

THE THEOSOPHIST

A MONTHLY JOURNAL DEVOTED TO ORIENTAL PHILOSOPHY, ART, LITERATURE AND OCCULTISM: EMBRACING MESMERISM, SPIRITUALISM, AND OTHER SECRET SCIENCES.

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BOMBAY, NOVEMBER, 1879.

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THE THEOSOPHIST.

BOMBAY, NOVEMBER 1st, 1879.

No attention will be given to anonymous letters. Communications of every nature must be signed, as a guarantee of good faith. Names will not be disclosed without permission.

Persons having business with the Editors or Publisher will please apply at the new office, which has been fitted up in the compound of the Theosophical Society's Library, adjoining the Head-quarters residence. The peon in attendance will answer questions and report the names of visitors.

Articles intended for insertion in the following number of this journal, should reach the Editors by the 10th of the current month, never later than the 15th, if avoidable. A careful discrimination has to be exercised, and when the selections are once made, it is very inconvenient to change

them. As we cannot obligate ourselves to return rejected communications, the authors will do well to preserve copies.

"C. R." is informed that his criticism upon the unfair treatment of natives in connection with the Civil Service management of the Indian Government, though very able and convincing, is unsuitable for these columns. Ours is strictly a religious, philosophical, and scientific journal, and it would be improper for us to either discuss political questions ourselves or permit it to be done by others. For the same reason, we must decline the poem addressed to Her Majesty, the Queen-Empress, sent from Baroda State.

Numerous enquiries having been made for books advertised in last month's issue of the Theosophist, we would say that the proper course is either to get some local bookseller to indent for them, or remit the price by Postal Money Order to the Publishers direct. For subscribers whom it would especially accommodate we will order books or journals without charging any extra commission, upon their sending us the full advertised price, together with annas 5 for overland postage, and extra stamps to pay for discount when the remittance is in stamps.

Correspondents—especially those living outside India, but within the limits of the Universal Postal Union—should know that manuscripts sent to this journal for publication are classified as "Legal and Commercial Documents," and subject to very reduced rates of postage. The last Overland Mail brought us *in a closed envelope*, a contribution from England on which the sender had paid Rs. 3-5; whereas, if he had merely wrapped it like a newspaper and inscribed it "Press MSS. for publication," it would have come for two annas.

Before our journal was published some natives—perhaps not over friendly—expressed their incredulity that the promise of the Prospectus would be kept at the appointed time. When it actually appeared, promptly on the day fixed, they hinted that many such journals had been hitherto started only to fail before the year was out, and leave their subscribers to mourn their flitting rupees. For the comfort of such doubters let us now say that the THEOSOPHIST will punctually greet its friends on or about the first of every month of the year of subscription. It was started for a purpose, and the honor of our Society is pledged for its accomplishment. Before even the Prospectus was printed, the entire cost of the undertaking was provided for irrespective of all considerations of patronage. But it may surprise, as doubtless it will also gratify, editorial friends who forewarned us to wait two years for the paper to meet its own expenses, to learn that they were false prophets.

As regards our "bold innovation" of introducing the American and English system of "cash payment in advance," it would seem as if its superior merits have already struck even the Indian public. In fact it is no more agreeable, and even less honorable, for a man to be dunned month after month for his petty arrearages to his publisher than for his greater ones to his landlord. "Short payments

make long friends." The debtor is always the slave of the creditor, and in the natural order of things comes to hate him, as soon as the latter's necessities make him importunate.

BUDDHISTIC EXEGESIS.

We feel honored in being able to lay before Western thinkers preliminary contributions from two of the most eminent priests of the religion of Buddha, now living. They are H. Sumangala, High Priest of Adam's Peak, Ceylon, the most venerated of Buddhistic monasteries; and Mohottiwatte Gumananda, superior of the Vihare Dipaduttama, at Colombo, Ceylon. The former is recognized by European philologists as the most learned of all the representatives of his faith; in fact, Dr. Muir of Edinburgh recently called him a polyglot, so extensive and accurate is his knowledge of languages and philosophies. His eminence as an instructor is also shown in his occupancy of the position of President of the Elu, Pali and Sanskrit, College Vidyodaya. As a preacher and expositor of doctrine he is no less distinguished, while his personal character is so pure and winsome that even the bigoted enemies of his religion vie with each other in praising him. In the year 1867 a synod of the Buddhist clergy, called to fix the text of the *Sūtras* and *Pitakas*, was presided over by him. When it was decided to reorganize the Theosophical Society upon the basis of a Universal Brotherhood of humanity, uniting men of all creeds in an effort to spread throughout the world the basic principles of a true religion, he cheerfully gave his adhesion to the movement, and accepted a place in the General Council; thus dignifying the Society and securing it the good will of Buddhists, the world over. Far from asking that it should be given a sectarian character and made a propaganda of Buddhism, he sent his "respectful and fraternal salutation to our brethren in Bombay" in his letter of acceptance, and has shown from first to last the disposition to assist unreservedly and cordially our labours.

Who our other contributor is, the Christian world, or at any rate that portion of it with which the Missionaries in Ceylon have relations, very well know. For years he has been the bravest, subtlest, wisest, and most renowned champion of Buddha's Doctrine, in Ceylon. Six, or more, times he has met the chosen debaters of the Missionaries before vast assemblages of natives, to discuss the respective merits of the two religions, and was never yet worsted. In fact, it is only too evident in the admissions of Christian papers that he silenced his adversaries by his searching analysis of Bible history and doctrines, and his exposition of the Law of Buddha. A pamphlet edition of the report of one of these great debates was published at London and Boston, two years ago, under the title "Buddhism and Christianity Face to Face," which should be read by all for whom the subject has an interest. We are promised a translation of another similar debate from the careful report made at the time in the Sinhalese language. In all, Priest Mohottiwatte—or, as he is popularly termed in Ceylon, *Megittuwatte*—has preached over 5,000 discourses upon the Buddhistic religion, and devoted the whole strength of his noble heart to his sacred mission. His interest in our Society is as sincere as Sumangala's, and his ardor in promoting its influence characteristic of all he does. He has no reluctance whatever to cooperate with our Aryan, Brahmanic, Parsi, Jain, and Hebrew members in carrying on our work. "We feel happier than can be described," he writes, "to learn about the cordial receptions given you by the brothers in London and by the natives of India. I am sorry that, without putting my congregation and myself to great inconvenience, I can not be present in person at the meeting with Swami Dayānund. But I enclose a letter signed by the Revd. Sumangala, the High Priest, and myself, recording our unqualified approbation of your kind suggestion to place us as representatives of our faith in your Oriental Council." In another letter to Col. Olcott he says, "We are rejoiced to know that such a learned, good and influential gentleman as Dayānund Saraswati Swami,

is every way favorably disposed towards you." Such men as these two worthily exemplify the divinè doctrines of Sākhyā Muni.

In the whole experience of the officers of the Theosophical Society, no incident has been more cheering and delightful, than the friendliness with which their advances have been met by the Buddhists. If we had been brothers long separated, our greeting could not have been warmer. Says the venerable Chief Priest Sumanattissa, of the Paramananda Vihare, near Point de Galle—now in his sixty-sixth year.—"To use an Oriental simile, I and my many disciples anxiously wait your arrival, as a swarm of peacocks joyously long for the downpour of a shower." We trust that our duties will permit us before long to meet all our Sinhalese brothers in person, and exchange congratulations over the encouraging prospects of our peaceful humanitarian mission.

A THUNDER CLOUD WITH SILVER LINING.

"All comes in good time to him who knows to wait," says the proverb. The small party of New York Theosophists who arrived at Bombay eight months ago, had scarcely enjoyed the friendly greeting of the natives when they received the most unmerited and bitter insult of an accusation of political intrigue, followed by a shower of abuse and slander! We had come with the best and purest of intentions—however utopian, exaggerated, and even ill-timed, they may have seemed to the indifferent. But lo! who hath "believed our report?" Like Israel, the allegorical man of sorrow of Isaiah, we saw ourselves for no fault of ours "numbered with the transgressors," and "bruised for the iniquities" of one for whose race we had come to offer our mite of work, and were ready to devote our time and our very lives. This one, whose name must never pollute the columns of this journal, showed us his gratitude by warning the police that we were come with some dark political purpose, and accusing us of being spies—that is to say, the vile of the vile—the *mangs* of the social system. But now, as the last thunder-clap of the monsoon is dying away, our horizon too is cleared of its dark clouds. Thanks to the noble and unselfish exertions of an English friend at Simla, the matter has been brought before His Excellency, the Viceroy. The sequel is told in the Allahabad *Pioneer*, of October 11th, as follows:

"It will be remembered that in the beginning of this year their feelings were deeply hurt on the occasion of a trip they made up-country by an insulting espionage set on foot against them by the police. It appears that some groundless calumny had preceded them to this country, and that the police put a very clumsy construction upon certain orders they received from Government respecting the new arrivals. However, since then the subject has been brought especially to the Viceroy's notice, and, satisfied that the Theosophists were *misrepresented in the first instance*, he has given formal orders, through the Political Department, to the effect that they are not to be any longer subject to interference."

From the bottom of our hearts we thank his Lordship for having with one single word rubbed the vile stain off our reputations. We thank Lord Lytton rather than the Viceroy, the *gentleman*, who hastened to redress a wrong that the Viceroy might have overlooked. The high official has but done an act of justice, and would not have been wholly blameable if, under the temporary pressure of political work of the highest importance, he had put it off to the Greek kalends. We love to feel that we owe this debt of gratitude to the son of one whose memory will ever be dear and sacred to the heart of every true theosophist; to the son of the author of "Zanoni," "A Strange Story," "The Coming Race," and the "House, and the Brain;" one who ranked higher than any other in the small number of genuine mystical writers, for he knew what he was talking about, which is more than can be said of other writers in this department of literature. Once more we thank Lord Lytton for having prompted the Viceroy.

And now, for the last time in these columns, as we hope, we will say a few words more in reference to this sad page in the history of our Society. We first wish to thank those many outside friends, as well as Fellows of

the Theosophical Society, who, regardless of the danger of associating with strangers so much ostracized, kept true to us throughout the long trial, scorning to abandon us even at the risk of loss of employment, or of personal disgrace! Honour to them; most gladly would we, were it permitted, write their names for the information of our Western Fellows. But we can never forget, on the other hand, the two or three instances of shameful, cowardly desertion, that have occurred. They were among those who had talked the most, who had most loudly protested their changeless and eternal devotion to us; who called us "brothers" near and dear to their hearts; had offered us their houses, their carriages, and the contents of their purses—if we would only accept them—which we did not. At the first apprehension that idle rumour might become a reality, these were the swiftest to desert us. One, especially, whose name we will refrain from mentioning, though we would have a perfect right to do so, acted towards us in the most disgraceful way. At the first hint from an official superior, cowering like a whipped hound before a danger more imaginary than real, he hastened to repudiate not only his "brothers," but even to pointedly disclaim the remotest connection with the Theosophical Society, and conspicuously published this repudiation in an Anglo-Vernacular paper!

To him, we have no word to say, but as a lesson for such others as in the future may feel like imitating him, we will quote these words of an English gentleman (not the lowest among Govt. officials) who has since joined our Society, who writes us in reference to this personage:

"If I were you, I would bless my stars that such a sneak left our Society of his own accord before he put us to the trouble of expelling him. *Falsus in uno, falsus in omnibus*. A Fellow who, after pledging his *word of honour* *to protect the interest of his Society, 'also the honour of a Brother Fellow,' even 'at the peril of his life,' (*Rules*, Art. II.) breaks it and turns traitor without any other cause than his own shameful cowardice, offers but a poor guarantee for his loyalty even to the Government that he has sworn allegiance to....."

In all their search after strong words to fling at it, our enemies never once thought of charging the Theosophical Society with harboring and honoring poltroons.

CROSS AND FIRE.

Perhaps the most widespread and universal among the symbols in the old astronomical systems, which have passed down the stream of time to our century, and have left traces everywhere in the Christian religion as elsewhere,—are the Cross and the Fire—the latter, the emblem of the Sun. The ancient Aryans had them both as the symbols of Agni. Whenever the ancient Hindu devotee desired to worship Agni—says E. Burnouf (*Sciences des Religions*, c. 10)—he arranged two pieces of wood in the form of a cross, and, by a peculiar whirling and friction obtained fire for his sacrifice. As a symbol, it is called *Swastica*, and, as an instrument manufactured out of a sacred tree and in possession of every Brahmin, it is known as *Arani*.

The Scandinavians had the same sign and called it Thor's Hammer, as bearing a mysterious magneto-electric relation to Thor, the god of thunder, who, like Jupiter armed with his thunderbolts, holds likewise in his hand this ensign of power, over not only mortals but also the mischievous spirits of the elements, over which he presides. In Masonry it appears in the form of the grand master's mallet; at Allahabad it may be seen on the Fort as the Jaina Cross, or the Talisman of the Jaina Kings; and the gavel of the modern judge is no more than this *crux dissimulata*—as de Rossi, the archæologist calls it; for the gavel is the sign of power and strength, as the hammer represented the might of Thor, who, in the Norse legends splits a rock with it, and kills Medgar. Dr. Schlie-mann found it in *terra cotta* disks, on the site, as he believes, of ancient Troy, in the lowest strata of his excavations; which indicated, according to Dr. Lundy, "an Aryan civili-

zation long anterior to the Greek—say from two to three thousand years B. C." Burnouf calls it the oldest form of the cross known, and affirms that "it is found personified in the ancient religion of the Greeks under the figure of Prometheus "the fire-bearer," crucified on mount Caucasus, while the celestial bird—the *Cyena* of the Vedic hymns,—daily devours his entrails. Boldetti, (*Osservazioni* I, 15, p. 60) gives a copy from the painting in the cemetery of St. Sebastian, representing a Christian convert and grave-digger, named Diogenes, who wears on both his legs and right arm the signs of the *Swastica*. The Mexicans and the Peruvians had it, and it is found as the sacred 'Tau' in the oldest tombs of Egypt.

It is, to say the least, a strange coincidence, remarked even by some Christian clergymen, that *Agnus Dei*, the Lamb of God, should have the symbols, identical with the Hindu God Agni. While *Agnus Dei* expiates and takes away the sins of the world, in one religion, the God *Agni* in the other, likewise expiates sins against the gods, man, the manes, the soul, and repeated sins; as shown in the six prayers accompanied by six oblations. (Colebrooke—*Essays*, Vol. 1, p. 190).

If, then, we find these two—the Cross and the Fire—so closely associated in the esoteric symbolism of nearly every nation, it is because on the combined powers of the two rests the whole plan of the universal laws. In astronomy, physics, chemistry, in the whole range of natural philosophy, in short, they always come out as the invisible cause and the visible result; and only metaphysics and alchemy—or shall we say *metachemistry*, since we prefer coining a new word to shocking skeptical ears?—can fully and conclusively solve the mysterious meaning. An instance or two will suffice for those who are willing to think over hints.

The Central Point, or the great central sun of the Kosmos, as the Kabalists call it, is the Deity. It is the point of intersection between the two great conflicting powers—the centripetal and centrifugal forces, which, drive the planets into their elliptical orbits, that make them trace a cross in their paths through the Zodiac. These two terrible, though as yet hypothetical and imaginary powers, preserve harmony and keep the Universe in steady, unceasing motion; and the four bent points of the *Swastica* typify the revolution of the Earth upon its axis. Plato calls the Universe a "blessed god" which was made in a circle and decussated in the form of the letter X. So much for astronomy. In Masonry the Royal Arch degree retains the cross as the triple Egyptian Tau. It is the mundane circle with the astronomical cross upon it rapidly revolving; the perfect square of the Pythagorean mathematics in the scale of numbers, as its occult meaning is interpreted by Cornelius Agrippa. Fire is heat,—the central point; the perpendicular ray represents the male element, or spirit; and the horizontal one the female element—or matter. Spirit vivifies and fructifies the matter, and everything proceeds from the central Point, the focus of Life, and Light, and Heat, represented by the terrestrial fire. So much, again, for physics and chemistry, for the field of analogies is boundless, and Universal. Laws are immutable and identical in their outward and inward applications. Without intending to be disrespectful to any one, or to wander far away from truth, we think we may say that there are strong reasons to believe that in their original sense the Christian Cross—as the cause, and Eternal torment by Hell Fire—as the direct effect of negation of the former—have more to do with these two ancient symbols than our Western theologians are prepared to admit. If Fire is the Deity with some heathens, so in the Bible, God is likewise the Life and the Light of the World; if the Holy Ghost and Fire cleanse and purify the Christian, on the other hand Lucifer is also Light, and called the "Son of the morning star."

Turn wherever we will, we are sure to find these conjoint relics of ancient worship with almost every nation and people. From the Aryans, the Chaldeans, the Zoroastrians, Peruvians, Mexicans, Scandinavians, Celts, and ancient Greeks and Latins, it has descended in its completeness

* The Theosophical Society requires no oaths, as it deems no pledge more binding than the word of honour. Ed.

to the modern Parsi. The Phœnician Cabiri and the Greek Dioscuri are partially revived in every temple, cathedral, and village church; while, as will now be shown, the Christian Bulgarians have even preserved the sun worship in full.

It is more than a thousand years since this people, who, emerging from obscurity, suddenly became famous through the late Russo-Turkish war, were converted to Christianity. And yet they appear none the less pagans than they were before, for this is how they meet Christmas and the New Year's day. To this time they call this festival Sourjvaki, as it falls in with the festival in honour of the ancient Slavonian god Sourja. In the Slavonian mythology this deity—Sourja or Sourva,—evidently identical with the Aryan *Surya*—sun—is the god of heat, fertility, and abundance. The celebration of this festival is of an immense antiquity, as, far before the days of Christianity, the Bulgarians worshiped Sourva, and consecrated New Year's day to this god, praying him to bless their fields with fertility, and send them happiness and prosperity. This custom has remained among them in all its primitive heathenism, and though it varies according to localities, yet the rites and ceremonies are essentially the same.

On the eve of New Year's day the Bulgarians do no work, and are obliged to fast. Young betrothed maidens are busy preparing a large *platij* (cake) in which they place roots and young shoots of various forms, to each of which a name is given according to the shape of the root. Thus, one means the "house," another represents the "garden;" others again, the mill, the vineyard, the horse, a cat, a hen, and so on, according to the landed property and worldly possessions of the family. Even articles of value such as jewellery and bags of money are represented in this emblem of the horn of abundance. Besides all these, a large and ancient silver coin is placed inside the cake; it is called *bábka* and is tied two ways with a red thread, which forms a cross. This coin is regarded as the symbol of fortune.

After sunset, and other ceremonies, including prayers addressed in the direction of the departing luminary, the whole family assemble about a large round table called *paralyá*, on which are placed the above mentioned cake, dry vegetables, corn, wax taper, and, finally, a large censer containing incense of the best quality to perfume the god. The head of the household, usually the oldest in the family—either the grandfather, or the father himself—taking up the censer with the greatest veneration, in one hand, and the wax taper in the other, begins walking about the premises, incensing the four corners, beginning and ending with the East, and reads various invocations, which close with the Christian "Our Father who art in Heaven," addressed to Sourja. The taper is then laid away to be preserved throughout the whole year, till the next festival. It is thought to have acquired marvellous healing properties, and is lighted only upon occasions of family sickness, in which case it is expected to cure the patient.

After this ceremony, the old man takes his knife and cuts the cake into as many slices as there are members of the household present. Each person upon receiving his or her share makes haste to open and search the piece. The happiest of the lot, for the ensuing year, is he or she who gets the part containing the old coin crossed with the scarlet thread; he is considered the elect of Sourja, and every one envies the fortunate possessor. Then in order of importance come the emblems of the house, the vineyard, and so on; and according to his finding, the finder reads his horoscope for the coming year. Most unlucky he who gets the cat; he turns pale and trembles. Woe to him and misery, for he is surrounded by enemies, and has to prepare for great trials.

At the same time, a large log which represents a flaming altar, is set up in the chimney-place, and fire is applied to it. This log burns in honour of Sourja, and is intended as an oracle for the whole house. If it burns the whole night through till morning without the flame dying out, it is a good sign; otherwise, the family prepares to see death that year, and deep lamentations end the festival.

Neither the *momtree* (young bachelor), nor the *mommes* (the maiden), sleep that night. At midnight begins a series of sooth-saying, magic, and various rites, in which the burning log plays the part of the oracle. A young bud thrown into the fire and bursting with a loud snap, is a sign of happy and speedy marriage, and *vice versa*. Long after midnight, the young couples leave their respective homes, and begin visiting their acquaintances from house to house, offering and receiving congratulations, and rendering thanks to the deity. These deputy couples are called the *Souryakari*, and each male carries a large branch ornamented with red ribbons, old coins, and the image of Sourja, and as they wend along sing in chorus. Their chant is as original as it is peculiar and merits translation, though, of course, it must lose in being rendered into a foreign language. The following stanzas are addressed by them to those they visit.

Sourva, Soúrva, Lord of the Season,
Happy New Year mayst thou send;
Health and fortune on this household,
Success and blessings till next year.

With good crops and full ears,
With gold and silk, and grapes and fruit;
With barrels full of wine, and stomachs full,
You and your house be blessed by the God,
His blessing on you all.—Amen! Amen! Amen!

The singing Souryakari, recompensed for their good wishes with a present at every house, go home at early dawn... And this is how the symbolical exoteric Cross and Fire worship of old Aryavart go hand in hand in Christian Bulgaria.....

THE MAN-SHOW AT MOSCOW.

By Her Excellency N. A. Fadeyef, F.T.S.

Half Asiatic, white walled Moscow, the time-honoured capital-metropolis of our "Sainted Russia," is just now having the best of her fashionable modern rival—St. Petersburg, and even of the other capitals of Europe. If we mistake not, her present Anthropological Exhibition is the first of the kind ever held, as it is also the most unique of all expositions. The design was to present at one view, with the help of the geologist, palæontologist and ethnographer, all that is known or suspected as to the origin of man and his history upon the planet; more particularly to show the physical condition, the dress, manners, and customs of the diverse races and tribes of the world, especially those, so little known and studied yet, that acknowledge the sway of H.I.M.—our Czar.

So problematical seemed the issue of this scientific enterprise, that the eminent Russian naturalists who were its projectors kept their purpose very quiet for a time. They had even decided, for fear of a failure, to make no display of their invitations to various men of science, but, as soon as the main preparations had been thoroughly achieved, to privately send cards to a limited number of their colleagues throughout Europe. Museums were ransacked, and private collections put under contribution, and the government itself helped by sending specialists to various parts of the Empire to collect information. And now the exhibition has proved a thorough success.

The most interesting specimens in the palæontological department are the implements and arms of the stone age—the best being the private collections of Messieurs Anoutchine, d'Assy, and Martillier. A magnificent specimen of a well preserved skull of the man of the stone age, found by Count Oubarof at Mouromsk (government of Vladimir), and a few of the bones of the skeleton, attract general attention as being the first perfect specimens of that age ever found. The interest is divided between these and the admirable models of *dolmens*, the ancient tombs of the second neolithic period of the stone age. The specimens of the fossils of the cave man, bear, boar, bull and deer, from the caves of Swabia, sent by the Leipzig Anthropologico-Ethnographical Museum (*Museum für Völkerkunde*), are very fine also. Next to these in interest, but on an ascending scale, as it touches directly the philanthropist as well as the ethnogra-

pher, and may serve as a key to unriddle the mystery of many distinct and strange characteristics of the peoples of the world, are the models of the cradles and infant head-dresses of nearly all the nations and tribes—civilized as well as savage. The full details of the ways of nursing a baby from its birth, are given here. Cradles of most various forms,—Russian, Georgian, Tartar, Persian, Red Indian of America, Asiatic, Australian and African—most of them contrived so as to give a certain form to the head of the growing infant; and the curious tight-fitting head-dresses, crowd a whole compartment. Beginning with the narrow aperture of the Georgian Caucasian cradle, which compresses the head so as to prevent its growing in breadth, but forces its growth upwards that the *papaha* (fur cap) might fit it the better, and down to the *bouvrelet* of the Bordelese of Southern France, which made a famous French anthropologist who has just delivered a lecture upon the effects of these various modes, affirm that this custom, while throwing a mass of good singers and artists upon the world from Bordeaux, had prevented their raising one good scholar in that part of his own country—all the fashions are represented here; little manikins lying in the cradles, and manikin mothers attending on them.

The whole interior of the vast Exhibition Hall is made to resemble a gigantic grotto, divided by two hillocks, representing in miniature the various strata of our earth's formation; while each of a series of immense squares, presents a scene of some geological period—fancy and hypothesis having, as a matter of course, had a large share in the arrangement. The glory of this charming plan belongs to M. Karneief, our celebrated architect. And now, thanks to his ingenious idea, in one square, the public can stare at cleverly executed manikins of the men of the bronze age, with their implements; in the next, at the presumable inhabitant of the glacial period, crouched near his den, in dangerous proximity to the fossil elephant and cave-bear. At the foot of one of the hillocks is a pond, fed by the waters of a small cascade which falls from the top of the adjoining rocks, and in it sports a huge plesiosaurus, in company with other antediluvian monsters. All these are most cleverly executed automata. Over the slimy surface of artificial banks, creep, crawl and wriggle strange organic forms of the Devonian time; the motion being given to them by a clever mechanism of wires, wheels and springs. The idea suggested by these varieties, including the gigantic mastodon, the walking fish, and rude reptilian birds, is that the main concern of all was, on the one hand, to devour, and on the other, to escape from being devoured, by their neighbours. The "survival of the fittest" is, in short, the 'lay sermon' they preach.

The living types of Turanian tribes and races—inhabitants of Siberia and other far-away provinces of Asiatic Russia—are also creating a regular *furor*. Every people and nation is represented here—either by living specimens or dressed figures—so true to life in every particular that this has led to the most ludicrous mistakes in the public. An artificial woolly-headed Kaffir glistening like a freshly blackened boot, glares at a living Zulu who threatens him with his assegai; and, close by, a living wiry Afghan, follows with a sort of dreamy gaze the ever moving stream of ladies and gentlemen, belonging to a civilization which he neither appreciates nor admires.

Curious specimens of the Aborigenes of Siberia attract the general attention. Here we see the Samoyedes of the North Western parts of the land of exile; and the Ostiaks of the river Yenisei. The barbarous Bashkir, the mild Yakoot, and the Kirgheez from the dreary steppes of Irtysh and Ishim. The Calmucks, clean and shining in their gold-cloth chalats, caps, and long queues of hair; the tribes of Sagai, Beltires, Bernisses and Katchines; the Mongolian Bourriats of lake Baikal, and the Tunguses from the frontiers of China. Great hunters and the most civilized among all these tribes, these Siberian Nimrods are now exhibited together with the fire-arms of their own manufacture. Next come the pastoral, horse and cattle breeding nomads—the Tartar-looking Tun-

guses; and the Esquimaux Tchookchis, with their neighbours, the Coriaks. All these are distributed in several large compartments, living in their respective tents and dwellings, and surrounded by a scenery familiar to each, and even by the animals they have been accustomed to. For, living and stuffed specimens of the reindeer, the roebuck, the elk; of the wild sheep, and the arctic or stone fox; of sables, ermines, martens, marmots and squirrels, are brought, together with the white bear, the wolf, and the lynx. Even the patient camel has found room in a corner, where he shares his food with the strange looking spotted little white horse of Siberia.

As, of all the nations of the world, the tribes of Northern Siberia are the least known, I may as well describe some of the most curious of their strange ways, customs, and religious beliefs. The information was all derived from the catalogues of the Exhibition, and the official Reports of the men of science purposely sent to these far-away countries, and eye-witnesses. Let us begin with

THE INTRACTABLE SAMOYÉDES,

who will not be converted to Christianity, do what the missionaries may. Their multicolored *tchoum* (tent), the number of small bells decorating the dresses of their children, and their own parti-coloured queer garments, provoke the admiration of the Moskitch. A funny anecdote is told of himself by Professor Zograf, who travelled last year among these people for the purpose of collecting his data. While on the peninsula of Kaninsk, desirous to ascertain the average height of this people, he began by measuring an old Samoyede. Seeing this, his friends took into their heads that his operation had something to do with recruiting soldiers, and raised an outcry; pouring upon the man of science a shower of choice half-Russian and half-vernacular abuse, which was followed up with a volley of stones. They confiscated his reindeer and luggage; and would have killed him but for his presence of mind. Taking out a revolver he showed them that it could kill five men at once. Then they got their revenge out of his collection of insects and reptiles. Every drop of the spirits-of-wine in which the specimens were kept having been drunk, they became very caressing, tenderly stroked the Professor's beard, and then, as he narrates himself, began dancing around him, repeating in chorus: "Pig, pig... Russian pig!... Black beard!... Pig!... Dog, good old dog!..." until finally they fell around him in promiscuous heaps, dead drunk. One old Samoyede lay there insensible, with an empty bottle in his hand and the remains of a magnificent "collection of insects" strewn over his mouth and breast... Before his departure from the turbulent tribe Mr. Zograf had another adventure. The old hostess of the *tchoum* he was allowed to inhabit for the consideration of a barrel of whiskey, saw him once washing his face with a piece of rose-coloured glycerine soap. Imagining it to be a universal panacea against every mortal ailment, she begged of him and received a piece. At this moment her husband, happening to enter the *tchoum*, snatched the soap from his wife's hand, sniffed it, and remarking that it "stank good,"—swallowed it as if it had been a piece of pork!

Let us move on further, to the far, far North, toward the river Lena, where live scattered about in solitary groups, the Yakoots. A piteous tribe, that, and

A DREARY, NEVER-THAWING, ICY LAND!

In its Southern portion there is a semblance of Summer sometimes; but in its northern regions the sun, though it never sets during a period of fifty-two days, can barely call forth with its oblique rays a few meagre bushes, and here and there some blades of grass, on those fields covered with perpetual ice, and frozen so hard that to the depth of a yard the ground never thaws. In July, appear clouds of mosquitoes, which literally darken daylight. These mosquitoes are the plague of man and cattle; in the former they produce a cutaneous fever, the latter they torture to death.

With the first days of November begin the fearful

Siberian frosts, and the sun sets, to reappear only after thirty-eight days. This polar night is terrific. Darkness is moderated but by the reflection of the white snow, and occasionally dispersed by the flaming splendors of the aurora borealis. It is next to an impossibility for your Hindus, at least, the inhabitants of Central or Southern India to conceive of such a cold, and yet, at that time, the cold reaches 86 degrees Fah. below zero; and even the enduring, patient reindeer hide themselves in the thickets, and stand motionless, closely huddled together to keep from freezing. Clear days are rare even in the so-called Summer, for the wind chases the vapours, the sun is darkened, and all the sky is covered with mirages. During such colds, a spoonful of soup taken directly out of the pot boiling on the fire, freezes before one has time to carry it to the mouth.

The surroundings of a Yakout are disgusting: the stench and dirt are beyond expression; for men and cattle live together. There is neither time, nor need, nor yet possibility to wash, as the water is constantly frozen; consequently the Yakout never washes. But he has few prejudices. He will drink water from the dirtiest pool, in which his beast had just rolled itself. When there is food, he eats much; but he is very enduring and can go without any food for a long while. The Yakouts are hospitable, obliging, respectful, and submissive to the authorities; little addicted to cheating, they have no experience of courts of justice, but at the same time they are lazy and careless. Thanks to this latter fault, they often die of accidents, but regard death with perfect indifference. "Their life is no life," says a correspondent of *Noviè Vryemea*; "it is a half-sleepy vegetation amidst ices. Their numbers diminish with every year, and notwithstanding the care of the Russian Government to help this race while studying it, the ethnographer feels that he is writing its obituary." Far more poetical, and consoling from a moral stand-point, appear

THE NOMADIC TUNGUSE.

The ethnologists paint quite an ideal picture of them. The Tunguses are described by them as, "gentle, brave, obedient to their chiefs, and serviceable; no quarrels or strifes are ever heard of among them. They have not the slightest idea of a law-suit, and malice, envy, hatred and obstinacy are feelings quite unknown to them." During the last half-century the only cases that ever came before the magistrates, were a few manslaughters committed by the Tunguses when drunk. In every instance, the poor culprits come forward voluntarily to surrender themselves to the authorities, and then submit to their sentence without one word of complaint. In vivid contrast to the Tunguse stands the passionate,

THE FEROCIOUS AND VINDICTIVE, TCHOOKTCHA,

who never forgives an offence. When insulted he seeks to kill his enemy on the sly. If revenge fails during his own life-time, he will bequeath it to his son, and thus it passes from one generation to another until the opportunity arrives: for revenge can be satisfied but with the death of the offender. A Tchooktcha who prepares for murder does it with a great solemnity: he dons a new garment, all covered with bits of wolf's fur, a similar fur cap, and provides himself with three knives; the largest he conceals behind his back (near the neck) under the upper garment, the two smaller he hides in his sleeves. He arms himself, moreover, with a spear, and goes about armed and prepared in this wise till the desired catastrophe happens. In the bosom of his family a Tchooktcha is no less a tyrant;—enraged against his wife, he will often chop off her ears or the left arm as far as the shoulder. At the same time, he willingly lends his wife to friends and acquaintances; but deliberate unfaithfulness on her part, is punished with death.

THE FEMALE TCHOOKTCHI

are far from handsome, though they have even a more passionate love of personal adornment than our European ladies. For instance, they *embroider their hands* *and* *aces*, employing for the purpose threads made of

animal tendons and veins—thus presenting a most original style of decoration of a deep blue color in high-relief upon their bronzed countenances. From the pattern one can recognize a married woman from a girl. The former has her nose embroidered in two rows, while the virgin is denied the beauty of such delicate adornment. At the exhibition, there are some women whose noses look like a mass of varicose veins!.....

THEIR MARRIAGE CEREMONIES

are simplified to the uttermost. A young man on the lookout for a wife goes to the family of the bride, and says: "I want your girl."—"Go and feed the flock" is the patriarchal answer. Jacob like, he goes and tends the cattle for three, sometimes four, years, living at the same time with the girl as though she were his wife. In case a mutual liking springs up between them, she becomes his wife *bona fides*; if otherwise, the bridegroom is asked to decamp, and the bride waits for another pretender.

During this tentative wedlock, the attentions and little presents bestowed by the young man who courts his beloved are very original. They consist neither of flowers nor jewellery, for nothing of the sort is known in those regions. But they have instead their reindeer, which afford them vermin enough for a whole, zöological garden. Towards Spring, a large, white, fat and exceedingly succulent worm makes its appearance in the fur and under the skin of the reindeer. It is these worms that the Tchooktcha gallant squeezes out and brings to his beloved. *De gustibus non est disputandum*. None the less original, and still gloomier is the picture given of

THE HOUR OF DEATH

of these eccentric, gloomy, vindictive savages. Strange to say, a Tchooktcha dreads above everything to die a natural death; for it amounts with him to allowing the devil to devour him! Old people who feel tired of life and reluctant to become a burden upon their families; or young ones who are either sickly, or who simply desire to join their deceased relatives or see their departed friends as soon as they can,—voluntarily put an end to their earthly peregrinations. The nearest of kin, or in his absence, a friend, or a simple acquaintance, obligingly takes upon himself the good office of dispatching the volunteer to a better world. Having arrayed himself in his best clothes, the candidate falls into the best of humours, becomes radiant with joy, and cracks jokes while bidding good-bye to his family and acquaintances. The latter in their turn overload him with messages and compliments for their friends in the "other world." The day of the killing of a Tchooktcha is a day of rejoicing and a general festival; as for the self-doomed man, he keeps his tent from early morning, and awaits death with impatience; while all around the tent the hubbub of many voices is heard, the wife and children of the departing one going about in the crowd, with the utmost indifference. And now comes the last moment. The hum of the spectators hushes, and they solemnly prepare. The victim bares both his sides, and seating himself on his bed, behind the tent-wall of skin, braces his right side against the log of wood which serves him for bed-pillow. Then the chosen executioner, piercing through the fur tent-wall with his spear, directs its sharp point towards the dying man, who, placing it carefully over the region of the heart, shouts to him:

"KILL QUICKLY! PUSH!!.."

The executioner then strikes a blow with his palm on the head of the spear-handle, and the sharp blade passing through the man's heart emerges from the back covered with gore, and nails him to the log; a feeble groan, sometimes a piercing shriek, is all that the crowd hears from within the tent; the weapon is pulled out and the corpse rolls to the ground; the wife and children, exiled from the tent during the ceremony, re-enter their abode and coolly examine the dead man. After that, a kind of general "wako" commences, with joyous songs and drinking.

The subsequent disposal of the deceased varies: he is either cremated, or cemented within a heap of stones, in company with four sacrificed reindeer, and the grave is

left to the wild beasts. His tomb is soon forgotten, even by his family, and but for occasional passers-by, who throw a few tobacco leaves upon the cairn as a memorial to the brave suicide, no one would distinguish the monument from an ordinary heap of stones.

We might search the whole world in vain for the parallel to this Tchoktcha contempt for life and death.

ARYAN MUSIC.

An additional interest and value is given to the present number of the THEOSOPHIST by the able essay upon Indian Music, contributed by the Gayan Samáj, or Musical Reform Society, of Poona, through their respected Secretary, Mr. Bulwant. Though much has, we believe, been done in Bengal by an eminent native musical amateur, to make the merits of Aryan music known to our generation, and he has been decorated by the kings of Portugal and Siam, we, being strangers here as yet, are not informed that his essays have had vogue in the English language. But, whether our present paper is or is not the first formal challenge from a Hindu to the West to recognize the claim of India to the maternity of musical science, the challenge is here made; and it will be our duty and pleasure, alike, to see that it comes to the notice of some of the best critics of Europe and America.

Last month, Mr. Dinanath Atmaram, M.A., LL.B., that great contemporary Hindu mathematical genius, who—according to no less an authority than Mr. J. B. Peile, Director of Public Instruction, Bombay Presidency—"proved his point that Sir Isaac Newton's Rule for imaginary roots is not universally true, but that it is perfectly easy to form Equations having imaginary roots, the existence of which would not be made manifest by the application of Newton's Rule"—showed us that an Aryan geometer, and not the Greek Hipparchus—as hitherto commonly believed—was the author of Trigonometry. And now we see the most conclusive evidence that Music, the 'Heavenly Maid,' was begotten neither by Greek nor Roman, nor Egyptian inspiration, but sprang, a melodious infant, out of the Aryan cradle. The fact of the Aryans and Chinese having had a system of musical notation, is conceded by the Christians; but that it far antedated the epoch of the fabulous Jubal, "the father of all such as handle the harp and the organ," of the Bible, is not admitted by them, or, at all events, has not been until recently, if such be the fact even now. The peculiar poetical character of the ancient Hindu showed itself in the question, "What is music?" as part of the question, "What is Nature?" remarks Mr. Rice, treating upon Hindu music.* The THEOSOPHIST representing Eastern and not Western views and interests in all that concerns Oriental history, it is our ardent wish to be helped in bringing out all the truth about the Aryan priority in philosophy, science, and art, by every man who can give us the facts. We fear neither the frown of modern science, nor the wry faces and abuse of the theologians.

Mr. Herbert Spencer, true to his materialistic instincts, attributes the primitive development of music to a correlation of mental and muscular excitements; "the muscles that move the chest, larynx and vocal chords, contracting like other muscles in proportion to the intensity of the feelings," and song being but an exaggeration of the natural language of the emotions. (*Illustrations of Universal Progress*, chapter on 'The Origin and Function of Music'). But one of the best of our modern musical

* *What is Music?*, a charming monograph by Isaac L. Rice, Author of *Analysis and Practice of the Scales*. (New York, D. Appleton & Co., 549, Broadway). "How differently the Chinese and Hindus accounted for the emotive power of music!" exclaims this author. "On the one hand, the gloomy mysterious of the numbers and the elements; on the other, the bright fantastic gorgeous heaven of sunshine, marriages and pleasures! And yet who knows but that the Hindu philosophers, who established such a flowery system, were thinkers fully as deep as the Chinese sages—that their original conceptions and hidden meaning were not as spiritual as those of modern days?"... It is our especial task to dispel such fatal errors about India as the above passage (underscored by us) contains. To underrate the spirituality of the old Hindu philosophers but proves that we do not know them. And if knowing them, we were to allow them no more than the spirituality existing in our "modern days"—that would be to insult them and truth. Ed. THEOS.

critics, the abovementioned Mr. Rice, shows narrowness of this conception. He properly says that "music is not a human invention, it is a part and parcel of Nature. The laws of vibration are...as immutable as those of gravity...There is the human throat with its remarkable arrangement for the purpose of song alone. A far inferior construction would have served the purposes of language, or for the production of sound incidental to muscular excitement." Our Hindu contributor shows us how the Aryans caught and classified the sounds of nature; and so, too, Mr. Rice sententiously asks, "Did not singing-birds exist before the time of man? Did they evolve their singing from speech; or did they develop it from muscular excitement; or did they sing because it was natural for them to sing? No, music is not a human invention. The progress in music is of the same nature as the progress in science, it is based on discovery. The other arts are imitative of things in Nature, but music is a very part of Nature itself."

While but few Western composers can ever enjoy the opportunity of coming to India to study the beginnings of their ennobling art, yet they may at least avail of the patriotic assistance of the Poona Gayan Samáj, to procure proper musical instruments, and to explore the ancient Sanskrit literature; in which the germs of musical science have been preserved, like flies in amber, to surprise and instruct us. The sympathy of every lover of the truth and of India should be unstintingly given to Mr. Bulwant and his honorable colleagues.

Some interesting results on the hereditary transmission of artificial injuries have been obtained by Dr. Brown-Sequard. He concludes that the young of parents abnormally constituted inherit external lesions, but not the central anomaly which determines such lesions.

M. G. Ponchet states that Averroes is the first writer who gives an approximately true account of the sensation caused by the touch of electrical fishes. He compares it to magnetism, while Galen and others had considered it analogous to cold.

The first money in the British Isles was coined by the Romans at Camalodunum (Colchester) 55 B. C.

THE SOCIETY'S BULLETIN.

The increasing duties of the several members of the Theosophical Mission, compel the strict enforcement of the rule that on week-days no social visits can be received until after 6 P.M. except by special appointment. On Sundays, from 2 to 5, and after 6 P.M.

Of the last edition of Col. Olcott's Address at Franjji Cowasji Hall, on the "the Theosophical Society and its Aims,"—to which are appended the Rules, as revised in General Council at Bombay—the few copies remaining may be had, upon application to the Librarian, at the rate of annas 4 per copy, free of postage. The President's address at Meerut, N. W. P. upon "The Joint Labors of the Theosophical Society and the Arya Samáj," can be procured of Babu Sheo Narain, Depot Godown Gunashta, Meerut, at the same price.

It is never too late to do an act of justice, and therefore, in referring to Col. Olcott's Bombay Address, the Council wishes to publicly acknowledge the Society's obligations to Mr. Samuldass Jagmohundass and his associates in the management of the Hindu Dnyan Vurdhak Library, for organizing the splendid meeting of welcome at Franjji Cowasji Institute, on the 23rd of March last. It was intended that this should be said in the Preface to the Address, but as the proofs were read, and the preface written while Col. Olcott was absent from Bombay, the matter was inadvertently omitted.

WAR IN OLYMPUS.

By H. P. Blavatsky.

Dark clouds are gathering over the hitherto cold and serene horizon of exact science, which forebode a squall. Already two camps are forming among the votaries of scientific research. One wages war on the other, and hard words are occasionally exchanged. The apple of discord in this case is—Spiritualism. Fresh and illustrious victims are yearly decoyed away from the impregnable strongholds of materialistic negation, and ensnared into examining and testing the alleged spiritual phenomena. And we all know that when a true scientist examines them without prejudice.....well, he generally ends like Professor Hare, Mr. William Crookes F.R.S., the great Alfred Russell Wallace, another F.R.S. and so many other eminent men of science—he passes over to the enemy.....

We are really curious to know what will be the new theory advanced in the present crisis by the skeptics, and how they will account for such an apostasy of several of their luminaries, as has just occurred. The venerable accusations of *non compos mentis*, and "dotage" will not bear another refurbishing: the eminent perverts are increasing numerically so fast, that if mental incapacity is charged upon all of them who experimentally satisfy themselves that tables can talk sense, and mediums float through the air, it might augur ill for science; there might soon be none but weakened brains in the learned societies. They may, possibly, for a time find some consolation in accounting for the lodgment of the extraordinary "delusion" in very scholarly heads, upon the theory of *atavism*—the mysterious law of latent transmission, so much favoured by the modern schools of Darwinian *evolutionism*—especially in Germany, as represented by that thoroughgoing apostle of "modern struggle for culture," Ernst Haeckel, professor at Jena. They may attribute the belief of their colleagues in the phenomena, to certain molecular movements of the cells in the ganglia of their once powerful brains, hereditarily transmitted to them by their ignorant mediæval ancestors. Or, again, they may split their ranks, and establishing an *imperium in imperio* "divide and conquer" still. All this is possible; but time alone will show which of the parties will come off best.

We have been led to these reflections by a row now going on between German and Russian professors—all eminent and illustrious, *savants*. The Teutons and Slavs in the case under observation, are not fighting according to their nationality but conformably to their respective beliefs and unbeliefs. Having concluded, for the occasion, an offensive as well as a defensive alliance, regardless of race—they have broken up in two camps, one representing the spiritualists, and the other the skeptics. And now war to the knife is declared. Leading one party, are Professors Zöllner, Ulrizzi, and Fichte, Butlerof and Wagner, of the Leipzig, Halle and St. Petersburg Universities; the other follows Professors Wundt, Mendelejef, and a host of other German and Russian celebrities. Hardly has Zöllner—a most renowned astronomer and physicist—printed his confession of faith in Dr. Slade's mediumistic phenomena and set his learned colleagues aghast, when Professor Ulrizzi of the Halle University, arouses the wrath of the Olympus of science by publishing a pamphlet entitled "The so-called Spiritualism a Scientific Question," intended as a complete refutation of the arguments of Professor Wundt, of the Leipzig University, against the modern belief, and contained in another pamphlet called by its author "spiritualism—the so-called scientific question." And now steps in another active combatant, Mr. Butlerof, Professor of Chemistry and Natural Sciences, of St. Petersburg, who narrates *his* experiments in London, with the medium Williams, and thus rouses up a most ferocious polemic. The humoristical illustrated paper *Kladderadatch*, executes a war-dance, and shouts with joy, while the more serious conservative papers are indignant. Pressed behind their last entrenchments by the cool and uncontrovertible assertions of a most distinguished naturalist, the critics led forward by the St. Petersburg star—Mr. Bourenine, seem

desperate, and evidently short of ammunition, since they are reduced to the expedient of trying to rout the enemy with the most remarkable paradoxes. The *pro* and *con* of the dispute are too interesting, and our posterity might complain were the incidents suffered to be left beyond the reach of English and American readers interested in Spiritualism by remaining confined to the German and Russian newspapers. So, Homer like, we will follow the combatants and condense this modern Iliad for the benefit of our friends.

After several years of diligent research, and investigation of the phenomena, Messrs. Wagner and Butlerof, both distinguished savants and professors in St. Petersburg University, became thoroughly convinced of the reality of the weird manifestations. As a result, both wrote numerous and strong articles in the leading periodicals in defense of the "mischievous epidemic"—as in his moments of "unconscious cerebration" and "prepossession" in favour of his own hobby, Dr. Carpenter calls spiritualism. Both of the above eminent gentlemen are endowed with those precious qualities which are the more to be respected as they are so seldom met with among our men of science. These qualities, admitted by their critic himself—Mr. Bourenine, are: (1) a serious and profound conviction that what they defend is true; (2) an unwavering courage in stating at every hazard, before a prejudiced and inimical public that such is their conviction; (3) clearness and consecutiveness in their statements; (4) the serene calmness and impartiality with which they treat the opinions of their opponents; (5) a full and profound acquaintance with the subject under discussion. The combination of the qualities enumerated, adds their critic, "leads us to regard the recent article by Professor Butlerof, *Empiricism and Dogmatism in the Domain of Mediumship*, as one of those essays whose commanding significance cannot be denied, and which are sure to strongly impress the readers. Such articles are positively rare in our periodicals; rare because of the originality of the author's conclusions, and because of the clear, precise, and serious presentation of facts".....

The article so eulogized may be summed up in a few words. We will not stop to enumerate the marvels of spiritual phenomena witnessed by Professor Zöllner with Dr. Slade and defended by Prof. Butlerof, since they are no more marvellous than the latter gentleman's personal experience in this direction with Mr. Williams, a medium of London, in 1876. The seances took place in a London hotel, in the room occupied by the Honourable Alexandre Aksakof, Russian Imperial Councillor, in which with the exception of this gentleman there were but two other persons,—Prof. Butlerof and the medium. Confederacy was thus utterly impossible. And now, what took place under these conditions, which so impressed one of the first scientists of Russia? Simply this: Mr. Williams, the medium, was made to sit with his hands, feet, and even his person tightly bound with cords to his chair, which was placed in a dead-wall corner of the room, behind Mr. Butlerof's plaid, hung across so as to form a screen. Williams soon fell into a kind of lethargic stupor, known, among spiritualists as the *trance condition*, "and spirits" began to appear before the eyes of the investigators. Various voices were heard, and loud sentences, pronounced by the "invisibles," from every part of the room; things—toilet appurtenances and so forth, began flying in every direction through the air; and, finally, "John King"—a sort of king of the spooks, who has been famous for years—made his appearance bodily. But we must allow Prof. Butlerof to tell his phenomenal story himself. "We first saw moving"—he writes—"several bright lights in the air, and immediately after that appeared the full figure of 'John King.' His apparition is generally preceded by a greenish phosphoric light, which gradually becoming brighter, illuminates, more and more, the whole bust of John King. Then it is that those present perceive that the light emanates from some kind of a luminous object held by the "spirit." The face of a man with a thick black beard becomes clearly distinguishable; the head is enveloped in a white turban. The figure appears outside the cabinet (that is to say, the

screened corner where the medium sat), and finally approaches us. We saw it each time for a few seconds; then rapidly waning, the light was extinguished and the figure became invisible to reappear again in a moment or two; then from the surrounding darkness, "John's" voice is heard proceeding from the spot on which he had appeared mostly, though not always, when he had already disappeared. "John" asked us "what can I do for you?" and Mr. Aksakof requested him to rise up to the ceiling and from there speak to us. In accordance with the wish expressed, the figure suddenly appeared above the table and towered majestically above our heads to the ceiling which became all illuminated with the luminous object held in the spirit's hand, when "John" was quite under the ceiling he shouted down to us: "Will that do?"

During another seance M. Butlerof asked "John" to approach him quite near, which the "spirit" did, and so gave him the opportunity of seeing clearly "the sparkling, clear eyes of John." Another spirit, "Peter," though he never put in a visible appearance during the seances, yet conversed with Messrs. Butlerof and Aksakof, wrote for them on paper furnished by them, and so forth.

Though the learned professor minutely enumerates all the precautions he had taken against possible fraud, the critic is not yet satisfied, and asks, pertinently enough: "Why did not the respectable *savant* catch "John" in his arms, when the spirit was but at a foot's distance from him? Again, why did not both Messrs. Aksakof and Butlerof try to get hold of "John's" legs, when he was mounting to the ceiling? Indeed they ought to have done all this, if they are really so anxious to learn the truth for their own sake, as for that of science, which they struggle to lead on toward the domains of the "other world." And, had they complied with such a simple and, at the same time, very little scientific test, there would be no more need of for them, perhaps, to.....further explain the scientific importance of the spiritual manifestations."

That this importance is not exaggerated, and has as much significance for the world of science, as for that of religious thought, is proved by so many philosophical minds speculating upon the modern "delusion." This is what Fichte, the learned German savant, says of it. "Modern spiritualism chiefly proves the existence of that which, in common parlance is very vaguely and inaptly termed '*apparition of spirits*.' If we concede the reality of such apparitions, then they become an undeniable, practical proof of the continuation of our personal, conscious existence (beyond the portals of death). And such a tangible, fully demonstrated fact, cannot be otherwise but beneficent in this epoch, which, having fallen into a dreary denial of immortality, thinks in the proud self-sufficiency of its vast intellect, that it has already happily left behind it every superstition of the kind." If such a tangible evidence could be really found, and demonstrated to us, beyond any doubt or cavil, reasons Fichte further on,—"if the reality of the continuation of our lives after death were furnished us upon positive proof, in strict accordance with the logical elements of experimental natural sciences, then it would be indeed, a result with which, owing to its nature and peculiar signification for humanity, no other result to be met with in all the history of civilization could be compared. The old problem about man's destination upon earth would be thus solved, and consciousness in humanity would be elevated one step. That which, hitherto, could be revealed to man but in the domain of blind faith, presentiment, and passionate hope, would become to him—positive knowledge; he would have acquired the certainty that he was a member of an eternal, a spiritual world, in which he would continue living, and that his temporary existence upon this earth forms but a fractional portion of a future eternal life, and that it is only there that he would be enabled to perceive, and fully comprehend his real destination. Having acquired this profound conviction, mankind would be thoroughly impressed with a new and animating comprehension of life, and its intellectual perceptions opened to an idealism strong with incontrovertible facts. This would prove taut-

amount to a complete reconstruction of man in relation to his existence as an entity and mission upon earth; it would be so to say, a 'new birth.' Whoever has lost all inner convictions as to his eternal destination, his faith in eternal life, whether the case be that of an isolated individuality, a whole nation, or the representative of a certain epoch, he or it may be regarded as having had uprooted, and to the very core, all sense of that invigorating force which alone lends itself to self-devotion and to progress. Such a man becomes what was inevitable—an egotistical, selfish, sensual being, concerned wholly for his self-preservation. His culture, his enlightenment, and civilization, can serve him but as a help and ornamentation toward that life of sensualism, or, at best, to guard him from all that can harm it."

Such is the enormous importance attributed by Professor Fichte and Professor Butlerof of Germany and Russia to the spiritual phenomena and we may say, the feeling is more than sincerely echoed in England by Mr. A. R. Wallace F.R.S. (see his "Miracles and Modern Spiritualism.")

An influential American scientific journal uses an equally strong language when speaking of the value that a scientific demonstration of the survival of the human soul would have for the world. If spiritualism prove true, it says, "it will become the one grand event of the world's history; it will give an imperishable lustre of glory to the Nineteenth Century. Its discoverer will have no rival in renown, and his name will be written high above any other. * * * If the pretensions of Spiritualism have a rational foundation, no more important work has been offered to men of science than their verification." [*Scientific American*, 1874, as quoted in Olcott's "People from the Other World," p. V. Pref.)

And now we will see what the stubborn Russian critic (who seems to be but the mouth-piece of European materialistic science), has to say in response to the unanswerable arguments and logic of Messrs. Fichte and Butlerof. If skepticism has no stronger arguments to oppose to spiritualism but the following original paradox, then we will have to declare it worsted in the dispute. Instead of the beneficial results foretold by Fichte in the case of the final triumph of spiritualism, the critic forecasts quite a different state of things.

"As soon," he says, "as such scientific methods shall have demonstrated, beyond doubt or cavil, to the general satisfaction that our world is crammed with souls of men who have preceded us, and whom we will all join in turn; as soon as it shall be proven that these 'souls of the deceased' can communicate with mortals, all the earthly physical science of the eminent scholars will vanish like a soap-bubble, and will have lost all its interest for us living men. Why should people care for their proportionately short life upon earth once that they have the positive assurance and conviction of another life to come after the bodily death; a death which does not in the least preclude conscious relations with the world of the living, or even their *post-mortem* participation in all its interests? Once, that with the help of science, based on mediumistic experiments and the discoveries of spiritualism such relations shall have been firmly established, they will naturally become with every day more and more intimate; an extraordinary friendship will ensue between this and the 'other' worlds; that other world will begin divulging to this one the most occult mysteries of life and death, and the hitherto most inaccessible laws of the universe those which now exact the greatest efforts of man's mental powers. Finally, nothing will remain for us in this temporary world to either do, or desire, but to pass away as soon as possible into the world of eternity. *No inventions, no observations, no sciences, will be any more needed!* Why should people exercise their brains, for instance, to perfecting the telegraphs, when nothing else will be required but to be on good terms with spirits in order to avail of their services for the instantaneous transmission of thoughts and objects, not only from Europe to America, but even to the moon, if so desired?

The following are a few of the results which a communion *de facto* between this world and the 'other' that certain men of science are hoping to establish by the help of spiritualism, will inevitably lead us to: to the complete extinction of all science, and even of the human race, which will be ever rushing onward to a better life. The learned and scholarly *phantasists* who are so anxious to promote the science of spiritualism, *i.e.* of a close communication between the two worlds, ought to bear the above in mind."

To which the "scholarly phantasists" would be quite warranted in answering that one would have to bring his own mind to the exact measure of microscopic capacity required to elaborate such a theory as this, before he could take it into consideration at all. Is the above meant to be offered as an objection for *serious* consideration? Strange logic! we are asked to believe that, because these men of science, who now believe in naught but matter, and thus try to fit every phenomenon—even of a mental, and spiritual character,—within the Procrustean bed of their own preconceived hobbies, would find themselves, by the mere strength of circumstances forced, in their turn, to fit these cherished hobbies to *truth*, however unwelcome, and to *facts* wherever found—that because of that, science will lose all its charm for humanity. Nay—life itself will become a burden! There are millions upon millions of people who, without believing in spiritualism at all, yet have faith in another and a better world. And were that blind faith to become *positive knowledge* indeed, it could but better humanity.

Before closing his scathing criticism upon the "credulous men of science," our reviewer sends one more bomb in their direction, which unfortunately like many other explosive shells misses the culprits and wounds the whole group of their learned colleagues. We translate the missile *verbatim*, this time for the benefit of all the European and American academicians.

"The eminent professor," he adds, speaking of Butlerof, and his article, "among other things makes the most of the strange fact that spiritualism gains with every day more and more converts within the corporation of our great scientists. He enumerates a long list of English and German names among illustrious men of science, who have more or less confessed themselves in favour of the spiritual doctrines. Among these names we find such as are quite authoritative, those of the greatest luminaries of science. Such a fact is, to say the least, very striking, and in any case, lends a great weight to spiritualism. But we have only to ponder coolly over it, to come very easily to the conclusion that *it is just among such great men of science that spiritualism is most likely to spread and find ready converts*. With all their powerful intellects and gigantic knowledge, our great scholars are, firstly, men of sedentary habits, and, secondly, they are, with scarcely an exception, *men with diseased and shattered nerves, inclined toward an abnormal development of an overstrained brain. Such sedentary men are the easiest to hoodwink*; a clever charlatan will make *an easier prey of, and bamboozle with far more facility a scholar than an unlearned but practical man*. Hallucination will far sooner get hold of persons inclined to nervous receptivity, especially if they once concentrate themselves upon some peculiar ideas, or a favourite hobby. This, I believe, will explain the fact that we see so many men of science enrolling themselves in the army of spiritualists."

We need not stop to enquire how Messrs. Tyndall, Huxley, Darwin, Herbert Spencer, Lewes, and other eminent scientific and philosophical skeptics, will like such a prospect of rickety ganglionic centers, collective softening of the brain, and the resulting "hallucinations." The argument is not only an impertinent *naiveté*, but a literary monstrosity.

We are far from agreeing entirely with the views of Professor Butlerof, or even Mr. Wallace, as to the agencies at work behind the modern phenomena; yet between the extremes of spiritual negation and affirmation, there ought to be a middle ground; only pure philosophy can establish truth upon firm principles; and no philosophy can be com-

plete unless it embraces both physics and metaphysics. Mr. Tyndall, who declares ("Science and Man") that "Metaphysics will be welcomed when it abandons its pretensions to scientific discovery, and consents to be ranked as a kind of poetry," opens himself to the criticism of posterity. Meanwhile, he must not regard it as an impertinence if his spiritualistic opponents retort with the answer that "physics will always be welcomed, when it abandons its pretension to psychological discovery." The physicists will have to consent to be regarded in a near future as no more than supervisors and analysts of physical results, who have to leave the spiritual causes to those who believe, in them. Whatever the issue of the present quarrel, we fear though that spiritualism has made its appearance a century too late. Our age is preëminently one of extremes. The earnest and philosophical, yet reverent doubters are few, and the name for those who rush to the opposite extreme is—Legion. We are the children of our century. Thanks to that same law of atavism, it seems to have inherited from its parent—the XVIIIth—the century of both Voltaire and Jonathan Edwards—all its extreme skepticism, and, at the same time religious credulity and bigoted intolerance. Spiritualism is an abnormal and premature outgrowth, standing between the two; and, though it stands right on the high-way to truth, its ill-defined beliefs make it wander on through by-paths which lead to anything but philosophy. Its future depends wholly upon the timely help it can receive from honest science—that science which scorns no truth. It was, perhaps, when thinking of the opponents of the latter, that Alfred de Musset wrote the following magnificent apostrophe:—

"Sleep'st thou content, Voltaire;
And thy dread smile hovers it still above
Thy fleshless bones..... ?
Thine age they call too young to understand thee;
This one should suit thee better—
 Thy men are born!

And the huge edifice that, day and night, thy great hands
undermined,
Is fallen upon us.....

THE RUIN OF INDIA.

While every patriot Hindu bewails the decadence of his country, few realize the real cause. It is neither in foreign rule, excessive taxation, nor crude and exhaustive husbandry, so much as in the destruction of its forests. The stripping of the hills and drainage-slopes of their vegetation is a positive crime against the nation, and will decimate the population more effectually than could the sword of any foreign conqueror. This question of forest-conservancy has been thoroughly studied in Western countries under the lash of a dire necessity. In spite of the opposition of ignorant and selfish obstructionists, nation after nation has taken the first steps towards restoring the woods and jungles which had been ruthlessly extirpated, before meteorology and chemistry became developed, and political-economy was raised to the dignity of a science. In America, where our observations have been chiefly made, the wanton destruction of forests has been appalling. Whole districts have been denuded of large timber, through the agency of fire, merely to obtain cleared land for tillage. The 90,000 miles of railway and 80,000 of telegraph lines have caused the denudation of vast tracts, to procure their supplies of ties and poles. Not a moment's thought was given to the ulterior consequences, until, recently, the advancement of statistical science rudely awoke American publicists from their careless apathy.

We need only glance at the pages of history to see that the ruin and ultimate extinction of national power follow the extirpation of forests as surely as night follows day. Nature has provided the means for human development; and her laws can never be violated without disaster. A great native patriot wrote us, some months ago, "this poor nation is slowly dying for lack of food-grains." This is, alas! too true; and he who would learn one great secret

why food-grains fail, poverty increases, water courses dry up, and famine and disease ravage the land in many parts, should read the communication of "Forester," in this number, to give place to which we gladly laid by other matter already in type. Our love for our adopted country moves us to give this subject of forest-conservancy much consideration in these columns from time to time. Our trip Northward last April, through 2,000 miles of scorched fields, through whose quivering air the dazzled eye was only refreshed here and there with the sight of a green tree, was a most painful experience. It required no poet's fancy, but only the trained forecast of the statistician, to see in this treeless, sun-parched waste the presage of doom, unless the necessary steps were at once taken to aid lavish Nature to reclothe the mountain tops with vegetation.

BUDDHISM AUTHORITATIVELY DEFINED.

THE NATURE AND OFFICE OF BUDDHA'S RELIGION.

By the Rt. Rev. H. Sumangala, High Priest of Adam's Peak, and President of Widyalaya College; Senior Buddhist Member of the General Council of the Theosophical Society.

What must a religion chiefly reveal? A religion as such, must for the most part propound what is not generally seen and felt in the nature of sentient beings. It must also proclaim "the ways and means" by which the good of the world is attained. These *teachings* are essential to a religion or it would, at best become only a system of philosophy or a science of nature. We find these two essentials fully treated in the religion of Buddha.

Buddha says

"Taubhaya uddito lokā"
 "Jarāya pari vārito"
 "Maccaṇṇā pibito loko"
 "Dukkhe loko patitṭhito"

The world has mounted on the passions and is suspended therefrom (the thoughts of men are hanging down from the lusts and other evils). The whole world is encompassed by decay: and, Death overwhelms us all. (Consumption and decay ever slowly but steadily creep in and eat into each and every thing in existence, and it is here likened to something like land encircled by sea). Nature has subjected us to birth, decay, and death, and the deeds of our past lives are covered by the terrors of death from our view, although the time of their action is not far removed from our present state of existence. Hence it is that we do not view the scenes of our past births. Human life before it arrives at its final destiny, is ever inseparable from Jāti, Jarā, Maraṇa, etc. (birth, infirmities, death, &c.). As we are at present, we are in sorrow, pain &c., and we have not yet obtained the highest object of our being.* It behoves us therefore that we exert ourselves every time and by all means to attain to our *summum ultimum*, and we have to use and practise "the ways and means" revealed in religion in earnestness and integrity. And what are they as set forth in Buddhism?

"Sabbadā sīla sampanno"
 "Paññavā susamāhito"
 "Araddha viriyo pahitatto"
 "Ogham taratī duttaraṃ"

(The man who is ever fully in the observance of the precepts of morality, who sees and understands things well and truly, who has perfect and serene command over his thoughts, who has his ever continuing exertions already in operation, and who has his mind fixed well in proper contemplation, I say, that such a man alone will safely pass over the dreadful torrent of metempsychosis which is hard to be gone over safely and without meeting with great obstacles and difficulties.)

And, again, here is another description of attaining to

*This is the explanation we place before believers of a creator who ask why a man cannot remember the actions of any of his former births.

the proper object of man's life. "Ēkāyano ayam bhikkave maggo sattānaṃ viuddhryā sokapariddavānaṃ samatekamaṃ dukkhadomanassānaṃ atthagamāya, nāyassa adhi-gamāya, nibbānassa sachchikiriyāya yadidaṃ cattāro sātīpatthāna"

Sātīpatthāna is the one and only way to holiness of being, to destruction of sorrows, pain and sufferings; to the path to nirvāṇa, and to its attainment.

Herein are embodied "the four sātīpatthānās (starting of memory) on body, on sensation, on mind, and on the true doctrines largely discoursed upon by our Lord, the omniscient Gautama Buddha.

"Kammaṃ vijjā dhammōca"
 "Sīlaṃ jīva muttamaṃ"
 "Etena maccaṃ sujjhanti"
 "Na-gottāna dhanenavā."

(Men are sanctified by (their) deeds, their learning, their religious behaviour, their morals, and by leading a holy life: they do not become holy by race or by wealth.)

(To be continued.)

H. S.

Colombo, Ceylon, 20th September 1879.

[Translated from the Sinhalese for the THEOSOPHIST.]

THE LAW OF THE LORD SAKHYA MUNI.

By the Rev. Mohottiwatte Gunanande, Chief Priest of Dipaduttama Vihara, Colombo, Ceylon; Member of the General Council of the Theosophical Society.

Understanding that even Oriental folk-lore will find a place in your new magazine, THE THEOSOPHIST, I purpose to send you for publication from time to time "Extracts from the Pāli Buddhistical Scriptures of Ceylon," propounding the popular Buddhism of my countrymen the Sinhalese, the Natives proper of Sri Lanka. My first selections are from the "Suddhamma Saṅgaho." It is a book very generally read in Ceylon, but it has never been translated into any European language. The Book treats in detail, and in regular order on Thirty *Theses* of Buddhism, each of which is a grand division in the exoteric creed of the land: and, the denominations of the three and thirty several subjects are embodied in the following *gāthas*:

- | | |
|-----------------------------|-------------------------------|
| 1. Lokuppatti kathā ceva, | 19. Deva lokassa, ganano |
| 2. Atho satta kathā pīca, | 20. Kathābhūddhamma-ko Kathā, |
| 3. Bodhisatta kathācāpi, | 21. Bodhipakkhīla dhammānaṃ, |
| 4. Abhisambodhiyā kathā, | 22. Kathātha ditthiyā kathā, |
| 5. Dhamma cakkappavattīca, | 23. Sarāṇigamaṇaṃ ceva, |
| 6. Sāvakkānaṃ kathā puṇa, | 24. Gahaṭṭha vinayaṃ tathā, |
| 7. Kathā vinaya dhammīca, | 25. Kammabheda kathācēva, |
| 8. Lakanāthēna desīte, | 26. Dāna sīla kathāpīca, |
| 9. Achehariyā kathā cītha, | 27. Saggāpāya kathācāpi, |
| 10. Buddhāli ratanattāye, | 28. Kāmaññānāvaka kathā, |
| 11. Bhāvanā rannanācōva, | 29. Laṅkadīpassa saṃbuddha, |
| 12. Brahma-loka kathā puṇa, | 30. Mūhinda sūnuno tathā, |
| 13. Tanhakkhaya kathā cāpi, | 31. Mahinda yatīnomaṣṣā, |
| 14. Parinibbānakā kathā, | 32. Gamaṇassa kathāpana, |
| 15. Tathā dhātuvibhāgassa, | 33. Metteyya loka-nāthāssa, |
| 16. Uttamaṣṣa mahesīno, | 34. Dayassa dīpanā kathā, |
| 17. Kathā saṃgītiyācāpi, | 35. Kathā pakiṇṇakācāpi, |
| 18. Sāsana vamsakā kathā, | 36. Tīpasatthā bhāve kamaṃ, |

(1) The Discourse on the birth (coming into being) of the World, (2) on Creatures, (3) on Bodhisatva (Buddha prior to his attaining to Buddhahood), (4) on Buddha's attaining to Buddhahood, (5) on the Preaching of his Wheel of Dharma or Law, (6) on his Disciples, (7) on Vinaya or Ceremonial Law, (8) on the Sublimity of the Three Gems, (9) on the Celestial Worlds, (10) on Abhidhamma or the Transcendental Doctrines, (11) on the *peculiar* Dogmas of Buddhism, (12) on False Creeds, (13) on the taking of Refuge, (14) on Lay-Vinaya or Precepts regulating the conduct of Laymen, (15) on the Destiny of men, (16) on Alms, (17) on Religious Life, (18) on Heaven, (19) on Hell, (20) on Passions &c., (21) on Meditation, (22) on Brahma-Worlds, (23) on Nirvāṇa, (24) on *Pari-Nirvāṇa*, (25) on Relics, (26) on (Collation and) Recitation of Dhamma or Buddha's Teachings, (27) on the Importation of the Religion into Ceylon, (28) on the Promulgation of the Dispensation, (29) on Maitri Buddha, and (30) on the Miscellaneous Discourses.

It is necessary, I believe, to set forth, *in limine*, the authority for the statements contained in the book I have chosen from which to extract selections. Relative to the genuineness and orthodoxy of the doctrines explained in "the Saddhamma Saṅgaho," the author says:—

Átho lokahitathāya,	Gahetwātapāhi sujanā
Uddharitvā tato tato,	Uggaṇhātha hitesino,
Pāli Atthakathās,	Samattinsatime dhammā,
Sāramādaya sādhuṅgaṇ,	Lokuppatti kathādayo
Saddhamma Saṅgaha'māni,	Saddhamma Saṅgaha'masmiṇ,
Karissīma yathā balāṇ	Susanmā saṅgahaṇ gātā

"And for the good of the world, having carefully selected (sādhuṅgaṇ uddharitvā) the important (sāraṇ) teachings found scattered "up and down" in (tato tato) in the [voluminous] Pāli Atthakathās &c., we now [shall] compile "the Saddhamma Saṅgaho"—O good men! Ye, therefore, who strive to be good (hitesino sujanā) learn these Thirty Dissertations, beginning with the account of "The coming into being of the World &c." They are well contained in this "Saddhamma Saṅgaho."

The above declares that the author of the *Dhamma* Treatise has taken the accounts contained in his Work from the Pāli Atthakathās; and, notwithstanding aught said to the contrary by Missionaries and other biased opinionists of these times, the Atthakathās (commentaries) have ever been held as most sacred by, at least, the generality of Buddhists of Ceylon, Burmah and Siam. They are received as equally infallible as the Tripitaka Volumes; and, holy inspiration is ungrudgingly attributed to their *rahat* authors.

There is no doubt that exoteric Buddhism has them all as "gospel truth", and the generally prevailing religion in Ceylon is all made up of their teachings as well as of the Pitaka volumes.

M. G.

ARYA PRAKĀSHI.

[Continued from the last month.]

YOGA VIDYA.

By F. T. S. . .

The Siddhis of Krishna may be thus defined:

1. *Animā*—the power to atomize "the body;" to make it become smallest of the smallest.
2. *Mahimā*—the power to magnify one's body to any dimensions.
3. *Laghima*—the power to become lightest of the lightest.

These three, the commentator says, relate to "the body;" but he does not enlighten us as to whether the outer or inner—the physical or astral—body is meant. Turning to Bhoja Raja's commentary on Patanjali (Govinda Deva Śāstri's translation, in *Pandit*, Vol. V. p. 206), we find *Animā* explained as "Minuteness—attainment of an atomic form, or the power of becoming as minute as an atom; [by this power the ascetic can enter into a diamond, etc.]"

Garimā—is the obtaining of control over the attraction of gravitation, so that one's body may attain such great heaviness as to weigh tons if one chooses; or acquire such levity as to be like a flake of cotton in lightness.

Let the reader observe that here are two Siddhis (*animā* and *mahimā*); which can only refer to conditions of the astral body, and a third which may be applicable to either the astral or physical body of the ascetic. Whenever we have such instances coming under notice our first thought must be that *there is no such thing possible as a miracle; whatever happens does so in strict compliance with natural law.* For instance; knowing what we do of the composition and structure of a man's body,—a mass of bioplastic matter—it is unthinkable that he should make it small enough to enter into an atom or a diamond-grain. So, also, that he should illimitably swell it out and stretch it, so as to "occupy as much space as he likes." A living adult man cannot be compressed into a speck. But as to the inner body, or soul,

the case is different. By 'soul' we mean, in this instance, the plastic, ethereal inner-self, that which corresponds to the Western idea of a "double,"* and, in the ancient Indian philosophy is known as the मायावीरुप—*māyāvi-rupa*—(illusionary form), and as कामरुप—*Kāma-rupa*—(Will-form). These are identical, for the *double* exists in its latent state in every living being, as it is the exact ethereal counterpart of the outer body. The difference in name but indicates the different circumstances under which it is at times made to become objective—that is visible. In the case of mediums, or when, as a result and the unconscious effect of an intense desire which attracts a person's thoughts to a certain place, or prompts him to a certain action, it thus oozes out of its envelope of flesh, it then is called *Māyāvi-rupa* (illusionary form). It made itself visible because compelled to it by the law of inter-magnetic action, which, when left to itself, acts blindly. But when it is projected by the trained will of an adept, a Yogi, who directs it at his own convenience, then it is designated as *Kāma-rupa*,—Will-form, or Desire-form; *i. e.* so to say, created, or called forth into objective shape, by the will, and at the desire of its possessor.

This "dual-soul," must not be confounded with either *Jivātma* (the vital principle resident in inert matter), or, the *Ling-Sarir*. This last named is the subtile, ethereal elements of the *ego* of an organism; inseparately united to the coarser elements of the latter; it never leaves it but at death. While its functionary principle—the *Linga-Deha*—is the executive agent, through which it works; the objective formation of *Kāma-rupa*: being performed by the power of *Yoga-ballu*.

This "dual soul" possesses properties peculiar to itself, and as distinctly its own as those of the physical body are peculiar to it. Among these properties are compressibility, the power of passing through the most solid substances, infinite expansibility, and many more that might be enumerated. These are not idle words, but facts derived from the experiences of many Yogis, adepts, ascetics, mystics, mediums, etc. of many different classes, times and countries. We may think, therefore, of the capacity of the *Kāma-rupa* to become a mere speck or enlarge itself to enormous dimensions; entering a grain of diamond dust, and the next moment filling every pore of the entire globe: for thought is unparticled and illimitably elastic. And, we could apprehend how, when once in the grain or in the globe, our trained *thought* can act there as if it were our own whole *self*. So, too, we may conceive of the astral-body—or *kāma-rupa*, which, although material as compared with pure spirit, is yet immaterial in comparison with the dense physical body—having like properties, and thus come to an understanding of the esoteric (secret) meaning of *Animā* and *Mahimā*.

Whole libraries have been written to define what soul is, and yet for our practical purpose, it will suffice to sum up the definition in a word: man's soul is the aggregate of all the above given subdivisions. This "self" through the *Linga-Deha* is ever conscious during the sleep of the body, and transfers the sense of this inner consciousness into the waking brain; so that the Yogi may, at will, be informed of what is transpiring in the outer world, through his physical organs, or in the inner world, through his soul perceptions. While average mortals maintain their perceptions only during the day, the initiated Yogi has an equally real, undimmed, and perfect appreciation of his individual existence at night, even while his body sleeps. He can go even further: he can voluntarily paralyze his vital functions so that his body shall lie like a corpse, the heart still, the lungs collapsed, animal heat transferred to the interior surfaces; the vital machine stopped, as it were, like a clock which waits only the key that rewinds it, to resume its beating. What nature does for the scores of hibernating quadru-

* The *double* which appears under two aspects at times as—a dull non-intelligent form or animate statue, at other times as an intelligent entity. More than any one else, the spiritualists ought to be aware of the difference.

ped, reptiles and insects, under the spontaneous action of her established laws, the Yogi effects for his physical body by long practice, and the intense concentration of an undaunted will. And what he can do for himself the magnetizer can do for his cataleptic subject; whose body in the state of *ecstasis*, the highest in the range of mesmeric phenomena, presents all the physical appearances of death, including even *rigor mortis*; while the active vitality of the soul is shown in the descriptions given by the ecstatic either of distant events on the earth, or the scenes in which he is taking part in the world of the invisible. The records of a thousand such cases, occurring in every part of the world, combine to show (a) that the soul has the capacity of a conscious existence separate from the body; (b) that it is limited by neither time nor space, it being able to visit and return in an instant from the furthest localities, and to reach such—the tops of mountains, for instance, or the centres of deserts, or the bottoms of rivers or lakes, as the waking man could either not exist in or could only visit with the most tedious exertions and the greatest precautions; (c) that it can penetrate closed rooms, rocky walls, iron chests, or glass cases, and see and handle what is within. All these, if it were particled and unyielding, like the physical body, would be impossibilities; and so, seeing what our modern experience has taught us, we can readily comprehend Patanjali's meaning and avoid the absurd conclusions which some of his materialistic and inexperienced commentators have reached. "Hundreds of times" says Professor Denton, "have I had the evidence that the spirit (meaning 'soul'—the two words are most unhappily and we fear inextricably confounded—*Ed.*) can smell, hear, and see, and has powers of locomotion." Cicero calls the soul *spiritus* (a breathing), as also does Virgil, and both regard it as a subtile matter which might be termed either *aura* (a breeze), or *ignis* (fire), or *æther*. So that here again we are assisted to the conception that *Animá* applies only to a certain portion of the soul—(*psuché*) and not to the body. And, we thus find that this Siddhi is entirely possible for one who has learnt the manifold faculties of the *inner* man, and knows how to apply and utilize the manifold functions of *jivatma*, *ling-sarir*, and the *náyáva* and *káma-rupa*. Plutarch makes pretty nearly the same division of the functions of the "Soul." The *ling-sarir* he calls *psuché* (physical entity), and teaches that it never leaves the body but at death; *náyáva* and *káma-rupa* answer to his *dæmon*, or spiritual-double, one half of which is *irrational* and called by him *eidolon*, and the other *rational* and usually termed "blessed god."

But, while the physical body may not be atomized or magnified illimitably, *its weight may be voluntarily changed without transcending natural law in the slightest degree*. Hundreds, if not thousands, are living in India to-day who have seen ascetics, while in the state of *dháraná*, rise from the ground and sit or float in the air without the slightest support. We doubt if a phenomenon seen by so many reputable persons will be seriously denied. Admitting, then, that this levitation does happen, how shall we explain it? That has already been done in "Isis Unveiled," where the author shows that by simply changing the polarity of his body, so as to make the latter similarly electrified to the spot of ground upon which he stands, the ascetic can cause himself to rise perpendicularly into the air. This is no miracle, but a very simple affair of magnetic polarity. The only mystery is as to the means by which these changes of polarity may be effected. This secret the Yogi learns, and Patanjali's name for the Siddhi is *Garimá*, which includes *Laghimá*. It follows, of course, that he who knows how to polarize his body so as to cause himself to be "light as a flake of cotton" and rise into the air, has only to reverse the process to make his body abnormally heavy. We stick to the surface of the earth because our bodies are of an opposite polarity to the ground on which we stand. Science explains that we are attracted towards the centre of the earth by gravity, and our weight is the measure of the combined attraction of all the particles of our physical body towards the central point at the earth's

centre. But if we double the intensity of that attraction we become twice as heavy as we were before; if we quadruple it, four times as heavy; centuple it, one hundred times as heavy. In short, by a mere alteration of our polarity we would be giving our flesh the weight of an equal bulk of stone, iron, lead, mercury, etc. And the Yogi has this secret, or Siddhi, also.

Many Hindus who admit that their sacred books contain accounts of the phenomena of levitation, that is, of walking or floating in the air—affirm that the power has been lost, and that there are none living who can exhibit it, or even the appearance of it, save through the help of jugglery. This false conclusion is assisted by the tendency of Western education, which but reflects the materialism of modern experimental science—so misnamed, for it is but partly experimental and preponderatingly inferential guess-work. Forgetting that the law of gravitation is after all, but an incomplete hypothesis which holds its ground for the want of a better one,—our young men say that science has defined the laws of gravity, hence levitation is an absurdity, and our old books teach nonsense. This would be sufficient if the premiss were not false. Science has but noted the more familiar phenomena of gravity, and knows nothing whatever of its nature, or its variable manifestations under the impulse of the undiscovered primal force. Open any book on any branch of physical science, and the author, if he have any professional reputation to lose, will be detected in the confession of his ignorance of the ultimate cause of natural phenomena. Superficial readers will be deceived by glittering generalizations from partially proved data, but the thoughtful student will ever find the empty void at the bottom. Huxley sums it all up in the self-condemnatory sentence, "we"—that is *we* scientists, we men who talk so glibly about ancient superstition and ignorance, and would impress Indian youth with the notion that *we* are the very High Priests of nature, the only competent instructors of her mysteries, the key to which we all carry in our vest pockets—"we know nothing about the composition of any body whatever, as it is."

But supposing that not one witness could be found in all our India to-day to prove the fact of levitation, would we have to let the case go by default? By no means; for, to say nothing of the unbroken chain of lay testimony that stretches from the earliest historic period to our times, we can take that of eminent Western physicians who have witnessed such levitations in the cases of patients afflicted with certain nervous diseases;—Professor Perty, of Geneva, and Dr. Kerner, of Wurtemberg, among others. If a phenomenon of such a nature takes place in a diseased body, without being regarded as a violation of the "laws of nature," why should it not occur—provided the same conditions *i.e.* a reversed polarity, are furnished it—in a body free from disease? This testimony of science secured, we need not hesitate to cull from contemporaneous records the mass of available proof that the bodies of living men can be, and are, floated through the air. Who shall deny it? Science? No, for we have seen that it is attested by some of the most eminent scientific men of our day; and to these we may add Lord Lindsay, President of the Royal Astronomical Society, and one of the Council of the Royal Society itself. One witness of his stamp is enough, and he is on record (London Dialoc. Soc. "Report," p. 215) as saying that he had seen a certain medium, not only float through the air of a drawing-room, but carry with him the chair upon which he had been sitting, and with it "pushing the pictures out of their places as he passed along the walls." They were far beyond the reach of a person standing on the ground. And he adds the highly important fact, "The light was sufficient to enable me to see clearly." This same medium he saw floated horizontally out of the window in one room of a house, in Victoria Street, London, and in again at the window of the adjoining room. "I saw him," says Lord Lindsay, "outside the other window (that in the next room) floating in the air. It was eighty-five feet from the ground. There was no balcony along the

windows, * * * I have no theory to explain these things. I have tried to find out how they are done, but the more I studied them, the more satisfied was I that they could not be explained by mechanical trick. I have had the fullest opportunity for investigation." When such a man gives such testimony, we may well lend an attentive ear to the corroborative evidence which has accumulated at different epochs and in many countries.

The case of the levitated 'medium' of the modern spiritualist, affords us an example of a phase of *Laghima* of which no mention is made in the portion of the *Shrimad Bhagavata* under consideration, but may be found in many other manuscripts. We have seen that a Yogi may reverse his corporeal polarity at pleasure, to make himself light as a cotton flake or heavy as lead; and that he acquires this Siddhi by long self-discipline, and the subordination of the general law of matter to the focalized power of spirit. It has also been affirmed that the cataleptic similitude to death, which in India is called *Samadhi*, may be produced in the mesmerised, or magnetized, subject by the magnetizer. We have the report of the late William Gregory, Professor of Chemistry in Edinburgh University, (*Animal Magnetism; or Mesmerism and its Phenomena*, pp. 154, 155) of one of many experiments, at his own house, by Mr. Lewis, a famous negro mesmerizer:

"Case 5.—Mr. J. H., a young and healthy man, could be rendered instantly and completely cataleptic by a glance, or a single pass. He could be fixed in any position, however inconvenient, and would remain ten or fifteen minutes in such a posture, that no man in a natural state could have endured it for half a minute. * * * When Mr. L. stood on a chair and tried to draw Mr. H., without contact, from the ground, he gradually rose on tiptoe, making the most violent efforts to rise, till he was fixed by cataleptic rigidity. Mr. Lewis said that, had he been still more elevated above Mr. H., he could have raised him from the floor without contact, and held him thus suspended for a short time, while some spectator should pass his hand under the feet. Although this was not done in my presence, yet the attraction upwards was so strong that I see no reason to doubt the statement made to me by Mr. Lewis, and by others who saw it, that this experiment has been successfully performed. Whatever be the influence which acts, it would seem capable, when very intense, of overpowering the law of gravity."

Let us first clearly comprehend the meaning of the word gravity, and then the inference of Professor Gregory will not seem so extravagant after all. In this phase of *Laghima*, observe that the changed polarity of the human body is effected by the magnetiser's will. We have, therefore, one class of cases where the effect is self-produced by the conscious will of the Yogi; another where it occurs involuntarily in the subject as the result of an outside will directed upon him. The third class is illustrated in the example of the floating medium which Lord Lindsay attests. Here the *athrobat*—as air-walkers were called by the Greeks—neither practices Yoga Vidya, nor is visibly depolarized by a living magnetiser, and yet his body also rises from the earth, light as a cotton-flake or thistle-down. If this happens, where is the cause; for cause there must be, since miracle is an impossibility? Modern Spiritualists as we are informed vaguely ascribe the fact to the agency of the disembodied spirits of their dead friends, but have given no sufficient explanation of the method employed. One of their most intelligent writers—Miss Blackwell, who won the gold medal of the British N.A.S. for her essay on Spiritualism—attributes it to "jets or currents of magneto-vital force," which sounds vaguely scientific, to say the least. To follow out this branch of the subject would cause too wide a digression for our present purpose. Suffice it that the medium's body is depolarized, or differently polarized, by some force external to him, which we have no warrant for ascribing to the voluntary action of living spectators.

Another branch of this great subject of *Laghima* is reserved for our next article. The more it is studied, the more cumulative is the proof that Patanjali was a master of Psychology.

(To be continued.)

In 1272, A.D., 280 Jews were executed for clipping the current coin of the realm,

HINTS TO THE STUDENTS OF YOGA VIDYA

By Lalla Ruttun Chund.

The student should realize that in order to render one's self worthy of an admission into the sanctuary of Yoga, a thorough regeneration of the mind is the essential condition imposed upon him. Integrity of purpose and purity of intention he has rigidly to observe in his desires and actions throughout life, and no sensual appetites or cravings of the flesh can he be allowed to cherish in his bosom. In short, to keep his passions and animal propensities in entire subjection, is the vow he has to make at the very threshold of the sacred science of Yoga.

Ever successful to abide by this vow are they who have a determined *will* to do so: but it must be clearly understood that a violation of this vow, on the part of the student of Yoga Vidya, however advanced, will lower him in his development as much, at least, as a decimal point lowers in value the integer before which it is placed.

The sanctification of the mind, to such an extent that evil emotions and feelings may never be able to make their way into it, is most assuredly secured by a perfect concentration of the mind on one single object; and the proper object for this purpose is (ॐ) OM, which my imperfect knowledge of the English language, or rather, perhaps, its own poverty, constrains me to translate as the "Infinite One." It is true that the concentration of the mind upon one single object, and especially such object as the (ॐ) OM—Deity, is a difficult task; but no difficulty however great, depend upon it, can stand in the way of a *really determined man*.

Again, to a beginner, this science appears dry and unattractive, and one that involves the loss of time, apparently to no purpose; but a few months' practice of its principles is sure to secure to its devotee a comfort and bliss which he could not have obtained in years, from any other source.

Siddhis, i.e. psychic powers, which are certain to attend more or less every Yogi, should never be moving cause to induce one to pursue this science; for desires other than that one of realizing OM in the soul, are to be abandoned at the outset.

Attachment to the world and its pleasures, should never be stronger, on the part of the Yogi than the attachment which a traveller, bound homeward, has for an inn in which he has to stop for a fleeting night.

Such are the sacrifices which are to be made by every student of this spiritual science; and none need attempt to approach it who are loth to observe these terms. Namasté.

Lahore, Punjab, Oct. 13th 1879.

[Written expressly for the THEOSOPHIST.]

HINDU MUSIC.

By Bulwant Trimbuk, Hon. Sec. of the Poona
"Gyan Samaj."

We wish to give our readers some idea of Hindu Music, which is a plant of ancient growth, having beauties of its own. It will require some time before a stranger can qualify himself to appreciate its merits. That it was developed into a *science* admits of no question, as the sequel will prove. Hindus, as a fact, do find beauties in it, and they avail themselves of every opportunity for enjoying this sort of amusement. There are various reasons why foreigners do not take equal interest in cultivating it, of which we will enumerate a few.

1. No standard work on the subject has as yet been presented to the public in any of the current languages. There are several in Sanskrit, it is true, but that is a language difficult to learn, and now, unfortunately, almost dead.

2. The second reason is that the notation for reducing music to writing as given by ancient writers on Hindu Music is not generally known.

3. The third reason is that strangers pass a very hasty judgment upon its merits. They do not make the best of, the many opportunities that are presented to them while,

living in India. They disdain to attend singing and nautch parties at the houses of gentlemen, and declaim against them as immoral; and when they return to their native countries try to hide their ignorance by passing all manner of bad remarks; holding, the while, the jigs of such low-caste people as are usually their attendants, as types of Hindu Music.

4. We know of many persons who can distinguish an individual and yet cannot identify him in his photograph. This is due to their want of familiarity with the effects of light and shade, on the vision; the same is emphatically true of any system of music. The English, French, German, and Italian systems of music are distinct from one another, having been separately developed; yet each has charms peculiar to itself, and each school has its admirers and panegyrist who find it the best of all representatives of true harmonic science. Cultivation and taste are the primary requisites for musical criticism, and unless a man spend some years on any given system of music he will not come to realize its beauties and appreciate its merits. If an Englishman, a Frenchman, and an Italian sit in judgment upon the merits of our Indian Music, each will try to find something in it which he is accustomed to and which he has from childhood learnt to look upon as the best. Neither of them is used to the softening influence of Hindu melody, and therefore each cries it down with a separate phrase. To expect therefore that Hindu Music will stand the test of every connoisseur whose ear is accustomed to a different development, is to forget the theory of the formation of ideas. Again, if Hindu Music had been a growth of modern times, containing all the several charms of different musical systems, it would perhaps have answered the expectations of these connoisseurs; but upon the testimony of works of great antiquity lying around us (some 4000 to 8000 years old), we can safely affirm that Hindu Music was developed into a system in very ancient times; in times of which we have no genuine records; in times when all other nations of the world were struggling with the elements for existence; in times when Hindu *Rishis* were enjoying the fruits of civilization, and occupying themselves with the contemplation of the mighty powers of the eternal Brahma.

We will therefore present our readers with a bird's-eye view of Hindu Music, leaving to themselves the task of cultivating their ear; for while we can describe to a person the external appearance of an orange, its colour, its odour, and name to him, its order in the vegetable kingdom, no words can convey to him an adequate idea of its taste; and so is it with respect to Hindu Music. Though we make you masters of its theory, name to you the different *Tānds* and *Murchhandās*, the *Grāmās* and *Rāgās*, we cannot convey to you any idea of *Rakti* or the power of affecting the heart, the end of any musical system; it must be tasted by the ear.

SOUND.

Sound most naturally forms the starting point of a dissertation on music. The theory of sound as given in *Shikshā* is as follows (1):—

"The soul comprehends by means of its faculty of knowledge what is wanted, and, desirous of speaking out, enjoins the mind. The mind upon this excites the bodily heat, and this heat puts the wind in motion; this wind moving in the cavity of the chest, produces a sound which is recognized as *Mandra*, or chest voice."

In this theory which is very old, as the work from which it is extracted will show, we may recognize the crude expression of the principles of the modern undulatory theory of sound.

Observation and generalization are the two essential things required in the formation and development of a

(1) आत्मा बुद्ध्या समेत्यार्थान्मनो युञ्जते विवक्षया । मनः कायाग्निमाह्नित
सप्रेरयति मासुतं । मासुतस्तूरसि चरन्मन्दं जनयति स्वरं । प्रातः सवन
योगतं छन्दो गायत्रमाधितं । कण्ठे माध्यं दिनं युगं मध्यमं त्रैलुभानुगं । तारं
सातंयसवनं शीर्षण्यं जागतानुगं । सोदीणो मूर्ध्निपिहतो वक्त्रमापश मासुतः ।
वर्णोज्जनयते प्राज्ञः । शिक्षा

science; without being charged with partiality we think we can credit the ancient *Aryās* with a great deal of both. Close observation of the habits of the members of the animal kingdom must have shown them that a growl and a shriek were respectively the two sounds between which all others must fall; and lo! how aptly they have illustrated them. In order that their children might accustom themselves to these high, low, and middle sounds, they advised them to repeat (1) their lessons in the morning in the low note, which proceeds from the chest and resembles the growl of a tiger; in the afternoon in the mid-tone, which proceeds from the throat and resembles the cries of the *Chakra* or round bird; and at all other times in a high tone, which proceeds from the head and resembles the cries of a peacock and others of its kind.

They have divided sound into three classes—*Mandra* (low), *Madhya* (throat voice), and *Tār* (high). These go also by the names (2) of *Udātta*, *Anudātta*, and *Swarita*, respectively. They say that in *Udātta* are recognized the notes Ni and Ga, corresponding to the English notes E and B; that in *Anudātta* are recognized the notes Ri and Dha, or D and A; and in the *Swarita* Sā, Ma, and Pa, or C, F and G. *

It is worthy of remark that E and B are semi tones, D and A are minor tones, and C, F and G are major tones. How nice must have been their sense of hearing! †

Nature is never stingy or cruel to her children, when they serve her earnestly. The same craving after knowledge and spirit of patient enquiry which discovered to the *Aryās* that the high, low, and middle notes had typical representatives in the animal kingdom; the same musical ear which showed them the sounds proper for repeating the lessons in the morning, noon, and at other times,—disclosed to them that the animals produce certain notes, and no more. They (3) found that the peacock, ox, goat, crane, black-bird, frog, and elephant uttered certain distinct notes, and that all the notes of the denizens of the forest could be put down under one or other of these 7 heads. In this way were the 7 musical notes found and fixed upon.

They also fixed measures of time thus (4):—The mangoose uttered $\frac{1}{2}$ measure, the *chassbird* cried in 1 measure, the crow in the double measure, and the peacock shrieked in the treble.

Thus, while the *Aryās* were teaching their children necessary lessons, they were imparting to them a sort of musical instruction and preparing their voices for it. The transcendental charms of music can not have fallen flat upon their appreciative sense of hearing, and they must have set apart a number of verses to be sung, and thus must have sprung the *Sāma Veda*—a Veda which is recognized by all to be very old and designed for singing; a Veda out of which verses are even to this day sung most harmoniously by the *Udgāttri*, a priest who performs the singing service at the time of *Yadnya* (Sacrifice).

The recognition of these 7 notes as all the alphabets of

(1) प्रातः पठेन्नित्यमुरस्थितेन स्वरेण शार्दूलरुतापमेन । मध्योदिने कण्ठगत-
न चैव चक्रावहसंस्कृजिनरात्रिभेन । तारंनु विद्या त्सवनं नृतायं शिरोगतं तच्च
सदा प्रयोज्यं । मयूर हंसप्रभृतिस्वराणांतुल्येन नादने शिरस्थितेन । शिक्षा

(2) उदानश्चानुदानश्च स्वरितश्च स्वरा स्वयः । उदाने निषाद गायारा
वनुदानश्चर्भर्षवती । स्वरितप्रभवाद्येते पञ्चमध्यमपञ्चभाः । शिक्षा

* "The aggregate sound of Nature, as heard in the roar of a distant city, or the waving foliage of a large forest, is said to be a single definite tone, of appreciable pitch. This tone is held to be the middle F of the piano-forte, which may, therefore, be considered the key note of nature."—(*Principles of Physics*), by Prof. B. Silliman. "The Chinese recognized it some thousands of years ago, by teaching that 'the waters of the Hoang-ho, rushing by, intoned the *kuang*,' called, 'the great tone,' in Chinese music, and one which corresponds exactly with our F, now 'considered by modern physicists to be the actual tonic of Nature.'" (Rice). Ed. THEOS.

† "The doctrine of sound is unquestionably the most subtle and abstruse in the whole range of physical science"—says Professor Leslie. Ed. THEOS.

(3) पञ्जं वदन्मयूरोहि ऋषभं चातको वदन् । अजावदति गान्धारं कौ-
चो वदति मध्यमं । पुष्पसाधारणे काले कोकिलः पञ्चमं वदन् । दुर्दुरो धै-
वतं चैव निषादं च वदद्गजः । नारदः

(4) चापस्तु वदते मात्रा द्विमात्रंवेव वायसः । शिसी रौत त्रिमात्रं न-
कुञ्ज स्वर्धे मात्रकं शिक्षा

musical language all over the world, in the nineteenth century, proves beyond all doubt the nice appreciation of the ancient Aryas. But this was not all. Writers on Hindu Music even discovered that these seven notes had peculiar "missions" (1) to the human mind; that certain notes were peculiar to certain sentiments, and that without those notes these sentiments could not be well expressed. All who have had occasion to hear the adaptation of musical notes to different sentiments can bear testimony to the fact that the observations of these writers were correct. It must not however be considered that we mean that sounds alone can without the assistance of language express a sentiment to reality. No; although, by association we come to recognize "a March" or "a Gallop" as something stirring; our point is that if appropriate lingual expressions be associated with proper musical notes the effect is more certain and real.

The table given below will show at one glance the several notes, their names, their types in the animal kingdom, and the sentiments (2) to which they are applicable:

TABLE 1.

Sanskrit Notes.	English Notes.	Sanskrit Names.	English Names.	Types in the Animal Kingdom.	Sentiments peculiar to
सा Sā	C	Shadja	Do	Pheasant	Heroism, Wonder, Terror.
री Rī	D	Rishabha	Re	Ox or chātak	" " "
ग Ga	E	Gāndhāra	Me	Goat	Compassion.
म Ma	F	Madhyama	Fe	Crane	Humour and Love.
प Pa	G	Panchama	So	Black bird	" " "
ध Dha	A	Dhaivata	La	Frog	Disgust, Alarm.
नी Nī	B	Nishādha	Si	Elephant	Compassion.

In the Veda itself (3) sentences are found which go to prove the same.

If a monochord with moveable bridge be taken, and a space equal to 44 units be measured and the bridge shifted to this point, the string when struck will yield a note; if we start with this note as the tonic or key-note, and run through the gamut by shifting the bridge (the Sanskrit writers affirm (4) the following facts will be observed. Sā, will be produced at the distance 44; Rī at 40, Ga at 37, Ma at 35, Pa at 31, Dha at 27, Ni at 24, and Sā again at 22; but the latter Sā will be twice as intense as the former. (5)

Let us now see how far this doctrine is correct according to the theory of vibrations as given by English physicists.

(1) हास्यशृङ्गारयोः कार्यौ स्वरौ पञ्चम मध्यमौ । षड्जर्षमी तथा ज्ञेयौ
वीररौद्राद्भुते रसे ॥ १७ ॥ गान्धारश्च निषादश्च कर्तव्यौ करुणारसे । वैश-
तश्चैव कर्तव्यौ नीभरसेच भयानके ॥ १८ ॥ सुभाषित शाङ्गेधरः

(2) The Sentiments are:

शृङ्गारवीर करुणाद्भुत हास्य भयानकाः । नीभरसरौद्रौच रसाः ।

अमरः

च शब्दाच्छा न्तोऽपिनवमः । वास्तव्यं दशमः ।

अमरटीका

(3)

हुं	२ २	२ १	१
हूँ	हूँ	उहूँ	हा उ
			३

साभवेदः

(4) तेषां युतयः क्रमतो वेदा रामादृशी तथाम्बुधयः ।

निगमा दहनाः पक्षावेवं द्राविशक्तिः सर्वाः ॥ १६ ॥

नुर्यायां सप्तम्यां तासु नवम्यां युतो त्रयोदश्यां ॥

सप्तदश विंशती द्राविशक्तिषु च ते रकुटाः क्रमतः ॥ १७ ॥

रागविबोधः

(5) द्वाविंशतीस्यः षड्जो द्विगुणसमः पूर्वषड्जन ॥ २१ ॥

रागविबोधः

The relative number of vibrations of the notes of the gamut are: (1)—

Sā,	Rī,	Ga,	Ma,	Pa,	Dha,	Nī,	Sā
C,	D,	E,	F,	G,	A,	B,	C
1,	9/8,	5/4,	4/3,	3/2,	5/3,	15/8,	2.

that is 24, 27, 30, 32, 36, 40, 45, 48. But the lengths of the wire are inversely proportional to these:—

Sā,	Rī,	Ga,	Ma,	Pa,	Dha,	Nī,	Sā
1,	8/9,	4/5,	3/4,	2/3,	3/5,	8/15,	1/2

that is:—

180,	160,	144,	135,	120,	108,	96,	90;
------	------	------	------	------	------	-----	-----

and the intervals between the two consecutive notes are 20, 16, 9, 15, 12, 12, 6.

When these intervals are reduced to a length of 48 units they become:—

Sā,	Rī,	Ga,	Ma,	Pa,	Dha,	Nī,	Sā
5.3,	4.16,	2.3,	3.9,	3.12,	3.12,	3.12,	1.5.

Let us write against these numbers the *shrutis* or intervals according to Sanskrit writers, and it will at once be seen that they are closely analogous.

TABLE 2.

Hindu Notes.	English Notes.	Estimated intervals.	Shrutis.
सा	C		
री	D	5.3	4
ग	E	4.16	3
म	F	2.3	2
प	G	3.9	4
ध	A	3.12	4
नी	B	3.12	3
सा	C	1.5	2

How delicate and accurate must have been the organs of hearing of the *Aryas*, when they could reach so near the truth unassisted by the paraphernalia of modern science.

According to Sanskrit writers no sound is said to be perfect unless it goes through the *Shrutis* or intervals attached to it. The 7 notes thus fixed form the natural scale, and this is called by the Sanskrit writers a *Shadja Grāma*, or a scale in which C is the key-note.

But a singer may start with any key-note, and the several succeeding notes will be affected consequently. Let him start for instance with *Madhyama*, or F, as his tonic, and let him transfer his gamut to an instrument with moveable frets, he will find that the positions which the frets were in in the natural scale will be of no use now. For he will have to play his *Sā* on *Ma* fret of the natural scale and *Rī* on the *Pa* fret; *Ga* on the *Dha*, *Ma* on the *Nī* fret, and so on; but he will find that he will not be able to play *Ga* and *Ma* on the *Dha* and *Nī* frets; he will be obliged to push *Dha* one *Shruti* up and *Nī* two *Shrutis*.

The following diagram will make this clear—

C	D	E	F	G	A	B	C	D	E
सा	री	ग	म	प	ध	नी	सा	री	ग
			C	D	E	F	G	A	B
			सा	री	ग	म	प	ध	नी

The reason of this is that the interval between the notes E and F is 2, and D and E 3, whereas, on the natural scale, the interval between G and A is 4, and A and B 3 *shrutis*, respectively.

It will therefore be seen that an instrument with its frets fixed for the natural scale will not do for any other key; we shall have to insert other frets for convenience, and these frets will give notes different from those of the 7 original frets; the necessity of sharp and flat notes is

(1) Gaout's Physics—Acoustics.

therefore evident. It is found that 12 such flat and sharp notes are required to be added, making in all 19 notes; and these are found to answer for the purposes of Hindu Music. These flat and sharp notes are called the *Vikrita* or changed notes. Besides this, the moveable frets of our musical instruments enable us to make provision for the sharp-sharp or flat-flat notes which are required in some of our songs. In the piano and the several keyed English instruments the natural scale is dreadfully abused and distorted by the method of what is called "equal temperament." They divide the scale into 12 equal semitones; it is this that accustoms the ear to false notes; and many singers of note try to sing without "the piano." This limited scope of English instruments disqualifies them to perform many of the beautiful airs of Hindu Music of which we will give some instances:

Kalyāna and *Abhiraṇāta* are two of the best and choicest specimens of Hindu *Rāgās* or scales.

Kalyana requires (1):—

Sā	Ri	Ga	Ma	Pa	Pa	Dha	Ni	Sā	Sā
C	D	E	F	G	G	A	B	C	C
Sharp. 2				b					

or C natural and flat,
D sharp-sharp,
E F and A natural,
G natural and flat.

Again:—

Abhiraṇāta requires:—

Sā	Ri	Ga	Ma	Pa	Dha	Ni	Sā	Sā
C	D	E	F	G	A	B	C	C
Sharp. 2				b				

or C F G A natural,
D sharp-sharp,
C natural and flat.

It will thus be seen that these melodies will never be executed on an instrument with fixed keys and tempered sharps and flats.

How is it possible, therefore, to enjoy the melody of the music of the Hindus unless our readers provide themselves with instruments of very good make, such as are made here to suit the purposes of Hindu Music?

With respect to the aptitude of different notes to produce a pleasing sensation, they are divided into:—

Vādi, *Samvādi*, *Anuvādi* and *Vivādi*; the first are styled sovereigns, as forming the principal notes in a *Rāga* or scale; the second, or *Samvādi*, are like ministers that assist the first in developing the scale; the third, or *Anuvādi*, are reckoned as servants that attend upon their superiors, bear strength, but cannot command; and the fourth, or *Vivādi*, are distinctly set down as enemies.

The intervals which mark the positions of *Samvādi*, are 12 and 8 *shrutis*; e.g.;

सा	॥	री	॥	ग	॥	म	॥	प
C		D		E		F		G
		सा		री		ग		म
		C		D		E		F
		प		ध		नी		सा
		G		A		B		C

—all those that lie in one row are *samvādi*.

Vivādi are such notes as mar the effect of any *Rāga* by their introduction; e.g. notes which are separated from each other by one *shruti* (*kūkali*), and such as are consecutive. Consecutive notes, such as B and C, are admitted among English musicians as discordant.

It will thus be seen that in order that a pleasing effect may be produced on the ear by means of a species of arrangement of the musical notes, it is quite necessary that

(1) कल्याणः

कल्याणस्यनुमेलेशुचयः सपधारिरस्तितीवतरः । साधारणध मृदुपः ।
मृदुसांरिमंत्रेण इतरेच ॥ ५० ॥

आभीरनाटः

आभीरनाटमेले शुद्ध समपधाष तीवतरऋषभः । साधारणमृदु सौचेव्य-
तः स्युराभीर नाटयाः ॥ ४४ ॥

रागविबोधः

account shall be taken of notes that are concordant, or otherwise.

According to Sanskrit writers on music there are six principal *Rāgās*, and their names are, (1) *Shri Rāga*, (2) *Vasanta*, (3) *Panchama* (4) *Blairava*, (5) *Megha* and (6) *Nat Narayān*.

Each *Rāga* is said to have 5 wives, and each wife 8 children. Thus it will be found that Hindu musicians sing 276 different scales, each distinct from the others, and each having a charm in itself.

Murchhanās, *Tānās* and *Alankārs* are the various ornaments, or *floriture*, which are introduced by master singers to give effect to and develop the scale, or *Rāga*, which they sing.

Murchhanās are performed by going over 7 notes of the selected scale (*Rāga*), backwards and forwards: this is ascending and descending *Arohana* and *Avrohana*; e.g.:—

C	D	E	F	G	A	B	C
C	B	A	G	F	E	D	C

Tānās are half *Murchhanās*, or motions in a single direction.

Alankārs are several thousand in number, and are performed by grouping together and repeating the musical notes in permutations: e.g.—

A *Nishkarsha* is CC, DD, EE, &c.;

Vistima is CDE, DEF; EFG.

Bindu is CD, DE, EF &c.

We think we have laid before the readers of the THEOSOPHIST materials which will enable them to see that the Hindu Music is not hap-hazard work and a low caste jig, but that at least some attempts at a systematic arrangement have been made by writers who made it their specialty. Nay, we find them so anxious to realize the great aim of music, which we have named above as *Rakti*, or the power of affecting the heart, that not only have they inserted various ingenious permutations and combinations of harmonical notes, but have actually set down rules and medicines for the cultivation of the voice, the singer's instrument. They have been so careful to secure this aim that they have prescribed certain seasons of the year and certain hours of the day for certain *Rāgās*, and have most searchingly enquired into the effect of each musical note on the heart. Dancing they have reduced to rule, and keeping time became a science under their watchful and anxious care, such as will vie in its nicety with the Sanskrit grammar, which is recognized as almost the perfection of deductive logic.

It is musical notation which we want, and feel this the more for we cannot perpetuate the melodious arrangements of tunes, of performers of genuine styles who, in the course of nature, are fast fading away. It is true we have a musical notation which we can claim as our own, but we think it is not sufficient nor elegant enough to mark the various graces of Hindu Music with the rapidity of a phonographer. We think the English system of music, such as it is, cannot be adopted by us without making necessary changes; this we mean to do ere long, and so enable our friends living far away from India to share with us the enjoyment of melodious graces richly fraught with *Rakti*. (1)

Poona Gayan Samāj,

20th September 1879.

Mr. Edison says that since the patents for his electric light were issued, he has improved the standard meter for measuring the electricity fed to the burners, and has perfected a method of insulating and conveying the wires from the generating stations to the houses of the consumers. He is satisfied that the generator cannot be improved. Ninety-four per cent. of the horse-power is set free in the electric current, and eighty-two is delivered in the wire outside the machine. With the same resistance of the wire the generator has twice the electro-motor of any other machine yet made.

(1) गीते वाद्येच नृत्येच रक्तिः साधारणो गुणः ॥

सुभाषितशाङ्करः

THE VEDA, THE ORIGIN AND HISTORY OF RELIGION.

By Shankar Pandurang Pandit, M.A.

Much difference exists in the ideas of people as to what they should include in and what they should exclude from the very comprehensive term *Veda*. And it is exactly in proportion to the exactitude of what we mean by that word that it can be justly said to contain or not to contain such and such matter. There are those, representing one extreme, that stoutly maintain that the *Veda* contains everything, *i. e.* being the record of God's own revelation it is the repository of all knowledge that man has hitherto had or shall in future come to possess, not excepting the latest discoveries and inventions connected with the telephone and the microphone. On the other side people, who represent the other extreme,—and these the vast bulk of foreigners in and out of the country, native and foreign—who have heard of the *Veda*, maintain their belief that there is nothing worth knowing in it, that it is a book or set of books which wherever intelligible are full of descriptions and ordinances of superstitious rites, and wherever unintelligible they are so hopelessly mystic as only to serve the purposes of designing and selfish priestcraft that is always ready to take shelter in whatever is old and obscure, revered but not understood, believed in but not examined. Like other extremes the two just indicated are both true and false, not simply because of differences of interpretations, but also because of some matter being included by the one and the same being excluded by the other from the thing signified by the term *Veda*. The strictly orthodox Hindu not only understands by it all the *Saṁhitās* or collections of hymns, the *Brāhmaṇas* and the *Upanishads*, but even subsidiary Vedic treatises treating of the grammar of the *Veda*, the pronunciation of Vedic words, the Vedic vocabularies and so on; whereas many confine the name to the collections (*Saṁhitās*), the *Brāhmaṇas*, and the *Upanishads*, and some classes of people would not allow the word to apply to anything more than the *Saṁhitās*.

The *Saṁhitās* are collections mostly of hymns, and sometimes of religious formulae, prayers, ritualistic descriptions of sacrifices and other rites and ceremonies. The *Brāhmaṇas* are a class of composition that greatly partakes of the nature of commentaries expounding but more frequently speculating on many Vedic things which though originally simple and commonly understood had begun to be obscure long after the time had passed when the simple religion of the authors of the numerous hymns prevailed. The *Upanishads* represent a later period of time when men had begun to perceive the uselessness of mere rites and ceremonies and commenced generally to philosophize on man and nature, and as being a record of the flights of freedom of thought, point to a very different epoch in the intellectual history of the Hindu Aryan.

Though, however, generally speaking the *Saṁhitās*, the *Brāhmaṇas* and the *Upanishads* point to three successive and different periods of time, still having regard to the nature of the three classes of books and of the *Saṁhitās* especially, there can be no doubt that each contains something that belongs to the periods of the other two. The *Saṁhitās* comprise hymns which embrace a very long period of time when doubtless the human mind had passed through many different stages of development, as well as different phases of decline.

The inclusion of the *Brāhmaṇas* and the *Upanishads* both adds to and takes away from what we may call the fair reputation of the *Veda*. For if we have in the *Upanishads* some—if not indeed all—the sublimest ideas which man has ever conceived, we have in the *Brāhmaṇas* the most puerile speculations on commonplace matters, and the most pitiable perversions of beauty and caricatures of simplicity. Yet we think that the *Saṁhitās* the *Brāhmaṇas* and the *Upanishads* together may fitly be styled the *Veda* or the Vedic literature, as taken to-

gether they certainly unfold the authentic history—authentic because written contemporaneously—of the rise and fall, the fall being greater than the rise, and the subsequent regeneration of the Hindu mind in its religious and philosophical aspects. The popular saying, there is no rise without fall, and there is no fall without rise, is not less applicable to the history of human thought than it is to the history of human action. The highest achievements of human thought and speculation are, history teaches us, followed by a fall which is proportionate to the rise. No religion, howsoever pure, has been founded but has been debased by those who followed its noble propagator. And the rise and decline of an edifice should be studied together by those who wish to have a full and correct idea of the edifice. Such a study of history is especially necessary when the rise is not simple rise but contains parts of the fall, and the fall is not simple fall but contains parts of the rise.

Taking this view of the Aryan Vedic thought we think that the *Saṁhitās*, the *Brāhmaṇas* and the *Upanishads* should be allowed to constitute "the *Veda*." For the four *Saṁhitās* contain much that is fit to be contained in the *Brāhmaṇas*, and the *Brāhmaṇas* are not always void of things worthy of the *Saṁhitās*, and again the *Saṁhitās* are not quite strangers to the philosophical speculation, poetically clothed, of the *Upanishads*, and these last are sometimes quite as simple and primitive as the contents of the *Saṁhitās*.

Thus circumscribed we believe the *Veda* is the origin of all religion. There can be no doubt that the *Veda* is the oldest Aryan book extant; nay it is most probable that it is the oldest book in the world. This can certainly be predicated of parts at least of the hymns of the *Saṁhitās*. And as such it is the most reliable record of the gradual rise and development of religious ideas among one at least and that the most important race of mankind—the Aryans. The fundamental truths of universal religion are there, and not simply the bare fundamental truths, but also their history, the history of their primeval rise and progress. Thus not only have we in the *Veda*—the *Veda* as we have described above—one deity as the creator, the preserver and the destroyer of all the universe, but we possess in it clear evidence of the manner in which the idea of a God was first conceived and a well-connected chain of the stages through which that idea passed for many ages until it rose to the eminence of a belief in the non-existence of many gods and the existence of one single Supreme Power without a second.

(To be continued.)

THE BRAHMACHÁRI BĀWÁ.

By an English Admirer.

More than twenty years ago, when the advocates of Christianity were less sensible than they now are that the tenets of their multiform religion, were things to be screened from rude criticism, the missionary world was startled by the arrival in Bombay of a Brahman, who did not shrink from applying such criticism. Not then taught the better part of valour, as to the open profession of a knowledge of the unknowable, the missionaries met this rude person on the sea shore, and there discussed, where the Bombay Baroda and Central India Railway trains now run, the peculiar arithmetic, astounding morals, and queer history, which they were in the habit of propounding as Christianity. There they found that glib assertions of intimate acquaintance with the inmost counsels of the Almighty were easier made than proved; and wider and sadder men, they decided that public discussion of the basis of what they professed as Christian belief, was no longer opportune in Bombay.

From that date all prospect of the conversion of any of the educated classes from Hinduism to any of the forms of Christianity presented to them for acceptance in Bombay practically came to an end. Missionary enterprise has gathered some harvest here and there among the—from any intellectual point of view—riff-raff of the place; but all the

efforts of the many devoted, and some gifted, missionaries, to attack, or may we say, to comprehend, the entrenchments of Vedantic and other Oriental Philosophy have failed.

This result is doubtless due in part to the deadening effect of the materialistic teaching of the West. Every pupil in those longitudes is brought up a practical materialist. He is taught that nothing exists beyond the cognisance of his material senses: the reality of the spirit world is merely taught as a make-believe branch of a doubtful Archaeology: and any real belief in its existence is stifled in its birth. How then can the preacher on a materialist plane reach the Vedantic philosopher, to whom the visible, the tangible, and the audible, are the less real entities about him?

But the chief cause of the dead stop put to the Christian propagnada amongst the better instructed classes, was unmistakably the effect produced on his countrymen by the Brahmachári Bawá. Some account of his personality will therefore interest our readers.

In person Vishnú Pant was a fine example of the more delicate Marátha Bráhmaṇ type. His head was arched, and the brain highly developed. His figure was elegant and distinguished; and his oratory was set off by the graceful action with which it was accompanied. His delivery was almost too rapid, as he never had to pause for the right idea, and the word to express it. But his great charm was the expression of his face; cheerful contentment, a happy mirthfulness, and regard for others animated his features. It was a remarkable sensation to meet him, draped in the simplest garb, without purse or scrip, and to trow that he took literally no need for the morrow, in that he depended for his food entirely upon the free gifts of the day. Beyond his gourd and his staff, he owned no "property." In western climes the communistic clauses of Christian obligation are so thoroughly explained away, that a living embodiment of them was sufficiently startling to the European mind. It became bewildering to find that as saints westward "found Jesus" so the Brahmachári had "found Paramátmá." As in the west, his "conversion" in his twentieth year, had a specific date. Longer acquaintance with him made evident that the intolerant bigotry which would exclude him from a high place in the hierarchy of moral teachers, would have asked Melchizedek for his certificate of ordination by an Anglican Bishop. His pure and stainless memory is preserved by a small but affectionate following, but as yet his mantle has fallen upon no one. Perhaps his special work was done: though the search, for which he gave up all, is still to make by each of us for himself. We may not all adopt his conclusions, but his manner of seeking the Truth, his self sacrifice in its pursuit, and his purity of life, are beacons which all can see, and which convey a definite lesson to every one who will open his eyes to see it.

The following translation has been made for us from the Marathi, by a young Parsi, of

THE BRAHMACHÁRI BAWÁ'S OWN ACCOUNT OF HIS LIFE.

I was born at sunrise, on the 5th of Shráván Shuddha, in the year 1746 of Sháliván era, or 1882 of Samvát. My birth-place is the gaum Sirvallee, which is at the confluence of two rivers, in the plain, at the foot of the Sayádrí range, in the *tarati* (subdivision) of Devighát. It is in the Nizam-pura *peta* (section) of the Rájápur *taluka* (division), at present called the Mangaon *taluka*, in the zilla (district) of Thána, Bombay Presidency. I was born in the Chitpávan caste of the Brahmins. My great grand-father's name was Ramchandrapant Gokhle; grand-father's Mahadájee Pant Gokhle; father's Bhicáji Pant Gokhle; mother's Rámábái Pant Gokhle; and my own name is Vishnu Pant Gokhle. My mother gave birth to eleven children, (six sons and five daughters) of whom I was the tenth. I am called Brahmachári Bawá because I am a celibate, and also on account of my strict observance of the laws of chastity.

Whatever I learned of reading, writing, the Shastras,

and the Vedas, was acquired in the interval between my seventh (the year in which I received the sacred Brahmínical thread) and eighth years. In my ninth year, as by practice my handwriting had considerably improved, I began to work as a candidate in the British Land Revenue Department. After a year and a half of this service—my father had died in my fifth year—I was obliged by my mother to return home and engage in the care of our lands. * * * * * Having thus worked hard for a period of two years, in the twelfth year of my life I got myself employed in a grain-dealer's shop in the market place of Mahád, a town of Raighud taluka, about twenty-four miles from my birth-place. Thus for a period of two years I worked hard in selling things by weight and measure. There I also sold cloth, changed monies, and kept accounts of bills of exchange and sales, as well as of interest on credit and debit accounts. At this time I became desirous to serve the British Government; but as my master would not let me resign from his service, I was obliged to stop there as long as it was agreed upon between us. After that, in the fourteenth year of my life, I sailed from there in a ship to Ratnágiri, and engaged myself as a candidate in the British Customs Revenue department at the port of Sangameshwar, in the Ratnágiri taluka. Then I served the British Government for two months as a substitute for an absent clerk, and after that went over to Thána. There I was examined by appointed examiners, and was found eligible for Government service. Immediately after this, between my 15th and the 16th years, I obtained a position in the Customs department in the Salsette taluka, of the Thána Zilla. Thus, for a period of seven years subsequently I served with great zeal, honesty, and independence in the Sea-Customs Revenue department of Salsette, Bassein, Kallyán, Bhinwadee, etc.

During all this time, as from my childhood, I had been in the habit of meditating upon the Vedic religion and my mind always shuddered at even the idea of sin. In my twentieth year I received the first warning of, and was allowed a glimpse into my futurity, through the divine power manifested under the form of *Sáikshátkár*.

Whenever before and after my personal experiences in the seclusion of self-initiation I addressed any of the Brahmins as to *this* truth, I was answered thus: "If you will worship *us* and learn *our* mantras and incantations from *us*, we will disclose to you the truth about the 'Self-existent.'" And so, in order to try them, I learned their mantras and did all they bid me do, and then demanded that the true knowledge should be divulged to me. Their answers proved their selfish wickedness, foolishness and often entire ignorance upon the subject. Many proved themselves impostors; some used intoxicating liquors; others again, pursued the sacred knowledge only with the avaricious object of obtaining the secrets of alchemy; others again were in search of magic for selfish motives, such as striving to gratify their sensual desires, to obtain filthy lucre by pecuniary gains; and various other as interested motives. All those I have come in contact with I have tried them; but most of these men were found by me full of *doubt* and ignorance, and therefore, unable to teach others. Having thus discovered that most of them were only hunting after fame and selfish ends, and yet dared to brand those who questioned them as to their learning "faithless infidels" a great aversion arose in my heart for them and I got fully convinced that there was little in this world beyond imposture and selfishness. Thenceforth, I took a vow never to approach again such men. And as I had learned from the study of various religious works how to worship, reverence and commune with the only powerful universal Teacher, I then resolved to act accordingly, and betook myself to the jungles of the Sáptsangi mountains, relying fully on the protection and omniscience of the omnipotent Master* (Ishwar). It was on the 23rd day of the 8th month of the 23rd year of my life, that giving up every worldly tie

* See Bulwer's *Zanoni*—the scene where Zanoni sees and meets with his "Adonai." Ed.

and possession, save a piece of loin-cloth, I retired to the dreary solitudes of Saptangi and its jungles to meditate in silence upon the mysteries of the universe and try to discover the truth as to the nature of our real inner-self.....

There, in those solitary and deserted places, for a number of days, months and years, I performed the prescribed acts of devotion (self-improvement). And, as the effect of my ardent desire, concentration, and perseverance to learn by personal experience the state of "Self-existence" (*i. e.* that state in which the astral man, or *kāma-rupa* is independent in all its actions of the body) I finally succeeded in seeing and knowing practically the omnipotence of the Lord (the divine I, or Spirit, the *personal* God of every individual.*) The Lord did manifest himself to me *in a certain way* which it is not lawful to describe—and revealed to me the various ways of bringing out my own "Self-existent" into action. And it is thus, at last, that I was convinced of the reality of the "Ever-existent." In my case, at least, my only teacher of the one Truth, my *Sat-guru* was the Lord †

Perfectly assured of His power to sustain my life, I lived on the tubers and roots of wild plants and creepers and the water from the springs; going about in a state of entire nudity and inhabiting a solitary cave.... I thought and meditated and practiced perfect abstraction *dhyān* and *dhāranā* and with the help and protection of "My Power"—the Self-existent, I acquired the true knowledge of the Paramātma (the Universal and Highest Soul)* * *

Some time later I was ordered by the Master of the universe to spread the true knowledge among mankind; and for this reason I go about from place to place, delivering lectures to the people to dispel their ignorance (*adhyān*).

I have passed my time among various exoteric religious bodies and sects to discover what they possessed of truth. After testing them, I was obliged to give them all up with disappointment. I have seen various kinds of men with (various) good and bad qualities. I have discussed the philosophy of religion, *i. e.* of truth, with lots of ignorant and presumptuous men, and have made them give up their false beliefs. Standing surrounded by thousands of questioners and inquirers, I could satisfactorily answer questions and problems of any nature, upon the instant. When I rise to lecture to the public, whatever is asked of me by any or all of the audience to solve and clear away their doubts, difficulties, and ignorance flows from my mouth as if spontaneously. I possess this marked faculty through the special favour of Dattātraya, ‡ the universal Lord. In short I could answer in a moment any question asked by any one at any time. As I have been thus specially endowed by the omnipotent Lord of the universe, Dattātraya, no man can falsify what I say, and thus silence me. Many have satisfied themselves respecting this quality of mine, and whoever come to me hereafter may be satisfied on the point over and over again. I fear nothing. Not even the most mortal and fearful dangers and difficulties have the power to produce fear within me. *Whatever I say or speak is based upon my own personal experience, and it always tallies with reason, and the doctrines of the true śāstrās* (books of the religion of truth); therefore no one will ever be able to defeat and refute me on any point whatever. As I have served no one with a dependent and servile spirit, I am not in the habit of flattering any one. Therefore

* By Ishwar and master is not meant the personal God, whom the Believers in such God suppose to be the creator of the universe, and outside the universe—Brahmachāri Bāwa does not recognize such a god in relation to the universe. His god is Brahma, the eternal and universal essence which pervades every thing and every where and which in man is the divine essence which is his moral guide, is recognized in the instincts of conscience, makes him aspire to immortality and leads him to it. This divine spirit in man is designated Ishwar and corresponds to the name Adonai—Lord, of the Kabbalists, *i. e.* the Lord within man. Ed.

† Known under the generic name of Ishwar, or personal God.

‡ In the popular sense, Dattātraya is the Trinity of Brahma, Vishnu, and Shiva, incarnate in an *Avatar*—of course as a triple essence. The esoteric, and true, meaning is the adept's own trinity of body, soul, and spirit; the three being all realized by him as real, existent, and potential. By Yoga training, the body becomes pure as a crystal casket, the soul purged of all its grossness, and the spirit which, before the beginning of his course of self-purification and development, was to him but a dream, has now become a reality—the man has become a demi-god. Ed.

the flatterers and the flattered, those foolish people who hunt after fame, though they undoubtedly know me to be a man of power, outwardly ridicule me in my absence. They dare not ridicule me in their hearts, for they too well see and know that I am in the possession of occult and unusual powers. While the impartial and independent who burn with the desire of obtaining the knowledge of truth, praise me in exact proportion to their abilities. Nevertheless I would impart such knowledge as I have of *the truth* with exact impartiality to my haters as well as those who applaud me..... This is my account of myself. Now pass on me whatever remarks you will.

THE INDIAN FOREST QUESTION.

By "Forester".

Your monthly journal professes to seek the welfare of the country and the people—I trust therefore that you will give space therein to the following few remarks upon the influences of trees and forests, and the disastrous effects arising from the denudation of hill and mountain slopes. Your journal will probably reach amongst others, the hands of native Karbaries of Native States who will, perhaps, under your advocacy, be led to consider the subject deserving of far more attention than has yet been given to it. The Bombay Government are fully aware of the gravity and importance of the subject, and the *Bombay Gazette* has lately remarked in its editorial columns upon the pressing importance of the forest question connected with this country, and enlarged upon the benefits conferred upon agriculture in the plains and level lands of a country by the presence of forest vegetation upon its hill and mountain slopes, and also regarding the manner in which the growth of forests tends to influence rainfall. Regarding the past heavy monsoon and the rain which fell in torrents, I would ask my readers to consider how much of this precious water, which is sent by Nature to give fertility to the soil, to cause the germination of seeds, to irrigate crops, and in short to give life and health to vegetation for the food and benefit of man and beast, was permitted to escape and run off the land unutilised, and to return to the Ocean by the many rivers, streams and water-courses intersecting the country, simply because the hills and drainage slopes surrounding us lack the power of stopping the downward flow of water and of causing it to lodge in the earth? The restoration of vegetation to our hills would work a magical transformation in this respect. The so-called "worthless scrub and brushwood" which first appear under forest conservation on the sides of denuded hills, play a most important part in regulating the off-flow and storage of water, and the consequent natural irrigation of the country; each bush offers an obstruction to the downward flow of water, stopping it for a while, and inducing some portion of it to filtrate into the ground, conducted by its roots through the holes and tunnels they have excavated and worked, into hidden reservoirs below. When scrub and brushwood have developed into "timber and forests" and undergrowth is suppressed by tall trees, then other vegetable agents come into play, in controlling the surface and sub-soil drainage of water, and in forming natural surface and subterranean reservoirs.

The first question has of late years been attracting considerable attention all over the world. Able, interesting and instructive letters by correspondents have, from time to time, appeared in our local papers on "the influences and uses of forests." In America, as well as on the Continent of Europe, the subject has been ably treated by scientific men who have made it their study. In the *Bombay Gazette* of the 31st March last, I was informed that M. Barbié, a French savant, has recently presented to the French Society of Agriculture a long paper, which contains a *resumé* of the timber supply now existing in various parts of the world; and from a Blue Book it is gratifying to learn that our own Government at home has been in no way backward in gathering information on this very impor-

tant subject. So long ago as 1874, Lord Derby, then Foreign Secretary, addressed a Circular to H. M.'s representatives abroad, embodying a series of questions as to foreign timber, including timber used for ship-building, and railway purposes, for furniture, fancy articles, firewood, lattice-wood, shingles for roofs &c.: also as to timber, from which valuable barks, gums, dyes &c., are derived. Among others, question No. 13 asked, "Have any observations been made or conclusions arrived at as to the climatic influence of forests, or the effect of their clearance on the rainfall, floods &c.?" Reports were received from Austria, Hungary, Brazil, France, Hesse, Darmstadt and Baden; Russia, Saxony, Sweden and Norway; Switzerland, the United States, and Wurtemberg; Cuba and Honduras. A few of these I will now proceed to give. Mr. Percy French, for Austro-Hungary replied to the above question as follows:—"The expropriation or diminution of the forests in parts of Austria, and more especially in Hungary, has been followed by effects of a serious and baneful nature, such as long seasons of drought and a permanency of tremendous winds, which come from the Carpathians, sweeping the whole of the plains of Hungary; filling the air with unceasing clouds of dust, and considerably increasing the development of pulmonary disease, especially in the towns which are now totally unprotected; among these may be mentioned Pesth, Presburg and Vienna, which are perfectly intolerable in spring, summer and autumn on this account. Ample information on this point will be found in the stereographic and meteorological returns."

Here in the Deccan is experienced much of the same effects, resulting from the destruction of forests and trees, during a great part of the monsoon months. Fierce winds from the West and S. W. sweep over the country, driving away the vapour-laden clouds at a rapid rate high over the thirsty plains, without permitting them to discharge their precious moisture to benefit cultivation and to make the soil yield its due increase; while in the dry season equally fierce but hot winds from the opposite direction rush over the land, and assist the untempered rays of a tropical sun in completing the work of evaporation and soil exhaustion.

From Rio, Mr. Victor Drummond reported, "There is no doubt that the destruction of forests has a great influence on the climate, both in causing a decrease in the rainfall and an increase in the heat, and a consequent diminution of healthy atmosphere; and these have been particularly remarked at Rio Janeiro, where formerly the climate was very good and healthy, where the tropical heat was supportable, and where no yellow fever was known."

In proof of these remarks, I will give an extract translated from a speech made at the International Congress at Vienna in 1873, by Senhor Jose de Saldauph de Gama, who was one of the Brazilian delegates there. He says "The woods of Brazil now furnish comparatively so little to what they used, that to fill the reservoirs of Rio Janeiro, a town of 3,00,000 inhabitants, the Brazilian Government was obliged to bring water from the mountains at a long distance off, and at a considerable cost. Is it absurd to suppose that this drying up of certain water-sources, and the small quantity to be found in others, is entirely owing to the destruction of a great part of the woods surrounding Rio de Janeiro? I believe not. Their influence on the climate is also clearly proved. In the time when the vegetation was healthy and vigorous, the atmosphere was much softer, and much purer in the three months after December, and which although naturally hot were certainly much cooler than they are now. There were then constant storms every evening in summer; thunder was heard and the rain fell during two or three hours without exception every day. The air became fresh, light, transparent, and agreeable. Then we enjoyed a pleasanter climate and could support without an effort the tropical heat, without fearing epidemics, which at that time were unknown. Little by little, and by the destruction of the forests, the storms so healthy in the bad season, lost their remarkable regularity; the heat increased in the same proportion, the

"climate became less favorable to health during the three summer months, and those in affluent circumstances, retired from Rio till the end of April."

The same influence, owing to the destruction of forests, is noticed in other parts of Brazil along the coast.

The report from France stated that observations have been made at different times with regard to the climatic influence of forests and to the effect of their clearance, and particular attention was bestowed upon these questions in 1856, after the inundations which took place in France in that year. In 1858 the question was studied by Messrs. Billand, Cautegirl and Jeandel in the Departments of the Meurthe; and M. Becquerel, member of the Academy of Sciences, continued these studies in the basins of the Loire, and of the Seine, in the large forests of Orleans and of Fontainebleau; he, at the same time, studied the influence of forests upon atmospherical phenomena, such as upon the amount of rainfall, storms &c. The following are some of the conclusions arrived at by M. Becquerel:—

(1) That great clearances of wood diminish the number of springs.

(2) That forests while preserving springs regulate their course; and,

(3) That cultivation in a dry and arid soil does away to a certain extent with springs.

These conclusions of M. Becquerel gave rise to controversies, and the Botanical School at Nancy (Ecole Forestiere) was in consequence charged with studying the question and with drawing up reports upon it. These reports are given *in extenso* in a work entitled "Météorologie Forestiere." It is stated herein that observations were made in two places, the one wooded and the other devoid of wood, situated in the same latitude and longitude, and at no great distance from one another, and it was found that the rainfall was greater in the wooded than in the agricultural district, that the soil in forests is as well watered by rain as the open country, and that springs are more abundant and regular in their supply of water in a wooded than in an unwooded district; that it has been proved that forests moderate the temperature of climate both in diminishing cold and in modifying heat.

In the Island of Cuba it has been observed that in proportion as the forests, especially in the plains and lower uplands, have been destroyed and cleared away, the rains have diminished and the natural storage of water made impossible.

There can be no doubt then, not only from these reports but also from the examples surrounding us on all sides, and which unfortunately are continually forcing themselves upon our observation, that the destruction of the forests of a country is productive of most disastrous consequences. The climate changes for the worse; the rainfall becomes capricious; the water supply gradually dries up and atmospheric humidity disappears. Thus, while in the Western districts of Poona cold-weather crops are grown, yielding their due increase, being irrigated by dew and the moisture that trees transpire through their leaves, in the Eastern Districts, cold-weather crops are burnt up by dry, hot winds and the absence of dew. Navigable rivers become shallow streams. The Ratnagiri District offers remarkable examples testifying to this fact. The Chiplun creek has so silted that large native craft cannot now come within four miles of Goalshot bunder, to which place the largest vessels plied a few years ago. The Shastri river affords a strong illustration. The largest native vessels could, within the past 30 years, ply up to the quay at Sungweshwar, which town is now left high and dry, six miles from the nearest navigable point! Brooks change into torrents during one part of the year and stony tracts during the remainder: the rivers in the Poona districts, especially the streams that issue from the cross ranges of denuded hills, are examples of this. Lakes dry up and reservoirs are filled with silt. The Wadki tank, a few miles from the Poona city, and the Patustank, an old work dating from the Peishwa's time, 30 miles east of Poona, prove the correctness of this statement. The subterranean water-level sinks by gravitation, in the absence of trees and the capillary

attraction of their roots. Wells which formerly held water all the year round, are now to be seen very inconstant in many villages in the Deccan. Landslips are of frequent occurrence: the surface of once fertile valleys, in many parts of the Deccan, is now covered with fallen earth and stone, while in the Konkan it is very common for Ryots to seek remission of rent on the plea that their rice fields have been covered with avalanches of soil brought by heavy rains off unprotected hills. Rivers carry away the stoutest bridges, as the Nira, Girna, Tarla, Moosum and fifty other Deccan rivers have recorded. Dams of irrigation reservoirs are breached, as Koregaon in the Sholapur District and many more can witness. These are some of the evils which result from the destruction of forests. It will be seen then, how very necessary it is that forest conservation which, by restoring forest vegetation to the hills and mountains of the country, will mitigate, and in time remove these evils, should be pushed forward with system and vigour. It is possible that temporary inconvenience may be occasioned to a few people by the wholesale protection of hills and drainage-slopes, but when it is considered that the work is for the country's welfare, and that multitudes will benefit by it, then it must be acknowledged that consideration of individual interest cannot for one moment be allowed to stand in the way of the public good.

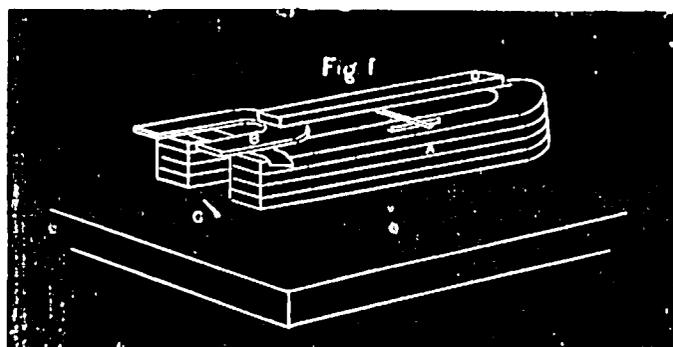
October 21st, 1879.

GARY'S MAGNETIC MOTOR.

WITH an ordinary horseshoe magnet, a bit of soft iron, and a common shingle-nail, a practical inventor, who for years has been pondering over the power lying dormant in the magnet, now demonstrates as his discovery a fact of the utmost importance in magnetic science, which has hitherto escaped the observation of both scientists and practical electricians, namely, the existence of a neutral line in the magnetic field—a line where the polarity of an induced magnet ceases, and beyond which it changes. With equally simple appliances he shows the practical utilization of his discovery in such a way as to produce a magnetic motor, thus opening up a bewildering prospect of the possibilities before us in revolutionizing the present methods of motive power through the substitution of a wonderfully cheap and safe agent. By his achievement Mr. Wesley W. Gary has quite upset the theories of magnetic philosophy hitherto prevailing, and lifted magnetism out from among the static forces where science has placed it to the position of a dynamic power. The Gary Magnetic Motor, the result of Mr. Gary's long years of study, is, in a word, a simple contrivance which furnishes its own power, and will run until worn out by the force of friction; coming dangerously near to that awful bugbear, perpetual motion.

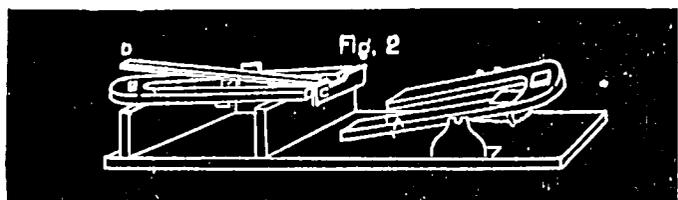
The old way of looking at magnetism has been to regard it as a force like that of gravitation, the expenditure of an amount of energy equal to its attraction being required to overcome it; consequently its power could not be availed of. Accepting this theory, it would be as idle to attempt to make use of the permanent magnet as a motive power as to try to lift one's self by one's boot straps. But Mr. Gary, ignoring theories, toiled away at his experiments with extraordinary patience and perseverance, and at last made the discovery which seems to necessitate the reconstruction of the accepted philosophy.

To obtain a clear idea of the Gary Magnetic Motor, it is necessary first to comprehend thoroughly the principle underlying it—the existence of the neutral line and the change in polarity, which Mr. Gary demonstrates by his horseshoe magnet, his bit of soft iron, and his common shingle-nail. This is illustrated in Fig. 1. The letter A represents a compound magnet; B, a piece of soft iron



made fast to a lever with a pivoted joint in the centre, the iron becoming a magnet by induction when in the magnetic field of the permanent magnet; C, a small nail that drops off when the iron, or induced magnet, is on the neutral line. By pressing the finger on the lever at D the iron is raised above the neutral line. Now let the nail be applied to the end of the induced magnet at E; it clings to it, and the point is turned inward toward the pole of the magnet directly below; thus indicating that the induced magnet is of opposite polarity from the permanent one. Now let the iron be gradually lowered toward the magnet; the nail drops off at the neutral line, but it clings again when the iron is lowered below the line, and now its point is turned outward, or away from the magnetic pole below. In this way Mr. Gary proves that the polarity of an induced magnet is changed by passing over the neutral line without coming in contact. In the experiment strips of paper are placed under the soft iron, or induced magnet, as shown in the figure, to prevent contact.

The neutral line is shown to extend completely around the magnet; and a piece of soft iron placed upon this line will entirely cut off the attraction of the magnet from any thing beyond. The action of this cut-off is illustrated in Fig. 2. The letters A and B represent, the one a balanced magnet and the other a stationary magnet. The magnet

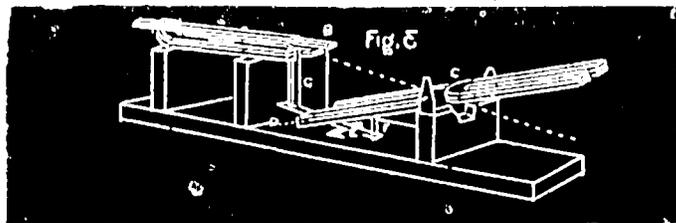


A is balanced on a joint, and the two magnets are placed with opposite poles facing each other. The letter C is a piece of thin or sheet iron, as the case may be, made fast to a lever with a joint in the centre, and so adjusted that the iron will move on the neutral line in front of the poles of the stationary magnet. By pressing the finger on the lever at D the iron is raised, thus withdrawing the cut-off so that the magnet A is attracted and drawn upward by the magnet B. Remove the finger, and the cut-off drops again between the poles, and, in consequence, the magnet A drops again. The same movement of magnets can be obtained by placing a piece of iron across the poles of the magnet B after the magnet A has been drawn near to it. The magnet A will thereupon immediately fall away; but the iron can only be balanced, and the balance not disturbed, by the action of the magnets upon each other when the iron is on the neutral line, and does not move nearer or farther away from the magnet B.

It may not be found easy to demonstrate these principles at the first trials. But it should be borne in mind that it took the inventor himself four years after he had discovered the principle to adjust the delicate balance so as to get a machine which would go. Now, however, that he has thought out the entire problem, and frankly tells the world how he has solved it, any person at all skillful and patient, and with a little knowledge of mechanics, may soon succeed in demonstrating it for himself.

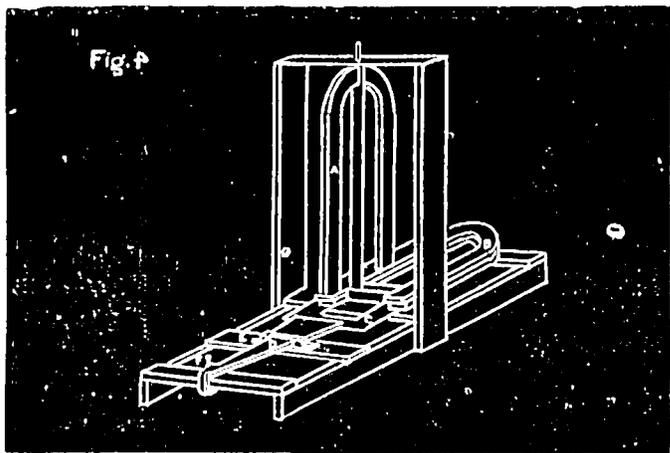
The principle underlying the motor and the method by which a motion is obtained now being explained, let us examine the inventor's working models. The beam move-

ment is the simplest, and by it, it is claimed, the most power can be obtained from the magnets. This is illustrated in Fig. 3. The letter A represents a stationary magnet, and B the soft iron, or induced magnet, fastened to a lever with a joint in the centre, and so balanced that the stationary magnet will not quite draw it over the neutral line. The letter C represents a beam constructed of a double magnet, clamped together in the centre and balanced on a joint. One end is set opposite the stationary magnet, with like poles facing each other. The beam is so balanced that when the soft iron B on the magnet A is below the neutral line, it (the beam) is repelled down to the lower dotted line indicated by the letter D. The beam strikes the lever E with the pin F attached, and drives it (the lever) against the pin G, which is attached to the soft iron B, which is thus driven above the neutral line, where its polarity changes. The soft iron now attracts the beam magnet C to the upper dotted line, whereupon it (the soft iron) is again drawn down over the neutral line, and its polarity again changing, the beam



magnet C is again repelled to the lower line, continuing so to move until it is stopped or worn out. This simply illustrates the beam movement. To gain a large amount of power the inventor would place groups of compound stationary magnets above and below the beam at each side, and the soft iron induced magnets, in this case four in number, connected by rods passing down between the poles of the stationary magnets. A "Pitman" connecting the beam with a fly-wheel to change the reciprocating into a rotary motion would be the means of transmitting the power. With magnets of great size an enormous power, he claims, could be obtained in this way.

One of the daintiest and prettiest of Mr. Gary's models is that illustrating the action of a rotary motor. There is a peculiar fascination in watching the action of this neat little contrivance. It is shown in Fig. 4. The letter A represents an upright magnet hung on a perpendicular shaft; B, the horizontal magnets; C, the soft iron which is fastened to the lever D; E, the pivoted joint on which the lever is balanced; and F, the thumb-screw for adjusting the movement of the soft iron. This soft iron is so balanced that as the north pole of the upright magnet A swings around opposite and above the south pole of the horizontal magnets B, it drops below the neutral line and



changes its polarity. As the magnet A turns around until its north pole is opposite and above the north pole of the magnets B, the soft iron is drawn upward and over the neutral line, so that its polarity is changed again. At this point the polarity in the soft iron C is like that of the permanent magnets A and B. To start the engine the magnet A is turned around to the last-named position, the poles opposite like poles of the magnets B; then one pole

of the magnet A is pushed a little forward and over the soft iron. This rotary magnet is repelled by the magnets B, and also by the soft iron; it turns around until the unlike poles of the permanent magnets become opposite; as they attract each other the soft iron drops below the neutral line, the polarity changes and becomes opposite to that of the magnets B and like that of the magnet A; the momentum gained carries the pole of A a little forward of B and over the soft iron, which, now being of like polarity, repels it around to the starting-point, completing the revolution. The magnets A and B now compound or unite their forces, and the soft iron is again drawn up over the neutral line; its polarity is changed, and another revolution is made without any other force applied than the force of the magnets. The motion will continue until some outside force is applied to stop it, or until the machine is worn out.

The result is the same as would be obtained were the magnets B removed and the soft iron coiled with wire, and battery force applied sufficient to give it the same power that it gets from the magnets B, and a current-changer applied to change the polarity. The power required to work the current-changer in this case would be in excess of the power demanded to move the soft iron over the neutral line, since no power is required from the revolving magnet under these circumstances, it being moved by the magnets compounding when like poles are opposite each other, three magnets thus attracting the iron. When opposite poles are near together, they attract each other and let the iron drop below the line. The soft iron, with its lever, is finely balanced at the joint, and has small springs applied and adjusted so as to balance it against the power of the magnets. In this working model the soft iron vibrates less than a fiftieth of an inch.

This rotary motion is intended for use in small engines where light power is required, such as propelling sewing-machines, for dental work, show windows, etc.

When Wesley Gary was a boy of nine years, the electric telegraph was in its infancy and the marvel of the day; and his father, who was a clergyman in Cortland County, New York, used to take up matters of general interest and make them the subject of an occasional lecture, among other things, giving much attention to the explanation of this new invention. To illustrate his remarks on the subject he employed an electro-magnetic machine. This and his father's talk naturally excited the boy's curiosity, and he used to ponder much on the relations of electricity and magnetism, until he formed a shadowy idea that somehow they must become a great power in the world. He never lost his interest in the subject, though his rude experiments were interrupted for a while by the work of his young manhood. When the choice of a calling was demanded, he at first had a vague feeling that he would like to be an artist. "But," he says, "my friends would have thought that almost as useless and unpractical as to seek for perpetual motion." At last he went into the woods a-lumbering, and took contracts to clear large tracts of woodland in Western and Central New York, floating the timber down the canals to Troy. He followed this business for several years, when he was forced to abandon it by a serious attack of inflammatory rheumatism, brought about through exposure in the woods. And this, unfortunate as it must have seemed at the time, proved the turning-point in his life. His family physician insisted that he must look for some other means of livelihood than lumbering. To the query, "What shall I do?" it was suggested that he might take to preaching, following in the footsteps of his father, and of a brother who had adopted the profession. But this he said he could never do: he would do his best to practice, but he couldn't preach. "Invent something, then," said the doctor. "There is no doubt in my mind that you were meant for an inventor." This was really said in all seriousness, and Mr. Gary was at length persuaded that the doctor knew him better than he did himself. His thoughts naturally recurring to the experiments and the dreams of his youth, he determined to devote all his energies to the problem. He felt more and

more confident, as he dwelt on the matter, that a great force lay imprisoned within the magnet; that some time it must be unlocked and set to doing the world's work; that the key was hidden somewhere, and that he might find it as well as some one else.

At Huntingdon, Pennsylvania, Mr. Gary made his first practical demonstration, and allowed his discovery to be examined and the fact published. He had long been satisfied, from his experiments, that if he could devise a "cut-off," the means of neutralizing the attractive power of a stationary magnet on another raised above it and adjusted on a pivot, unlike poles opposite, and so arrange this cut-off as to work automatically, he could produce motion in a balanced magnet. To this end he persistently experimented, and it was only about four years ago that he made the discovery, the key to his problem, which is the basis of his present motor, and upsets our philosophy. In experimenting one day with a piece of soft iron upon a magnet he made the discovery of the neutral line and the change of polarity. At first he gave little attention to the discovery of the change of polarity, not then recognizing its significance, being absorbed entirely by the possibilities the discovery of the neutral line opened up to him. Here was the point for his cut-off. For a while he experimented entirely with batteries, but in September, 1874, he succeeded in obtaining a movement independent of the battery. This was done on the principle illustrated in Fig. 2. The balanced magnet, with opposite poles to the stationary magnet, was weighted so that the poles would fall down when not attracted by the stationary magnet. When it was attracted up to the stationary magnet, a spring was touched by the movement, and thus the lever with the soft iron was made to descend between the two magnets on the neutral line, and so cutting off the mutual attraction. Then the balanced magnet, responding to the force of gravitation, descended, and, when down, struck another spring, by means of which the cut-off was lifted back to its original position, and consequently the force of attraction between the magnets was again brought into play. In June, the following year, Mr. Gary exhibited this continuous movement to a number of gentlemen, protecting himself by covering the cut-off with copper, so as to disguise the real material used, and prevent theft of his discovery. His claim, as he formally puts it, is this: "I have discovered that a straight piece of iron placed across the poles of a magnet, and near to their end, changes its polarity while in the magnetic field and before it comes in contact with the magnet, the fact being, however, that actual contact is guarded against. The conditions are that the thickness of the iron must be proportioned to the power of the magnet, and that the neutral line, or line of change in the polarity of the iron, is nearer or more distant from the magnet according to the power of the latter and the thickness of the former. My whole discovery is based upon this change of polarity in the iron, with or without a battery." Power can be increased to any extent, or diminished by the addition or withdrawal of magnets.

Mr. Gary is forty-one years old, having been born in 1837. During the years devoted to working out his problem he has sustained himself by the proceeds from the sale of a few useful inventions made from time to time when he was forced to turn aside from his experiments to raise funds. From the sale of one of these inventions—a simple little thing—he realized something like ten thousand dollars.

The announcement of the invention of the magnetic motor came at a moment when the electric light excitement was at its height. The holders of gas stocks were in a state of anxiety, and those who had given attention to the study of the principle of the new light expressed the belief that it was only the question of the cost of power used to generate the electricity for the light that stood in the way of its general introduction and substitution for gas. A prominent electrician, who was one day examining Mr. Gary's principle, asked if in the change of polarity he had obtained electric sparks. He said that he had, and the former then suggested that the principle he used in the construction of a magneto-electric machine, and that it

might turn out to be superior to any thing then in use. Acting on this suggestion, Mr. Gary set to work, and within a week had perfected a machine which apparently proved a marvel of efficiency and simplicity. In all previous machines electricity is generated by revolving a piece of soft iron in front of the poles of a permanent magnet. But to do this at a rate of speed high enough to produce sparks in such rapid succession as to keep up a steady current of electricity suitable for the light, considerable power is required. In Mr. Gary's machine, however, the piece of soft iron, or armature, coiled with wire, has only to be moved across the neutral line to secure the same result. Every time it crosses the line it changes its polarity, and every time the polarity changes, a spark is produced. The slightest vibration is enough to secure this, and with each vibration two sparks are produced, just as with each revolution in the other method. An enormous volume can be secured with an expenditure of force so diminutive that a caged squirrel might furnish it. With the employment of one of the smallest of the magnetic motors, power may be supplied and electricity generated at no expense beyond the cost of the machine.

The announcement of the invention of the magnetic motor was naturally received with incredulity, although the recent achievements in mechanical science had prepared the public for almost any thing, and it could not be very much astonished at whatever might come next. Some admitted that there might be something in it; others shrugged their shoulders and said, "Wait and see;" while the scientific referred all questioners to the laws of magnetic science; and all believers in book authority responded, "It can't be so because the law says it can't." A few scientists, however, came forward, curious to see, and examined Mr. Gary's models; and when reports went out of the conversion of two or three of the most eminent among them, interest generally was awakened, and professors from Harvard and from the Massachusetts Institute of Technology called, examined, and were impressed. More promptly than the scientists, capitalists moved; and before science had openly acknowledged the discovery and the principle of the invention, men of money were after Mr. Gary for the right to use the motor for various purposes: one wished to use it for clocks, another for sewing-machines, others for dental engines, and so on.

It is as yet too soon to speculate upon what may result from the discovery; but since it produces power in two ways, both directly by magnets and indirectly by the generation of unlimited electricity, it would seem that it really might become available in time for all purposes to which electricity might long ago have been devoted except for the great expense involved. Within one year after the invention of the telephone it was in practical use all over the world, from the United States to Japan. And it is not incredible that in 1880 one may be holding a magnetic motor in his pocket, running the watch which requires no winding up, and, seated in a railway car, be whirling across the continent behind a locomotive impelled by the same agency. [*Harper's Maga.*]

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