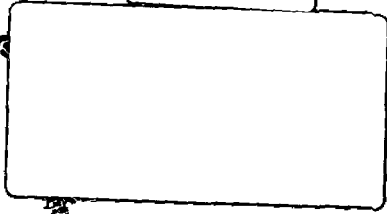


AGNI-HOTRA

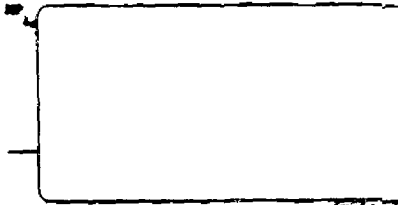
SUGGESTION FOR THE RESEARCH
STUDENT

म. प्रविष्टि क. पाठ
विमानन्द महिला म.

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Principles of Arya Samaj

1. God is the primary cause of all true knowledge, and of every thing known by its means.
2. God is all truth, all knowledge, all beatitude, Incorporeal, Almighty, Just, Merciful, Unbegotten, Infinite, Unchangeable, without a beginning, Incomparable, the Support and the Lord of all, All-pervading, Omniscient, Imperistable, Immortal, Exempt from fear, Eternal, Holy and the causes of the Universe. To him alone worship is due.
3. The Vedas are the books of true knowledge, and it is the paramount duty of every Arya to read or hear them read, to teach and preach them to others.
4. One should always be ready to accept truth and renounce untruth.
5. All actions ought to be done conformably to virtue, *i.e.* after a thorough consideration of right and wrong.
6. The primary object of the Samaj is to do good to the world by improving the physical, spiritual and social condition of mankind.
7. All ought to be treated with love, justice and due regard to their merits.
8. Ignorance ought to be dispelled and knowledge diffused.
9. None ought to be contented with his own good alone; but every one ought to regard his prosperity as included in that of others.
10. In matters which affect the general social well-being of the Samaj one ought to discard all differences and not allow his individuality to interfere, but in strictly personal matters every one may act with freedom.

AGNI-HOTRA

A SUGGESTION FOR THE RESEARCH STUDENT.

TIME there was when our young men looked down with contempt upon every thing past. The old ideals and the old customs were to them so many superstitions clinging to us as the remnants of a barbarous age. But through the efforts of the great revivalists like Dayananda Sarasvati, Swami Vivekananda and Ram Mohan Roy, through the research work done by the Savants both in India and abroad, times have changed. Our religious leaders and research scholars have taught us to respect the past, to look up on our ancient achievements with pride. Here is one scholar to tell us that when the other nations were ignorant of Chemistry our own people had their system so well developed as to include even a knowledge of Metallurgy. There is another working incessantly to give us an inkling into our achievements into the realms of Biological Sciences. Yet there is another trying to place before his countrymen the principles of our Sociology, Education and Economics.

Elphinstone believes our Surgery to be as remarkable as our Medicine. Professor Macdonnel tells us in the

following words that we have been the teachers of the Europeans:—

“In Science, too, the debt of Europe to India has been considerable. There is in the first place the great fact that Indians invented the numerical figures used all over the world.”

Tribute has been paid to our achievements in Astronomy and in Mathematics. We are told “Equally decided is the evidence that this excellence in Algebraic analysis was attained in India independent of Foreign help.”

“It must be admitted that the penetration shown by Bhashkarcharya in his analysis is in the highest degree remarkable, that the formula which he establishes, and his method bear more than a mere resemblance—they bear a strong analogy—to the corresponding process in modern mathematical astronomy.”

As in other branches of Science, so in Sanitation, we had our own theory and we had developed a detailed and careful system for keeping our houses and persons clean; for destroying germs of diseases and for averting a number of other calamities. This system has, too, been praised by some Westerners of note. Lord Ampthill, the former Governor of Madras, declared Manu to be one of the greatest sanitary reformers of the world. Colonel King wrote that the Hindu system of disinfecting houses was in accordance with the modern system of disinfection.

Of this system, the most important element is the *Havan* or *Yajna*. Though its value has been recognized by some, yet many hesitate to believe in the scientific efficacy of the *Havan*. We shall, in this article, briefly suggest our line of argument, for considering the *Yajna* as something based on scientific theory. We shall be very happy if some abler men take up our line of argument and collect more data for research work.

AGNI-HOTRA.

Before we develop our line of argument, we shall state why the performance of the *Havan* has been prescribed by the *Shastras*. On this subject no one might claim to speak with so much authority as did Swami Dayananda Saraswati. That great *Vedic* scholar and ardent admirer of every thing of ancient Aryavarta writes in his Magnum Opus—the *Sat-yaratha Prakasha*:—

“The scent (of sweet-smelling substances that are not put in fire but kept in the house) has not the power to rid the house of its impure air and replace it by pure air. It is fire alone which possesses that power, whereby it breaks up the impurities of the air and reduces them to their component parts, which getting lighter are expelled from the house and are replaced by fresh air from outside * * * Yes, the amount of suffering a man inflicts on his fellow-beings by polluting the air and water with the waste products of his system and consequently bringing on disease, becomes the measure of his sin, to atone for which it becomes incumbent on him to do the *Havan* and thereby purify air and water to an extent equal to, and greater than, the mischief he has done.”

The same renowned reformer writes at page 28 of the *Rig Veda di Bhashya Bhoomika*, another of his most important works to the following effect:—

“When we perform the *Havan* by pouring oblations of odoriferous substances in the fire, the air of the house getting attenuated on account of the fire, grows light and rises up. A vacuum is produced. On account of it pure air rushes in from all sides. The house containing pure air it (its inmates) becomes immune to disease.”

The air associated with sweet-smelling particles, introduced in it by means of the *Havan*, goes up to purify and to increase the quantity of the rain water. On account of rain vegetables grow and become pure. This slowly adds to the happiness of the world, such is our certain belief.”

AGNI-HOTRA.

The above views of the Swami have the high sanction of the *Vedas*.

In the 8th *mantra* of the first chapter of the *Yajur Veda*, fire is represented as the divider into particles of all substances. In the 2nd and 3rd *mantras* of the same chapter the *yajna* is spoken of as the purifier of air and in the 12th its purifying power is compared with that of the sun.

The 19th *mantra* describes the *yajna* as the destroyer of *Rakshas* as germs, the 20th *mantra* of the next chapter states that fire removes poisons from food materials.

The power of the *yajna* in causing rain is described in the 13th, 21st and 25th *mantras* of the first chapter.

Thus it will appear that the *Havan* is performed (1) to attenuate air to help ventilation; (2) to purify air and destroy poisonous germs present in it; and (3) to bring down seasonable and abundant rain.

Not only is the *yajna* represented as serving these three purposes, but theories as to how these objects are realized are found in ancient books. With our present knowledge we cannot say if any theory in support of ventilation is found in the ancient books. But Swamiji's statement regarding it is very clear and it is well known that all of Swamiji's theories are derived from the ancient books.

In connection with the second object of the *Havan*, it is necessary to show that the *Vedas* and other Aryan books clearly and distinctly speak of disease organism. For unless there are germs there can be no *yajna* to destroy them. Now we have translated somewhere the word *Rakshas* into germ. Is this the real meaning of the word? Is the common notion of *Rakshas* an after-addition, a mythological accretion brought on through misinterpretation and misunderstanding. Indeed it is so.

Many quotations can be cited in support of this. But we shall content ourselves with a few only. In the *Shatapatha Brahmana* (XIV, 4) the officiating priest is required to shake off the black antelope-skin saying at the same time "*Rakshas* are removed; enemies are destroyed." This shaking off he is desired to do aside (so as the impurity may not fall again into sacrificial vessels). It is further stated that by shaking this all the impurity is removed. In another place (Rig. VIII, v. 9) it is written:—

"A Brahmin who possesses vast collection of medicines is called *Bhishma*. Thereby he is the killer of *Rakshas* as and the remover of diseases."

Some of the synonyms for *Rakshas* such as *Naktamchar* and *Nishachar* show that these germs are lovers of darkness. The synonyms like *Khechar* (moving in sky), *Gochar* and *Mahichar* (living on earth) and a *mantra* of the *Yajur Veda* lead us to believe that these organisms are widespread. Their names like *Bhishma* (terrible), *Kala* (fatal), *Ghora* (causing fear) establish their dangerous character both to man and beast. That they are called *Prabhava* (growing in abundance) is a clear proof that their prolificness was very well known to the ancients. The *Atharva Veda* (II, 37. 2) states that the disease organisms are both visible and invisible, whereas the fourth *mantra* of the same *Prapathaka* says that they can live in bowels, head and neck of man. The *Yajur Veda* (XVI, 32) says that they enter body through food and drink.

In the *Atharva Veda* XII, 3, 15; IV, 3, 2; IV. 1. 6. etc.) it is stated that their organism can be destroyed by means of certain plants, strong smell of certain herbs and by (the use of) conch-shell. From what we have stated it is clear that the *Vedas* believe in the germ theory and states that the germs can be destroyed by strong odours of certain herbs. The *Atharva Veda* (I, 18. 1 and X, 16. 1) states that these germs are destroyed by fire or electricity. Thus the disinfection theory summarized would mean that

the high temperature and strong odours made powerful and subtly extended by means of the *yajna* destroy the germs in air, etc.

We are told (the *Yajur*, I. 25) that the special substances burnt in the fire rise up to the clouds and these with the help of the rays of the sun make the clouds pour down showers and then the bright rays of the sun also rain down.

In connection with this it might be stated that in the *Brahmanas* there is described a special *yajna* called the *Kariri* (Lit., means of controlling the clouds). Further in the *Vedas* in many places it is stated that the particles of the substances burnt help in bringing down rain by means of producing great electric force in the heavens.

Interesting and appealing as these theories are, yet more interesting and appealing are the various and numerous details in connection with *yajnas*. These details very strongly suggest that the whole system of *yajna* was based on some scientific principles whose significance has come to be forgotten by its devotees.

The first point in this connection is the shape and size of the various *kundas* (stoves) used for the purpose of different *yajnas*. Their forms and sizes vary with *yajnas* performed for various purposes and with the quantity of the material to be burnt.

A detailed description of these may be found in the *Taitreya Samhita* and the *Apasthamba* and other *Sutras*. Some of these kinds were in the shape of certain birds, others resembled a tortoise in form, and yet others followed perfect geometrical patterns, like equilateral triangles, etc. The size of some of these was very great : for instance, *Chaturashyayana kunda* is said to have an area equal to a square whose side was seven and a half times the height from the heels of a man to the tip of the fingers of his hand when he held his arm vertically up.

Next, we are told, that every kind of fuel should not be used for the *yajna*. For instance, *the Shatapatha Brahmana* says: "Indeed they should be of *Palasa* wood (*Butea Frondosa* (: for the *Palasa* tree, doubtless, is the *Brahman* and *Agni* also is *Brahman*. For this reason *Agni* should be of *Palasa* wood. Should he be unable to procure them of *Palasa* wood, they may be of *Vikankata* wood (*Flacourtia Sapinda*), etc. (I, iii, 3. 19.)"

Similarly the *Gobhilya Grihya Sutras* (I, v. 20 15) mention the special kinds of woods to be used in the *yajna*. The woods that are recommended for the *yajna* are all not to be indifferently used in every *yajna*. Different *yajnas* require different kinds of fuel. The size and the number of pieces of wood to be burnt in a particular *yajna* is fixed. These pieces of wood of a particular size are further to be arranged and piled in a different fashion for different *yajnas*. All this must have some meaning. We believe that this is done in order to regulate the amount of heat and temperature as well as to secure its proper distribution, so that the changes should take place at proper intervals.

The same object is also served by the repetition of the *mantras* which, according to the *Apasthamba (Yajna Paribhasa Sutras*, xlv), state the nature and purpose of the sacrificial act and also serve to indicate the time at which the oblation is to be poured.

The substances to be burnt at different sacrifices are different. There are many elaborate details in this connection. We shall give a few of them here. The *Gobhilya* (III, 7. 7 and 18. 19) in connection with the *Shravana* ceremony writes: "He puts a dish on the fire and fries one handful of barley-grain without burning them. * * * In the evening boiled rice-grains with milk (are prepared), of that he should make oblations * * *" For the full moon day ceremony the same writer prescribes the same mess (III, 8. 1) whereas in connection with *Apupashtaka* cere-

mony he writes: "Having prepared grains in the way prescribed for *Sthalipakas* he cooks them into a *chara* and (prepares) eight cakes * * * (III, 10. 10.)"

There are a number of *yajnas* for curing diseases and in these *yajnas* the quantity and quality of these oblation varies with the disease. In the *yajna* for curing certain disorders of the embryo, 800 oblations of the decoction prepared from a mixture of dried ginger and milk, are poured in the *yajna* fire along with oblations of ghee.—(The *Sata-dharma Parcharak* of the 3rd *Phalguna* 1968). For consumption, *Dhup Battis* (incensed sticks) prepared from sandal, camphor, flowers, etc., are to be burnt and 1,000 oblations of pure cow ghee are to be offered on the first day. On the 2nd, 3rd and 4th, 1,000 oblations of sesamum, rice fresh grass (*Durva*), barley and oats well mixed up with honey and ghee are to be offered. On the following two days oblations of cow's ghee and honey and on the 7th and 8th day the sticks of peepul and *Achyranthes aspera* well greased with ghee are to be burnt.

To free a country from an epidemic, one lac oblations of boiled rice mixed with sesamum are recommended.

For this purpose are also recommended cow's butter (clarified), sesamum, rice, milk, fresh grass, *Achyranthes aspera*, and several other things. That different substances should be used for different *yajnas*, can not be an outcome of superstition or an accident. It surely points to some science whose principles we are not able to grasp at present.

As regards the properties of the substances necessary for various *yajnas*, we might say a few words. Musk is described by the writer of the *Raja Nighantu*, as a substance which in its pure state when thrown on fire breaks up into small particles without burning.

Of it, the Encyclopedia Britannica (p. 90) says :—“A grain of musk will distinctly scent millions of cubic feet of air without any appreciable loss of weight and its scent is not only more penetrating but more persisting than that of any other known substance.”

Camphor is another substance commonly used for *yajnas*. The Cyclopedia states that “Camphor and some volatile oils have been employed as air disinfectants, but their virtue lies in masking and not destroying noxious effluvia.”

William Whitelaw's Pharmacy (p. 347) states “the vapour is represented to produce marked effects upon catarrhal affections of respiratory membranes.”

Saffron is said to be an antidote (the *Raja Nighantu*) and a germicide (the *Bhava Prakash*). Its pills are said to be kept in Persia for easy parturition.

Nutmeg and mace both are said to contain a certain volatile oil evaporating at 160° and 165° respectively. Both are said to be germicides (the *Bhava Prakash*). The former is also said to be a destroyer of bad odour and the latter an antidote (the *Bhava Prakash*). Ghee is indispensable for the *yajna*. The *Sushruta* recommends it for long life and strong memory. The same book also states that it is a destroyer of the *Rakshasas* and poison.

Of cocoanut the Encyclopedia Britannica says that it contains an oil of disagreeable odour from the presence of volatile fatty acids. The palm date is recommended by the *Bhava Prakash* as an antidote against wine poisons.

Before concluding this article we shall show how far the modern researches and experience lend support to the theory of controlling clouds and destroying germs by means of the *Havan*. The following on the production of rain is taken from the Encyclopedia Britannica (11th edition) :—“The laborious observations of C. T. R. Wilson of Cambridge,

England, probably give us our first current idea as to the molecular processes involved in the formation of rain. After having followed up the methods inaugurated by Aitken showing that the particles of dust floating in the air, no matter of what they may be composed, became by preference the nuclei upon which the moisture begins to condense when air cooled by expansion, Wilson then showed that in absolutely dustless air, having therefore no nuclei to facilitate condensation, the latter could only occur when the air is cooled to much greater extent than in the case of the presence of dust. More remarkable, still, he showed that dustless air having no visible or probable nuclei, acquired such nuclei when a beam of ultra-violet light of the Rontgen rays, or the Uranium radiation, or of ordinary sun-light was allowed to pass through the moist air in his experimental tube. In other words, their rays produce a change in the mixed gas and vapour similar to the formation of nuclei. The nuclei thrown in the experimental tube by the discharge of electricity from a pointed metal wire produced very dense fogs by means of expansions slightly exceeding those required for ordinary dust. Finally, Wilson has been able to show that when dust particles are electrified negatively their tendency to condense vapour upon themselves as nuclei is much greater than when they are electrified positively.

At this point we come in contact with views developed by J. J. Thompson as to the nature of electricity and the presence of negative and positive nuclei in the atmosphere. According to him: "In the ionization of gas by Rontgen or Uranium rays, the evidence seems to be in favour of the view that not more than one corpuscle can be detached from any one atom. Now the ions by virtue of their negative charges act as nuclei around which drops of water condense when moist-dust-free air is suddenly expanded."

If the reader tries to read this in connection with the theory of producing rain as given in the *Vedas*, he would find striking similarity between the two theories. Probably by means of the *Havan*, we are able to introduce in the atmosphere such particles as are negatively charged themselves, or as help in bringing about the ionization of atmospheric gases (the *Veda* asserts that the *Havan* first feeds electricity and then produces rain) or as serve the mechanical purpose of acting as nuclei to condense rain water.

There is not only close resemblance between theories of the East and the West, but besides a mass of religious tradition and experience shows that rain can be produced by means of *yajna*. Our own town of Shikarpur has three times caught a terrible fire. All the three times fire burnt down shops of grocers and sellers of dry fruit. Now the articles in which these two classes deal are those usually used in the *yajna*. We distinctly remember that on all these three occasions thick clouds appeared in the skies but owing to adverse winds, caused no doubt by the fire, which unlike the *Havan* fire was not under man's control, the clouds swept across the skies.

Professor Balkrishna of the *Gurukula Vishvavidyalya*, in a learned article on the subject (the *Vedic Magazine*, V, 7. 21) writes: "In the last rainy season *Agnihotras* were performed for the express purpose of bringing down rain in the *Garukula Bhumi*, Delhi, Jhang, Lahore, Bombay and some other towns and rain did fall in these places."

As for the disinfecting power of the *Havan* we give two quotations, one from the *Indian Review* of April 1912, and another from the *Arya Patrika* of 7th May 1914. The *Indian Review* note which runs as under shows that the theory of disinfecting by means of the *Havan* is in one respect at least supported by one of the latest discoveries of Science:—

“In a very learned discourse on Empiricism and Science which formed the leading article of the *Pioneer* of the 6th September, there occurred the following statement : ‘So, too, the theory that fires in public places tended to diminish epidemics was a theory based upon rough empirical observations. It was connected with the discovery—a very notable one in the progress of Humanity—that fumigation prevents the decay of animal substances. That was probably a purely accidental discovery, and it was only in our time and in the West that it was found by patient experiments that the effect of smoke is antiseptic, or, in other words, that there is something in wood smoke that is fatal to the germs that cause decomposition’.”

M. Trillat finds that the rapid combustion of considerable quantities of sugar produces vapours of formic aldehyde—a powerful germicide. This antiseptic exists in the smoke of most wood fires. In 2 lbs. of fuel, pine wood contains 32 centigrams of aldehyde, oak wood 35 centigrams, refined sugar 70 centigrams, and ordinary incense 18 centigrams. The fires lit during epidemics therefore had a direct physical and chemical action in addition to the moral effect of enabling people to do some thing to release themselves from hopeless and terrorised inaction ! So the *Homa* of ancient India was not for nothing.

The *Arya Patrika* quotes from the late Rai Bahadur Baijnath. The learned writer says : “Thus for the higher classes of Hindus, I suggest the reversion to the daily *Homa* ceremony of their ancestors as an effective preventive against plague. It has been proved from experience that houses in localities badly infected with plague were free from disease, if the inmates daily performed the *Havan*. The ingredients employed are all well known disinfectants and germicides, and I should suggest its adoption by all Hindus.”

In conclusion, we state that as the theories of the ancient Hindus and the Modern Scientists agree very closely, as the different items, processes and implements of the *yajna* are

given in the *Shastras* in great details and as these details are explainable on scientific grounds, the *yajna* has behind it important and great laws of a science that appears to have been lost, and that it can be rescued from total oblivion if sufficient care and labour is bestowed upon research work. Let us hope that some of our patriotic countrymen would come forward and take up the subject for study. In our opinion the study of this subject should form an important mite in the programme of the Arya Samaj, and we trust the *Gurukula* authorities, with the help of the learned Professors of the institution, will do some thing substantial in the matter.

गुरु विरजानन्द टण्डी
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