believing by conviction. In terms of spiritual philosophy, the training of mind and its emotional cores focuses upon – (i) self-observation; (ii) self-analysis; (iii) self-refinement and (iv) self-development. These are the gradual steps during the enlightened march of the individual self towards the realization of *thy*-self.

In each experiment of *mantra sādhanā* by *japa* – the retention and repeated enunciation of the *mantra* coupled with meditation and emotional faith effectuates all the above mentioned psychological and spiritual processes at a steadily increasing pace. The *japa-sādhanā* of the *Gāyatrī Mantra* is again of fundamental importance here because it eventually leads to the collective illumination of the human-intellect towards the righteous path of divine evolution of mind.

The *japa sādhanā* of the *Gāyatrī Mantra* has become all the more important today in view of the fact that the root-cause – of all the misdeeds of the medieval era and the short-sights of the modern times – is the maligning and perversion of the human-instincts and intellect from their true path. The effect of a thorough *japa* of this *mantra* eradicates the untoward thoughts and cravings. It also cultivates healthy seeds of eminence and moral dignity of thoughts and sentiments in *sādhaka's* mind and heart and enlightens all dimensions of his life with truth, sincerity, creative talents, strength and courage, and above all, with the righteous intelligence and divine sentiments.

The *Gāyatrī Mantra* enfolds the basic principles of all the religions of mankind in a compact compilation of just twenty-four special syllables/words of Sanskrit. That is why this *mantra* is also described as the shortest and the most ancient religious scripture, which can guide the entire human society towards a life full of everlasting, global peace, progress and happiness if its *japa-sādhanā* is performed as a scientific experiment collectively by more and more people under adept disciplines and with unperturbed perseverance and sincere faith.

Acoustics and Mantra Vijñāna

During the war times in the ancient era, the generals used to infer about the location of the enemy's army by keeping an ear on the earth's surface and thereby 'sensing' the sound of its movements. This example indicates that although sound is supposed to be spreading and being heard via the medium of air, its vibrations, if amplified, can also be perceived by the earth.

In the human body, the audible vibrations of sound, when make collision with the ear's diaphragm, they create specific impulse in the latter's connection with the brain and thus the corresponding sound is heard. Many animals and birds have latent communication- sensors in their bodies via which they can receive ('hear') subtle sonic signals from much longer distances than those falling in the audible range of the human ears. The 'prior sensing' of rainfall by the peacocks provokes them to dancing; spiders begin to unwind and recollect their meshes on the similar occasions...; cats take their kittens away from the building which is likely to fall in near future....

The human beings can receive and hear some of the non-audible sounds with the help of hi-tech devices. The early development of these types of sonic-sensors and related instruments included that of a device made up of two mica tubes filled with mercury. The base of this instrument used to be buried to sense the vibrations inside the earth in order to record the movements of the enemy's army during the Second World War. This device used to register the 'sound' of the army's movements much the same way as stethoscope records the sound of the heartbeats.... The next phase of such developments included that of the devices for recording the electrical signals and vibrations up in the space and beneath water. The early versions of microphones and the hydrophones had also played important role in the Second World War, especially in defeating the German regime of Adolph Hitler.

Further advancement of the electro-acoustic devices (which work on the principle of propagating, amplifying and/or recording the sonic

waves via electrical or electronic signals) has made it possible for the modern scientists to record a large number of distant and subtle vibrations inside or upon the earth, beneath deep oceans or in the space above the earth's atmosphere. The ultimate stage of such advanced developments should help the scientists realize that – every element, the subtlest particle of every entity existing in this universe is created by the vibrations of *Śabda*; or, in other words, the whole universe and cosmos is a manifestation of the *Śabda Brahṁ*. The *ṛṣis* – the scientists of *Nāda Yoga* and *Śabda Yoga* had achieved this level of ultimate knowledge and therefore 'devised' the *mantras* and the methods (*japa sādhanās*) of their use in the physical (gross), psychological and spiritual development of men and women. What they had achieved in addition – by the *dhyāna yoga* (meditating *sādhanā*) – was, the expertise to link the subtlest power of light with that of the sound existing in the *mantras*.

Specific *japa-sādhanā* of a specific *mantra* by a spiritually refined person is indeed a unique experiment in acoustics where the power of sound is utilized beyond the limits of material existence. When a harmonium or piano is played, pressing specific keys (that produce different accents or musical notes) repeatedly in an orderly manner generates specific musical tune.... Similarly, *japa* is a process in which specific components of the mouth, the vocal-cord and the connecting nerves produce desired sonic patterns that harmoniously vibrate the 'keys' of the extrasensory 'wires' (e.g. the *idā*, *pingalā*, *suṣumnā nāḍis*....) and the subtle 'energy bundles' (e.g. the *ṣaṭ cakras*....) inside the body. The latter, being stimulated further by the subliminal energy and flow of the consciousness of the *sādhaka*, produce supernatural effects – via the associated currents of *Śabda* – specific to the type and purpose of the *sādhanā*.

The immediate and necessary indication of the success of a *mantra-sādhanā* is the refinement, improvement and illumination of the *sādhaka*'s overall personality and his deeds. The proper pronunciation of the *mantra(s)* under prescribed disciplines, and the spiritual level, faith and sincerity of the *sādhaka* are essential conditions for accomplishing a *japa-sādhanā*. The sonorous vibrations produced

by a *mantra-japa* generate sonic waves that could reach any desired place in the universe at a pace faster than the radio waves and could transmit the signals of *śabda* at the focussed cosmic centers.

Different examples cited earlier – such as, the experiments (e.g. those conducted by some scientists in Canada) on using sonic power to drive a car; or, the demonstrations (e.g. those presented by a popular singer, Mrs. Watts) on transforming the nature/state of matter by music..., indicate that – “it might also be possible one day to capture and study some effects of *mantra-japa* in the modern scientific laboratories”.

In the third *kaṇḍikā* (part) of the *Gāyatrī* Upanishad, Maharshi Maitrayi is cited to have asked Achārya Maudgalya about the relationship between the *mana* (conscious and inner minds) and the *vāk* (absolutely refined voice); the reply is quoted there in the following *śloka*:

Mana Evaṁ Savitā Vāk Sāvitrī, Yatra Hyova Manastadvāk |
Yatra Vai Vāk Tanmana Iti Ete Dvayono EkamMithunaṁ ||

Meaning: *Mana* is *Sāvitrī* (– the physical power of *Gāyatrī*). *Vāk* subtly indwells there, where *mana* is present (with full concentration). And, wherever *vāk* is present *mana* exists there (in its purest experience). These are like two mutually complementary and coupled halves (of a single entity).

Our visual (materially existing) world is a manifestation of the power of the sun. This world and the gamut of Nature’s creation would not have existed (as they do till date) without the energy of the sun. Noting that *savitā* and *sāvitrī* represent the eternal source of the power of the sun and the manifestation of nature, the above *śloka* would imply the following. “As the movements of the planets are driven by the grand cosmic sun through its own motion, similarly, the micro-subtler events could be regulated by the mind by setting it in a consistent ‘motion’ under constant amplitude and tune of a *mantra-japa*”.

The demonstrations presented by Mrs. Hags in front of reputed personalities like Lord Lieten are illustrative examples of the above principle. In these experiments, Mrs. Hags was able to produce (carve in the mediums like sand) visual images of trees, birds, animals, geometrical figures.... etc simply by her mental concentration during her musical performances. Madame Lang of France had created visible pictures of Jesus Christ and Notredame by the effect of her devotional songs in special classical tunes. The demonstrative performances of two Italian women who played musical tunes – based on a *ṛacā* of the *Sāma Veda* – on Sitar had similarly shown significant impact of music (a creation of *Nāda*) upon human psychology. Pt. Bhagavan Das Awasthi has described many such incidents in detail in a special issue (on *sāadhanā*) of a Hindi magazine named “Kalyāṇa”.

The incidents of above kind provide evidential examples of the principles cited in the Indian scriptures of *Mantra-Vijñāna*. Which indicate that – every atomic (and even subtler) form of the elements of Nature can be created, converted or combined with other particles via the coherent conjunction of mental concentration (consciousness) and sound (*vāk*) in the *mantra-japa* to give rise to any desired form of energy or matter....

In the present times of scientific development of acoustics when a large number of ultrasonic and infrasonic applications in medicine and technology have become easily accessible, the *mantra-vijñāna* should also be investigated. Especially for positive and creative applications in *mantra-cikitsā* as an effective mode of treatment and in more important domains of human life – viz., those related with the vigorous progress of mind, righteous intellect and arousal of the divine sentiments, which are essential for a brighter and happier future of mankind.

Integration of the Sciences of Mantra and Yantra

The science of *mantras* was developed by the *ṛiṣis* in the ancient era with the purpose of creating a happy and prosperous world where the progress of the inner self was given significant importance along with other aspects of human life.

The modern science (of *yantras*) has no doubt accomplished great success in material based progress and prosperity. However, the negligence of the sublime domains – of thoughts, emotions and inner sentiments of faith in divine moral values and altruist responsibilities towards selfless service of humanity – has left this progress as one-sided and incomplete.

In spite of material progress and worldly achievements, one hardly finds peace and happiness in this world today. Possessive and selfish attitude largely prevailing in the entire human society has added to the sufferings of some and the cruelty or apathy of some others... The lack of faith in the moral values, divine origin and dignity of humanity has led to the hidden feelings of insecurity and illusive passions even among the mightier (more successful) and wealthier sections of the society including the elite intellectuals.

This is the time when the *yāntrika* science should open up ways to realize the importance of the *māntrika* science and come forward to research the fields of consciousness, values and deeper aspects of psychology. The integration of the two great sciences should offer solutions to the gigantic problems and challenges that seem to be threatening the very existence of humanity and human life today....

The goals of the *yāntrika* and *māntrika* sciences have one thing in common – both, in their own ways, strive deciphering the latent powers of Nature. While the *yāntrika* science searches them in the material and related physical streams of energy – that could be ‘perceived’ and used by material based medium and means, the *māntrika* science attempts to realize them in the sublime realms of the activa-

tion and expression of consciousness indwelling in the living forms and in the cosmic expansion. While there are different types of *yantras* for different tasks and each *yantra* works only on specific (material based) energy-inputs under specific conditions....., all the experiments of *mantras* are performed only on the natural instrument of the human body and mind.

The *mantra-sāadhanās* are designed with particular focus on the extrasensory centers — like, the *ṣaṭ cakras*, the *granthis*, the *upatyikās*, etc, of the subliminal energy (of consciousness) in the human body. Various *yogāsanas* and *kriyās* (exercises) like – *prāṇāyāma*, *bandha*, *mudrā*, *neti*, *dhauti*, *vasti*, together with mental training by different kinds of *upawāsa*, *tapa- titikṣā* and *dhyāna* are supporting techniques in the experiments of the *māntrika* science.

The basic principles behind the experiments of *māntrika* science on the human body emanate from the fact that — the *piṇḍa* is a miniature of the *Brahmāṇḍa* and thus all the powers immanent in the cosmic expansion also latently indwell in the human body. The specific extrasensory centers correspond to the sublime nuclei of specific energy fields pervaded in the cosmos.....

The other ‘experimental units’ for the ‘actions’ of *mantras* are the human brain and mind. These provide the most evolved and intensive elements (of consciousness) for experiments in the *māntrika* science. The modern scientists and psychologists have unanimously argued that – even the most intelligent and creative functions, known so far, of the human brain, along with their usual regulatory functions....., jointly use only a small fraction (about 7%) of the real energy (potential) of this marvelous component associated with the body and the mind. The remaining 93% of the ‘power’ of the human-brain still lies unused and is beyond the reach of the *yāntrika* science as yet. The so-called observations of parapsychological or metaphysical nature are minor glimpses of this latent ocean of conscious power. The *mantra sāadhanās* aim at activating and creatively channelizing this hidden or extrasensory potential of human brain and the deeper depths of the human mind.

The ṛiṣis were experts of *māntrika* science and were therefore endowed with supernatural talents and powers. They could apply *thy* powers in awakening the divinity in all human beings and had thereby succeeded in erecting a heavenly era on this earth in the Vedic Age. That “Age of Truth” could be revived today by the foresighted and constructive commingling of the *yāntrika* and the *māntrika* sciences....

The purpose and goals of the developments of the *yāntrika* science would be most beneficial if controlled and guided by the basic principle of the *māntrika* science – which emphasizes on *śraddhā* and hence upon the cultivation of moral values, integrity of character and deeds, altruist service with sacred sentiments of love and compassion....., etc.

The modern savants of spiritual sciences should also eliminate the ambiguous interpretations of the ancient scriptures, prejudices, superstitions and the rigid shielding of religious barriers. They should come forward to investigate and propagate the principles and findings of the *mantra vijñāna* with a real scientific spirit as adopted by the researchers of the *yantra vijñāna*.

The modern (*yāntrika*) scientists – especially the neurosurgeons and physicists may, by detailed study and analysis of the *māntrika* science, plan appropriate experiments – to realize, attract and use certain streams of subtle energies and powers from the hidden centers of the human brain. Search for the corresponding cosmic energy fields via thorough study of the scriptures would complement this research. However, in such experiments of the *yāntirka* science one ought to take care of designing cost-effective, non-invasive and eco-friendly experiments. This would involve truly original and innovative acumen of the great scientific minds of our times.

The relation of the *māntrika* science with the *yāntrika* science is evident with respect to the science of sound. The importance of the *japa* of *mantras* can now be analyzed to some extent by the advanced techniques and devices such as – the recorders for multi-phased tonographs, spectrographs and wavelets, etc. Dr. Lawrence

Castro's invention of spectrograph has made it possible to study the sonic patterns of individual voices under different psychological and environmental (external ambience) conditions. Because of its widespread applications in acoustics, the Sonic Gaze machine (of the General Motors Co.) for smoothening of sound waves has gained as much popularity as the milk-homogenizing system developed by the MF Goodrich company. The products of Iowa state college and the Ultrasonic Corporation are significant in terms of – large scale scientific applications and research on ultra sound.....

As discussed earlier, the process of *mantra-japa*, when performed as a *yoga*, makes intensive and focused use of the power of *Śabda* (indwelling in the *vāñī* and consciousness of the *sādhaka* and in the cosmic expansion). It energizes the specific sound waves (generated by the *japa*) so that the latter could expand and reach the corresponding cosmic center. The *sāadhanās* of *japa* and *dhyāna* provide a majestic combination of the basic *Nāda Yoga sāadhanās* that focus upon sonic vibrations and the *Bindu Yoga sāadhanās* that aim at deep mental concentration....

The *japa* and *dhyāna sāadhanās* constitute important experiments in *mantra vijñāna* (*māntrika* science). Adept performance of these affects the subtlest as well as the cosmic components/elements of Nature. This is why the *mantras* are regarded to be so powerful (e.g. in the following quote from the *Ram Charita Mānasa*) that even the *thy* powers of the trinity Gods Brahma, Vishnu and Shiva cannot disobey them.....

Mantra Param Laghu Jāsu Basa, Vidhi Harihara Sura Sarva /
Mahāmantra Gajarāja Kahū, Basa Kar Ankuśa Kharva //

Hidden Roots of Mantra Sāadhanā and Its Success

The working principles of a *mantra* are as scientific as that of a machine. The designing, controlling and efficient functioning of the technological devices/machines is possible because their development is based on (engineering) sciences. The engineering, physical and biological sciences largely focus on the structure and function of different kinds and forms of matter and aim at deciphering the universal laws governing these. The applications developed thereby are therefore suitable only for material forms and mediums – at micro or macro levels – including such components inside the living bodies.

The spiritual sciences focus on the existence and expression of the other, the subliminal and more important half of Life and Nature, namely – the mind and the inner cores of consciousness. *Mantras* are the means for experimental studies and applications in the science of consciousness and spirituality. *Mantras* are as integral parts of the spiritual sciences as the *Yantras* (machines/instruments) are of the material based sciences.

The development of material based science has endowed the human society with enormous gifts like the powers of fire, thermal energy, electricity and electronics, magnetism, atomic energy, sound, photonics, etc. The scientific investigations/discoveries and technological advancement have been possible because of the evolved consciousness of human mind. Even the ‘so called’ automatic devices are designed, developed and directly or indirectly controlled, operated and used only by the conscious beings. The value of technological progress would have been negligible like the ‘hidden treasures beneath the deep oceans...’ – had there been no living being to employ it. The existence and worth of matter and related sciences gains meaning only because of the co-existence of sentient world. Consciousness appears to be the perennial and paramount entity in the existence and manifestation of Nature and the Universe.

The science of spirituality deals with the expressions, manifestations and evolution of consciousness. The domain of its studies could be

divided into two parts – one dealing with the *piṇḍa* (microcasm) and the other with the *Brahmāṇḍa* (the cosmic macrocasm). One branch of this science focuses on the thoughts, emotions, beliefs and inner sentiments like faith and *śraddhā* and the other on the external domains of *jñāna* — knowledge about the universe and the universal self, and *karma*⁴⁹ in the *Brahmāṇḍa*. All the experiments – like *yoga*, *tapasyā*, *sādhana*... etc – of spiritual sciences are based on the theory of *jñāna* and the practicing of *karma*.

The individual consciousness is a reflection of the omnipresent Supreme Consciousness. There is no life in the body without the individual consciousness. The expression of the individual self as a being is also governed by this eternal source – the individual consciousness. Strengthening of this ‘vital spiritual force’ of life is possible only by activating its subtle linkage with the omnipresent, eternal, Supreme Consciousness. *Mantra-sādhana*s are indeed the scientific experiments designed for this purpose. Such experiments – on stimulating the sublime powers of the individual self, are analogous to the processes of recharging of electrical power generators to enable the connecting device function efficiently.

Regular consumption of oxygen, water and food is essential for the healthy sustenance of a living body. The strength and health of the very source of its life – the individual consciousness – similarly needs a constant energizing of its sublime linkage with the divine consciousness. This relationship is more intimate and crucial than, say, that between – a child and a mother; or, the formation of clouds and the sea- water.... etc. An individual consciousness, without an active connection with *thy*-consciousness, is simply like a reservoir of vital energy that somehow maintains the routine physiological, physicochemical and biological functions of the body. There is no ‘true life’ in such human beings; they are no better than ‘living machines’.

As described earlier, the *mantras* are well tested and experienced experiments devised and advised by the spiritual scientists of yore. The *mantras*, being based on the science of *Śabda*, are like formulae and devices gifted for the improvement and happiness of human-life

in all respects. *Jñāna* (knowledge) of various sciences and philosophies — including that of the Shastras and the *Mantra Vijñāna*, alone is like theory without practical implementation. It is incomplete without the *karma* (the practice) of *mantra-japa* as a spiritual *sāadhanā*.

The specific combination of the syllables and vowels (phonemes) in a *mantra*, its enunciation or chanting at specific rhythm and amplitude coupled with gradually deeper and stronger spell of *śraddhā* through the heart induces a unique flow of specific currents of *Śabda*. This creates corresponding domains of attraction at the subtle levels within the *sādhaka* and in the cosmic nucleus of the *mantra* and sets a link between the two. The strength and piety of character and the spiritual enlightenment, sincerity and *śraddhā* of the *sādhaka* are vital elements in such experiments. The rhythm, amplitude etc of the *japa* deal with the physical (sonic patterns) components of the *mantra* whereas the sentiments and virtues like purity of heart, serenity and *śraddhā* have a direct bearing upon the soul – the force of cosmic consciousness associated with the *Śabda*, of the *mantra*.

The development of material based sciences along with an overall moral elevation of all humans by proper spiritual training and illumination should be the goal of true progress in the modern times.... *Mantra-sāadhanā* may be researched and practiced by everybody in day-to-day life – like a scientific experiment towards achieving this noble global aim.

The Key to Cognition of Mantra-Vidyā

The seekers of *Mantra Vidyā* – the philosophy and science of *mantras*, should first accomplish four prerequisites. These concern with the integrity and piety of character, strengthening of mental stability and concentration, refinement of *vāṇī* and awakening of faith and *śraddhā* in divine disciplines and sentiments of goodwill, love and equality for all the living beings.... Sincere attempts and determined pursuit for inculcation of these virtues is an integral part of all spiritual endeavors including the *Mantra Sāadhanās*.

Different kinds of *Yama-Niyama* (yoga disciplines) and training practices are prescribed as essential lessons in the elementary phase of *Mantra Vidyā*. The most important and common *yama-niyama* include – *Brahmacarya*; self-restrain over the tongue with respect to speech as well as eating habits; sincere attempts to abate the ego and selfish desires; creativity, active participation/contribution in social service with serene sentiments of love and compassion, respect for others, etc.

Thorough control over speech and thoughts, use of affectionate and respectful language in day-to-day conversation, practices of phonetics and music for proper pronunciation and for consistency of accents, rhythm, amplitude, and simple (elementary) exercises of *Nāda Yoga* and *Śabda Yoga* provide substantial support in refining the *Baikhari* and the *Madhyamā Vāṇīs*. Strict observance of truth in every aspect of life is desired for further refinement of *vāṇī* and awakening of *śraddhā*.

Belief in the existence of *thy-love* and *thy-disciplines* and hence in the divine principles and high moral values, and acceptance of the same through thoughts, deeds and inner emotions help arousal of *śraddhā* hidden in the inner self. *Śraddhā* is the ultimate support for one's challenging struggle against his own vices and untoward *samskāras* during spiritual enlightenment. The holy *Gītā* states –

‘*Yo Yacchadhdayah Sa Eva Sah*’ – meaning, one is what one’s *śraddhā* is.....’. *Śraddhā* and faith in the power of a *mantra* add specific force of consciousness in its *sādhaka* and thus activate his *vāṇī* with the consonant energy of *Śabda*.

The role of *vāṇī* is more obvious in the process of *mantra-japa* and so is the relation between sound and *mantras*. The realization of the power of sound has led to the advanced scientific developments of infrasonic to ultra- and supersonic applications in the present times. Noting that – the functional power of a *mantra* largely resides in its sonic configuration, it should be possible by scientific developments in related areas to use the supersonic power of *mantras* and invent the constructive applications that appear ‘unimaginable’ today....

Our universe is a limitless ‘ocean’ of continuous flow of infinitely many energy-waves, of which, only a few – namely, the audible and the ultra and infra sound waves; ultra violet and infrared light rays; X-rays, Gamma rays, Lasers, Microwaves etc – have been discovered and utilized via the modern scientific research. The wavelengths⁵⁰ of these waves measure in a wide range — from angstroms, microns and millimeters to centimeters and meters. The frequency (vibrations) and hence the energy and properties – of these waves also differ drastically.

The properties of ‘physical sound’ have significant relation with the five basic elements (*panca tatvas*) of Nature’s manifestation. For instance, the velocity (in ft/sec) of the sound waves propagated along the flow of air is about 1088; along the flow of water is about 4900; and along the vibrations in the earth is about 16400. The essential practices and rituals of *Prāṇāyāma*, *Arghdāna*, *Dīpa-Dhūpa* and *Havan* – often prescribed along with the *mantra-sāadhanās* – are indeed associated with the conditioning of mind for soothing effects of the sonic powers of the basic elements of air (*vāyu*), water (*jala*), earth (*pṛathvī*) and sun, fire and heat (*agni*).

Our ears and the mouth (and the vocal- cord) play very important role in hearing and pronunciation of a wide variety of sounds and are therefore of significant importance in the experiments of *Nāda Yoga*

and *Śabda Yoga*. No transducer or any advanced technological device could be so sensitive and perfect as these ‘natural devices’ are. Our ears can simultaneously catch different frequencies of sound in the audible range. So efficient is their connection with the brain that, for a blind person, the ears also work like the eyes – a blind person can recognize different objects by sensing the latter’s sound (vibrations).

The relation of mind with the functioning of the ears is equally remarkable. At times, in absent-minded states or because of the disinterest or indifference of our mind, we do not really hear – what the person sitting next to us is telling...! Whereas murmuring at some distant place can also be heard by us if our mind keenly concentrates there.... Such familiar experiences clearly explain the need of mental concentration and meditation during *mantra-japa* and other exercises of the *Śabda* and *Nāda–Yogas*.

The importance of *mānasika-japa* also is obvious in the above context. Although, a *mantra* is enunciated only mentally in this practice of *Śabda Yoga*, its (the *mantra*’s) vibrations are well received in the connecting sensors of the tongue and the ears and are hence registered in the brain as per its sonic pattern and the ‘mental signals’ of its *sādhaka*.

In the *sāadhanās* of *Nāda Yoga*, the ears are trained by deep meditation and willpower to grasp the otherwise non-audible sounds existing in the cosmic expansion. By such practices, the *sādhaka*, while performing the *mānasika-japa* of a *mantra*, can hear (link his mind with) the subliminal sound of this *mantra* and can thereby attract the corresponding energy-currents of the omnipresent *Śabda*. This in short is the secret of the supernatural powers attainable by the *mantra vidyā*.

Scientific Roots of the Divine Impact of Mantra Sādhana

That sound can be recorded (e.g., by tape-recorders), amplified (e.g., by loudspeakers), propagated (e.g., by radio and TV signals), recognized (e.g., by the radar), measured and analyzed (e.g., by spectrographs or voice-printers) — in physical terms, proves its existence in matter.... A large number of examples of the destructive and creative effects of sound on matter can also be found in day-to-day life (c.f. previous sections).

Mantra Vidyā is based on making perfect use of the gross viz., the sound of the *vāṇī* of the *sādhaka* as well as the sublime viz., the consciousness — the voice of the inner self, expressed in thoughts, emotions and intrinsic strength of the *sādhaka*, powers of *Śabda*. The study of the higher level impact of *mantras* vis-à-vis that of the physical sound — in the gross domains of Nature, seems feasible in the modern times of scientific advancement.

The mechanical devices of *radar* send sound signals — via radio waves — far away in the space and receive the echoed sound back in few micro (10^{-6}) seconds. The radio waves travel at a speed of about 295000 kilometers per second. Whenever their collision takes place with any object on their way, these waves are reflected back (to the radar that is set ‘tuned’ to receive them) at equally fast speed. The vibrations of these reflected signals contain the ‘information’ about the position, size and some other properties of the object. (This is how sound waves help in the recognition — through the radar, of an enemy’s airplane during the war times....).

The human body could also be regarded as a ‘radar’ with respect to the gross sonic effects of the *mantras*. The extrasensory inner components (like the *śaṭ cakras* or the *granthis*.... etc) of this biological radar send supernormal radio signals in the ‘etheric whole’ via the vibrations of *mantras* being enunciated in specific rhythms.... This wonderful radar receives back the quintessential signals of *Śabda* as an ‘echo’ from the cosmic nucleus of the *mantra*.

The latent power of *Śabda* – linked with the spiritual enlightenment and hence with the awakened power of the eternal consciousness of the soul of the *sādhaka* effectuates the impact of *mantras* on the ‘radar’ of the *sādhaka*’s physical, subtle and astral bodies. And thus empowers the *sādhaka* with the supernatural potentials and afflatus upon successful completion of a *mantra-sāadhanā*.

The subtle power of *Śabda*, induced in the spiritually refined *vāṇī* of the *sādhaka*, is described in the ancient scriptures (of *Mantra Vidyā*) as – *vāk*. For a ready reference, consider a few excerpts (from the shastrika literature) cited below:

Prāvīpīdvāca ūrmi Na Sindhuḥ

– Rig Veda (9 | 96 | 7)

Meaning: The waves of *vāk* travel with the vibrations (of *mantras*) like the waves in an ocean.

*Prajāpatirvā Idameka Ādhīstasya Vāgeva Stamāsīt Vāga Dvītīyā
Sa Ekśate Māmeva Vāca Viśṛajā |*

Iyaṁ Vā Ida Sarvaṁ Vibhavatyēṣyatīti //

– Tāṇḍya Brā. (20 | 14 | 2)

Meaning: *Prajāpati* – the Creator of the Universe, was alone; Only *vāk* was *thy* power in the eternity. *Thou* wished to make the manifestation of *vāk* ... Everything was then created by the *vāk*.

Tadyata Kiñcārvācīnaṁ Brahmanastad Vāgeva Sarvaṁ |

–Jai. U. (1 | 13 | 1 | 3)

Meaning: Whatever exists after *Brahm* that is the *vāk* alone.

Vage Vai Twaṣṭā |

–Aita. (2 | 4)

Meaning: *Vāk* itself is the ultimate God.

Vāk Vaivīṣvakarmaṣiḥ Vācāhīda Sarvaṁ Kṛtam

–Shatpath. (8 | 1 | 2 | 9)

Meaning: This *vāk* itself is *ṛṣi* Vishwakarma. Everything is created by it.

*Yo Vai Tām Vācam Veda Yasmā Eva Vikārah
Sa Sampratividkārī Vai Sarvā Vāk |*

—Ait. Brā (2 | 3 | 6)

Meaning: One who knows the eternally existing, most original (genesis of all the creations) *vāk* – is Omniscient.

The realization, to some extent, of the subtle power of sound has been revived in the modern era by the scientific works on ultrasound and infra-sound. The ultrasonic research findings of a French scientist, Dr. Leisswin, were successfully used for the first time in 1914 for recognition of underwater objects (like submarines) during the First World War. There has been a significant progress in the applications of ultrasound in the twentieth century. Drs. U. Adala, D. Hertz and Dr. Hughes etc. had successfully used this form of sound for preliminary applications in the field of medicine during 1942–1950. Today, the medical technology is making tremendous use of advanced ultrasonic devices for noninvasive diagnostic purposes and for delicate surgical operations.

The effects of *mantra* are based on subtler levels of sound than the ultra- or infra- sounds. The body components like the tongue and the palate are supporting tools for augmenting the frequency of the sound of the syllables of *mantra*. The inner extrasensory energy-centers of the body (including those in the brain) exponentially amplify – with the help of the vital power of the bio-electricity and the strength of consciousness (of the *sādhaka*), the frequency of the sound waves of the *mantra* far beyond the limits of ultrasonic and supersonic vibrations.

Scientific investigations on *mantra vidyā* are necessary considering the fact that only a handful of genuine ‘experts’ of this latent field of knowledge could be available today. Many ‘so called’ religious and spiritual ‘masters’ have been making a mockery of this great science by false propaganda and superstitious proclamations since the medieval era of moral, cultural and social decline.

Every scientifically liberated mind should realize that — *mantra-japa* involves subliminal powers of sound, experiment on which demand

sincere pursuit of certain disciplines and perfection in the patterns of enunciation along with stability and depth of meditation. The effect of a *mantra* is mostly spiritual in nature. Research in the science of *mantras* therefore cannot be independent of the science of deeper psychology and spirituality.

Laboratory experiments on ultrasonic effects have shown that the vibrations at a high frequency – of the order of five crores per second – can produce so much energy that would convert the surrounding material into vapors and ashes almost instantaneously. Then what about the power of the vibrations that are generated at exponentially faster frequencies by a controlled use of bio-electricity, vital energy and the sublime force of the otherwise unused (latent) part of the human-consciousness? Why wouldn't they induce supersonic impulses in the etheric whole and create cosmic effects?

For a systematic and detailed analysis of the above aspects of *mantra-vidyā*, a comprehensive study of the scriptures on *yoga sādhanās* would be inevitable. The 'visualization' (realization) of the seventy-two thousands *nāḍīs*, mysterious bundles of nerves and muscles (*uṭṭyikās*) and the extrasensory knots (*granthīs*) and energy pools (*cakras*) along the spinal column and the *brahm randhras* in the brain – by specific *sādhanās* of *Śabda Yoga* and *Nāda Yoga*, would be a promising method for thorough experimental investigations in this regard.

The psychological effects of *mantra- japa* are far more important than its sonic effects. The *tāntrika* part of *mantra vidyā* describes the tongue as Shakti (the Goddess Parvati) and the heart as the God Shiva. These are also termed as *Rayi* and *Prāṇa* or *Agni* and *Soma*. These two represent the eternal and mutually complementary subliminal currents of cosmic *prāṇa*, the confluence of which is supposed to be the source of existence and evolution of everything in this world....

The connection between the positively and negatively charged electrodes makes a complete circuit for the flow of electrical current. Similarly, though subliminally, the arousal of Shakti by *japa* (through

the tongue) and the realization of Shiva by the intrinsic force of *śraddhā* (educed in the emotional core/heart) during a *mantra-sādhana* generate a ‘current’ of the hidden force of *Śabda*. The latter, being empowered by the eternal consciousness induces supernatural sonic effects and inculcates immortal beatific impressions in the subconscious, unconscious and super conscious domains of the mind.

Āchārya Vinoba Bhave, an ardent disciple of Mahatma Gandhi and the founder of the Sarvodaya Mission used to regard the process of speaking as a mode of worshipping the *vāṇī*. He had accordingly restrained and refined this faculty so well, that every word uttered by him was like a ‘*japa*’. This is why, his short but inspiring speech used to lay magical effects on the audience. It was this power of his refined *vāṇī* that had made his Bhūdāna project a real success.....

A quote in Shatpath Brahmana mentions that the words or speech which can eliminate the evils from the minds of all people and which can inspire the human society towards the righteous path – are true *mantras* of *Sarasvatī* (– the deity of pure knowledge and intelligence). Thus, as far as the psychological impacts are concerned, any kind of speech or conversation, which is originated by altruist sentiments and intrinsic urge towards the true welfare of all, can be effective like a *mantra*.

The creative and enchanting impacts of music on human-psychology are well accepted today and interdisciplinary scientific research is quite active to make use of the same against psychological disorders and as a ‘tonic’ for mental health and enthusiasm for those engaged in monotonous laborious works. Research should also begin for – understanding the meaning and complexities of the phonetic symbols used in the *Vaidika Mantras*, deciphering the spectrum of accents and rhythmic chanting patterns (*Sāma Gāna*) for these *mantras* and devising scientific methods to experiment with them.

The “*Kalpa*” methods of *Āyurvedika* treatments of any disease begin after performing *Nāḍī Śodhana*, which consist of five basic steps – *vaman*, *virecana*, *snehana*, *swedana* and *nasya* – pertaining to the

complete cleansing and purification of the body-system. The *Rāja Yoga*, *Hatha Yoga* and the *Tantra Yoga* also have five basic disciplines (*Yamas* and *Niyams*) and training steps each. The practices of learning the associated *yoga* cannot begin without completion of these training steps. Similarly, the experiments on a *mantra sādhanā* demand deeper refinement and understanding, and endeavors for mental and emotional conjunction with the five components – namely, the *Riṣi*, *Chanda*, *Devatā*, *Bīja* and *Tatva* – of the *mantra* as described in its *vinīyoga*.

The ultrasonic devices are often used for identifying electrical leakage or short-circuit in complex networks. The sonic patterns of the *mantras* when realized inside the body can similarly help the *sādhaka* know his own defects and infirmities and also invent the wonderful web of the extrasensory nuclei of consciousness inside the body. *Thy*-presence in the individual self could be expressed and experienced by self-realization through *mantra sādhanā*. This eventually effectuates spiritual transmutation of the individual consciousness into the divine consciousness....

Footnotes cited in the Text

¹*Anāhata* means unbeaten, not produced by any physically existing vibration...

²Including mental recollection, retention, imagination and the processing of thoughts and emotions.

³*Japa* means repeated rhythmic enunciation with meditation.

⁴*Prakṛati* – the eternal power of creativity in Nature and *Purūṣa* – *thy* creator of the universe and the anti-universe....

⁵The word *sāadhanā* refers to dedicated (spiritual) endeavors aimed at (inner) refinement and elevation.

⁶The seven eternal notes (*sapta swaras*) in the natural octave of music are also referred in the *shastras* as the seven heavens in the latent universe – symbolizing the sublime levels of cosmic sound.

⁷*Oam* is the self-existent expression of *Śabda*, described to be the eternal manifestation of *thy* power and the origin of the existence of energy in the cosmos.

⁸The five basic elements of the gross manifestation of the world are called *Panca Tatvas*. Namely, *pṛaithvī* (solid matter on or inside the earth), *jala* (water, liquids and fluids), *vāyū* (air), *agni* (source of fire and energy) and *ākāśa* (the subliminal etheric expansion and medium of mental perceptions).

⁹*Ṣaṭ cakras*: The six extrasensory energy nuclei along the endocrine column.

Upatyikās: The subtle glands and nerve-bundles that are supposed to control the subliminal flow of consciousness.

Granthis: Three extrasensory knots along the endocrine column.

¹⁰*Nāḍīs*: The word *nāḍī* implies a neural passage. The terms *Idā* and *Pinglā nāḍīs* refer to the latent streams of powers connected with the *Pituitary* and *Pineal* glands; described to be the solar and lunar currents of vital energy flowing respectively on the right and the left side of the *Suṣumnā Nāḍī* – extrasensory canal (of subliminal flow of *prāṇa*) hidden in the inner core of the spinal column.

¹¹*Panca Kośas*: The five subliminal sheaths of consciousness – the *annamaya kośa*, *prāṇamaya kośa*, *manomaya kośa*, *vijñānamaya kośa* and the *ānandamaya kośa*.

¹²*Kundalinī* : (also known as the gigantic ‘serpentine fire’) symbolizes the sublime source of absolute life-force, the latent reservoir of supernatural powers.

¹³*Swādhyāya* and *Satsang*: Enlightening discourses, discussions and study of the sagacious thoughts and glorious works of great personalities on different aspects of life.

¹⁴*Mantra-Sāadhanā*: Dedicated endeavors and experiments of the subtle science of sound aimed at activating the hidden power of *mantras* and conjugating the inner force of mind and vital spiritual energy with the omnipresent, subliminal flow of *Śabda*.

¹⁵Similar to the controls in the transistors and the transducers....

¹⁶A graphical representation of the sonic pattern (waveform geometry drawn on a paper or a visual image of the same) is called a spectrograph.

¹⁷In this book, the word *sādhaka* would imply a disciple, a devotee who endeavors a *sāadhanā* of *mantra-japa*.

¹⁸Named Jāṭharāgni, Mandāgni and Tīvrāgni.

¹⁹A small specifically designed pond (pit of clay) for fire-woods in which holy sacrifices are made in the fire during a *yajña*.

²⁰*Māntrika* : an expert of the *mantra-vijñāna* (the science of *mantras*)

²¹*Ākāśa*: The etheric expansion in the cosmos and the subliminal medium of mental perceptions.

²²*Samkalpa*: Self-determination with inner strength.

Samvedanā: Deeper emotions emanated from pure love and compassion through heart.

²³For instance, the amazing potentials, of the *rāgas* – Deepak, Meghamalhāra, Mohan, Śankar and Śrī, as described earlier.

²⁴*Śraddhā*: Absolute intrinsic faith that inspires and inculcates divine sentiments and values.

²⁵*Viśvāsa* implies – unperturbed confidence, inner belief, which leads to, and, which is an outcome of enlightened knowledge.

²⁶Each musician or singer has a distinct role to play in an orchestra choir. Similarly, there are different types of *Ritvijas* (chanters of *Ricās*) in a team for a *Sāma Gāna*.

²⁷*Savitā* refers to the subtle body of the Sun.

²⁸*Vāk* – the pure, true and spiritually sublimated (inner) voice.

²⁹The word “Brahmin” is a title that represents, without any constraint of cast and creed, a truly learned, altruist person who lives for the welfare of the others and with the moral dignity of humanity.

³⁰*Kusamskāras* imply the animal instincts, vices and evil habits and untoward passions that are assimilated in one's nature, character and deeds since the previous births and the earlier part of the present life.

³¹The *apāna prāṇa* is the third sublimated level of the vital energy.

³²These types of difficult endeavors of *yoga*-practices fall under the domain of *Haṭha Yoga*.

³³*Tapa*: Devout austerity and ascetic endeavor of spiritual refinement.

³⁴*Jīva*: The individual self – the manifestation of the soul in a physical body.

³⁵The word meaning of *Vāṇī* is Voice. It is a manifestation of the physical power of Śabda and is used for vocal expression communication.

³⁶The *sahasrārā cakra* and the *hṛdaya cakra* are the extrasensory energy centers (among the *ṣaṭ cakras*, along the endocrine column) that are hidden respectively in the upper brain and the heart.

³⁷*Prāṇa*: The vital spiritual energy.

³⁸In *sukhāsana* one is supposed to be sitting comfortably with legs rolled round (cross folded) and erect spinal cord.

³⁹*Śiva* and *Śakti* represent the absolute source and eternal impulse of divine consciousness subliminally present in Nature and in the *sādhaka*.

⁴⁰The layer of ions about 35 -45 miles above the earth's surface is referred as the ionosphere.

⁴¹The quotes in the Vedas and other Indian scriptures of yore are said to have been 'heard' (realized intuitively) by the *ṛṣis* and are therefore termed as *Śrutis*.

⁴²*Kāmadhenu* is a symbolic divine cow whose 'milk' is supposed to fulfil all desires.

⁴³*Paramtapa* refers to the supreme *tapa* of spiritual refinement and ultimate evolution of consciousness.

⁴⁴*Brahmcarya* – the discipline of physical and mental chastity. It incorporates piety of character, stability of mind and body for natural avoidance or continence of erotic thinking, carnal desires, excitations and sexual indulgence.

⁴⁵The number of *āhutis* (herbal sacrifices) made in the *Yajña*- fire is a specific fraction of the number of *mantra-japas* completed by the *sādhaka* per day during the *anuṣṭhāna*.

⁴⁶Most of the Gods worshiped in the Hindu system are referred in the shastras as the *devatās* of different *Vaidika Mantras*

⁴⁷*Brahmāṇḍa*: The eternal omnipresent manifestation of the Supreme Consciousness in the universe and the cosmic expansion.

⁴⁸*Samskāras*: Inherent and intrinsic tendencies.

⁴⁹*Karma* — one's conduct and deeds as a human being that constitute his destiny via intimate linkage with the continuum of infinite movements and activities happening in the ever expanding infinite domains of cosmos and consciousness.

⁵⁰The term *wave* and its characteristics could be easily understood by observing the waves of the water in a sea — these waves move up and down in an orderly and periodic manner. The distance between two successive ups or downs of these waves is called their *wavelength*. The number of ups and downs passing through a given point per unit time is called the *frequency* of these waves.



Glossary of terms (in Sanskrit) from Shastrik Literature⁵¹

Agnihotra (Havans or homam): Small-scale *yagya* that could be performed every-day at home.

Anāhat: Non-vibrant, still, unheard (subliminal).

Anuṣṭhāna: Determined ascetic endeavor aimed at noble spiritual purpose.

Apāna prāṇa: The third sublimated level of the vital spiritual energy.

Ākāśa: The etheric expansion in the cosmos and the subliminal medium of mental perceptions.

Ākāśa Tatva: The subtlest among the five basic constituents (*panca tatvas*) of Nature. This quintessential element (*tatva*) is what serves as the ‘etheric expansion’ of energy waves and what is the medium of omnipresent flow of consciousness.

Ālāpa – A continuous vocal musical tune set in a single accent before singing any classical *rāga*.

Brahmcarya – the discipline of physical and mental chastity. It incorporates piety of character, stability of mind and body for natural avoidance or continence of erotic thinking, carnal desires, excitations and sexual indulgence.

Brahmāṇḍa: The cosmic macrocosm; the eternal omnipresent manifestation of the Supreme Consciousness in the universe and the cosmic expansion.

Brahmin: The word “Brahmin” is a title, that represents, without any constraint of cast and creed, a truly learned, altruist person who lives for the welfare of the others and with the moral dignity of humanity.

⁵¹The English letters and special symbols used here for the Sanskrit Script are in accordance with the international transliteration standards.

Devatā (or *deva*): A manifestation of divine powers. (Most of the Gods worshiped in the Hindu system are referred in the shastras as the *devatās*

of different *Vedic Mantras*). The *devatā* of a *mantra* is the divine source, which inspired the creation of that mantra and which is indeed the core of the cosmic power (of *Śabda*) focused in the sublime sonic pattern of the latter.

Granthis: Three extrasensory knots along the endocrine column.

Japa: Repeated rhythmic enunciation (of a *mantra*) with meditation.

Japa Sāadhanā: *Japa* accompanied by specific spiritual practices.

Jīva: The individual self – the manifestation of the soul in a physical body.

Karma: One's conduct and deeds as a human being that constitute his destiny via intimate linkage with the continuum of infinite movements and activities happening in the ever expanding infinite domains of cosmos and consciousness.

Kāmadhenu: A symbolic divine cow whose 'milk' is supposed to fulfil all desires .

Kuṇḍa (*Havan Kuṇḍa*): A small specifically designed pond (pit of clay) for fire-woods in which holy sacrifices are made in the fire during a *yajña*.

Kuṇḍalinī: (also known as the gigantic 'serpentine fire') symbolizes the sublime source of absolute life-force, the latent reservoir of supernatural powers.

Kusamskāras: The animal instincts, vices and evil habits and untoward passions that are assimilated in one's nature, character and deeds since the previous births and the earlier part of the present life.

Manan: Sincere contemplation with a calm and clean mind.

Mantra-Sāadhanā: Dedicated endeavors and experiments of the subtle science of sound aimed at activating the hidden power of mantras and conjugating the inner force of mind and vital spiritual energy with the omnipresent, subliminal flow of *Śabda*.

Mantra Vijñāna: The science of *mantras*.

Māntrika : an expert of the *mantra-vijñāna* (the science of *mantras*)

Nāda: The rhythmic flow of eternal musical sound.

Nāḍis: The word *nāḍi* implies a neural passage. The terms *Iḍā* and *Pīṅglā nāḍis* refer to the latent streams of powers connected with the *Pituitary* and *Pineal* glands; described to be the solar and lunar currents of vital energy flowing respectively on the right and the left side of the *Suṣumnā Nāḍi* – extrasensory canal (of subliminal flow of *prāṇa*) hidden in the inner core of the spinal column.

Oam: The self-existent expression of *Śabda*, described to be the eternal manifestation of *thy* power and the origin of the existence of energy in the cosmos.

Panca Kośas: The five subliminal sheaths of consciousness – the *annamaya kośa*, *prāṇamaya kośa*, *manomaya kośa*, *vijñānamaya kośa* and the *ānandamaya kośa*.

Panca Tatvas: The five basic elements of the gross manifestation of Nature. Namely, *prithvī* (solid matter on or inside the earth), *jala* (water, liquids and fluids), *vāyū* (air), *agni* (source of fire and energy) and *ākāśa* (the subliminal etheric expansion).

Paramtapa: Supreme *tapa* of spiritual refinement and ultimate evolution of consciousness.

Piṇḍa: The microcosm or the individual body.

Prakṛati and *Purūṣa*: *Prakṛati* – the eternal power of creativity in Nature and *Purūṣa* – *thy* creator of the universe and the anti-universe....

Prāṇa: The life-force, the vital spiritual energy.

Puraścaraṇa: A highest level *anuṣṭhāna* of 2400, 000 *japa sādhanās* of the *Gāyatrī Mantra* under distinct ascetic disciplines.

Ritvija: Each musician or singer has a distinct role to play in an orchestra choir. Similarly, there are different types of *Ritvijas* (chanters of *Ricās*) in a team for a *Sāma Gāna*.

Samskāras: Inherent and intrinsic impressions and tendencies.

Samyam: Continence with inner determination.

Samkalpa: Self-determination with inner strength.

Sapt swaras: The seven basic notes of the ‘gamut’ of the Indian classical system of music. The seven eternal notes (*sapta swaras*) in the natural octave of music are also referred in the *shastras* as the seven heavens in the latent universe – symbolizing the sublime levels of cosmic sound.

Savitā: The subtle body of the Sun.

Sāadhanā: Dedicated (spiritual) endeavor aimed at (inner) refinement and elevation.

Sādhaka: Who sincerely performs a *sāadhanā*. (In this book, the word *sādhaka* would imply a disciple, a devotee who endeavors a *sāadhanā* of *mantra-japa*).

Siddhi: Supernatural power and supramental talent.

Sukhāsana: In this posture one is supposed to be sitting comfortably with legs rolled round (cross folded) and erect spinal cord.

Śabda: The eternal element of cosmic sound.

Śiva and *Śakti* represent the absolute source and eternal impulse of divine consciousness subliminally present in Nature and in the *sādhaka*.

Śūnya – the absolute void, the ultimate, the ‘non-existent’ but eternal realms of *thy* conception.

Śraddhā: Absolute intrinsic faith that inspires and inculcates divine sentiments and values.

Śrutis: The quotes (hymns) in the Vedas and other Indian scriptures of yore are said to have been ‘heard’ (grasped intuitively) by the *ṛiṣis* and are therefore termed as *Śrutis*.

Ṣaṭ cakras: The six extrasensory energy nuclei along the endocrine column. The *sahasrāra cakra* and the *hṛdaya cakra* are two such *cakras* and are hidden respectively in the upper brain and the heart.

Swādhyāya and *Satsang*: Enlightening discourses, discussions and study of the sagacious thoughts and glorious works of great personalities on different aspects of life.

Tapa (*tapasyā*, *tapāścaryā*): Devout austerity and ascetic endeavors of spiritual refinement.

Upāsanā: Devout worship or devotional practice to enable the devotee recall and experience *thy*-presence within and around him.

Upatyikās: The subtle glands and nerve-bundles that are supposed to control the subliminal flow of consciousness.

Vāk – the pure, true and spiritually sublimated (inner) *vāñī*.

Vāñī: The word meaning of *vāñī* is voice. It is a manifestation of the physical power of *Śabda* and is used for vocal expression communication.

Vidyā: Deep knowledge that is not only retained in mind and confined to intellectual transactions but is also adopted in conduct and expands to enlightenment of personality.

Viśvāsa: Unperturbed confidence, inner belief, which leads to, and which is, an outcome of enlightened knowledge.

Yajña (*agni-yagya*): The scientific process (or gross form) of *yagya* in which specific herbal preparations are sacrificed and sublimated in the fire of some selected sacred woods.

Yagyāgni: The sacred fire of *yagya*.

The Book is compiled (from Pt. Shriram Sharma Acharya Vangmaya Vol. 19) and translated by: Dr. Rajani Joshi
