Vedic Technological Study of Ancient Vimans Based on Metal Mixture and Alloys

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Abstract

At present, it is believed that on 17th December 1903, the Wright brothers realized their dreams of flying in the sky like birds by making an aircraft and the science of avionics is the gift of the West to the world. There is no doubt that today the science of aviation has reached a very advanced stage. But vedic period and earlier Aircraft had also developed in India, many references to it are found in the ancient Vangmaya. Maharishi Bharadwaj wrote a book called "Yantra Sarvasva", in which a detailed description of the making and operation of all types of instruments was given. A part of it is aeronautical science. In the first episode of this book, there is a list of twenty-five texts of ancient science, the main ones being Agastyakrit - Shaktisutra, Ishwarkrit - Saudamini Kala, Bharadvajkrit - Ashubodhini, Yantrasarvasava and Akash Shastra, Shaktayan Krit - Vayutattva episode, Naradkrit - Vaishvanaratantra, Dhoom episode. Bhardwaj Muni has given the definition of the aircraft, the pilot of the aircraft, which was called the mystic officer, the sky way, the clothes of the aeronautical, the parts of the aircraft, the energy, the instruments and the various metals to make them have been mentioned: in this review paper, there was much technical detail: the metals used, heat absorbing metals and their melting point, the propulsion units and various types of flying machines. The information about metals used in construction name three sorts, somala, soundaalika and mourthwika. If they were mixed in the right proportions, the result was 16 kinds of heat-absorbing metals with names like ushnambhara, ushnapaa, raajaamlatrit, etc. which cannot be translated into English. Out of many topics of ‘Vymanika Shastra’, the one picked up by most Indian researchers is on metals and materials. In particular metals conclusively categorized for use on viman have impelled curiosity. In this research review paper, the composition of metals and their mixtures used in the making of aircraft in the Vedic period has been studied.

Key Word; Viman Shastra, Vedic Viman, Vedic Metal, Metallurgy, Vedic Sciences,

1. Introduction:

It is prevalent among the people in the country that the first ray of light in the field of science had erupted in the sky of the west and due to this the development cycle started all over the world. There was darkness in the field of science in the former sky. Due to this belief, only the tendency to imitate the West is visible in the country. As a result, we also had a scientific tradition, from the point of view of science, due to lack of knowledge of this, we can have any role in today's world, the lack of this belief is visible all around today.But in the beginning of the 20th century,

scholars like Acharya Praful Chandra Rai, Brajendra Nath Seal, Jagdish Chandra Basu, Rao Saheb Vajhe etc. had proved this by their in-depth study, that India was a pioneer not only in the field of philosophy of religion but also in the field of science and technology. Not only this, our ancestors taught science and spirituality., coordination was done from which due to the science vision, the development of science got the vision of being friendly and benevolent to the bio-creation, which today's world is also experiencing.

It is generally believed nowadays that the Wright brothers fulfilled the dream of flying in the sky like birds by making an aircraft on 17th December 1903 and the science of avionics is the gift of the West to the world. But in 1895, eight years earlier, the Sanskrit scholar S.B.Talpade designed a basic aircraft called Marutsakthi based on Vedic technology and it took off unmanned before a large audience in the Chowpathy beach of Bombay. Talpade was the first creator of an aircraft in modern times **[1]**. Aircraft had also developed in India. Not only the aircraft, but the city was also created in space, many references to it are found in the ancient Vangmaya.

1.1. Viman Shastra :

Maharishi Bharadwaj had written a book named Yantra Sarvasva, a part of it is Vaimanika Shastra. Bodhanand had written a commentary on this. Today the instrument is not available at all and aeronautics is also not fully available. But from what is available, it is believed that in the past planes were a fact. In the first episode of this book there is a list of twenty-five texts of ancient science, the main ones being Agastya's Krit - Shakti Sutra, Ishwar Krit - Saudamini Kala, Bhardwaj Krit - Ashubodhini, Yantra Sarva Sarva and Akash Shastra, Shaktayan Krit - Vayutattva Case , Naradkri Krit - Vaishvanaratantra, Dhoom episode etc.

Hyderabad's Dr. When Shri Ram Prabhu saw the Yantradhikaran of the Vaimanika Shastra book, he identified some of the 31 instruments mentioned in it and the idea of experimentation came to his mind to see if the alloys used to make these instruments could be manufactured or not.
To use Dr. Prabhu and his comrades founded the Hyderabad based B. In collaboration with M. Birla Science Center, a project was made to manufacture metals, mirrors etc. described in ancient Indian literature in the laboratory and its results are promising.

On the basis of his experiments, on the basis of the description described in the ancient text, he has got success in making some metals unavailable in the world.

The Rig Veda, the oldest document of the human race includes references to the following types of Vimanas and propulsion **[2]**.
Jalayan: A vimana designed to operate in water and air (Rig Veda 6.58.3)
- Kaara: A vimana that operate in ground and water (Rig Veda 9.14.1)
- Tritala: A vimana consisting of three floors (Rig Veda 3.14.1)
- Tri Chakra Ratha: A three wheeled vimana designed to operate in air (Rig Veda 4.36.1)
- Vayu Ratha: A vimana powered by wind or gas (Rig Veda 5.41.6)
- Vidyut Ratha: A vimana powered by solar energy (Rig Veda 3.14.1).

2. Litrature Review:

The Germans, the Chinese and many others have been avid fans of India's ancient past and the vast knowledge that is so well documented in the ancient manuscripts. Lot more information may be residing in millions of still unread documents held in thousands places of different Indian religions and sects. Some of them may be a gold mine of information that may propel India back to the position of glory it once held.Vimana is just one such stories.

India is known to have given to the world most major concepts of mathematics, some as far back as 1200BC. Aryabhata, Brahmagupta, and Bhaskara were famous mathematicians of the period 400 to 1200 AD. The concept of zero, the decimal system, negative numbers, arithmetic and algebra were Indian contribution Trigonometric functions sine and cosine was added by ancient Indians. Even practical mathematics covering measures of length, proportions, ratios, weights, geometric shapes were also evolved. Large numbers from 100 to a trillion were in use in Vedic period. For construction those days Pythagorean Theorem and geometric area equivalence were used. India is estimated to have about thirty million manuscripts dating back to 700 BC. The knowledge of Mathematics was germane to scientific research **[2]**.

The Indian Emperor Asoka started a "Secret Society of the Nine Unknown Men", great Indian scientists who catalogued the many sciences. Asoka kept their work secret because he was afraid that the advanced science catalogued by these men, culled from ancient Indian sources, would be used for the evil purpose of war. The "Nine unknown Men" wrote a total of nine books, presumably one each. One of the books is "The Secrets of Gravitation" which dealt with "Gravity Control". It is kept in a secret library in India, Tibet or perhaps even in North America **[3]**.

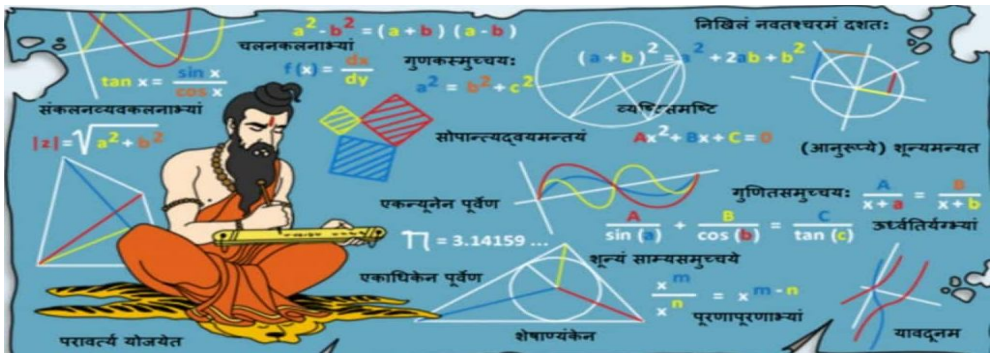


Figure 1

Mathematical Inventions in Ancient India That Changed the World technology

The Sanskrit word 'Vimana' (meaning a part that has been measured and set aside) first appeared in Vedas with several meanings ranging from temple or palace to mythological flying machine. References to these flying machines were common in ancient Indian texts, even describing their use in warfare, and being able to fly within Earth's atmosphere. Vimanas were also said to be able to travel into space and under water. The Sun and Indra and several other Vedic deities were transported by flying wheeled chariots pulled by animals, usually horses, but others like the "Agnihotra-vimana" (Agni means fire) with two engines and the "Gaja-vimana" (elephant powered) were known. Rigveda also talks of "Mechanical birds". Later texts around 500 BC talk of self-moving aerial car without animals. In some modern Indian languages, the word vimana means aircraft **[4]**.

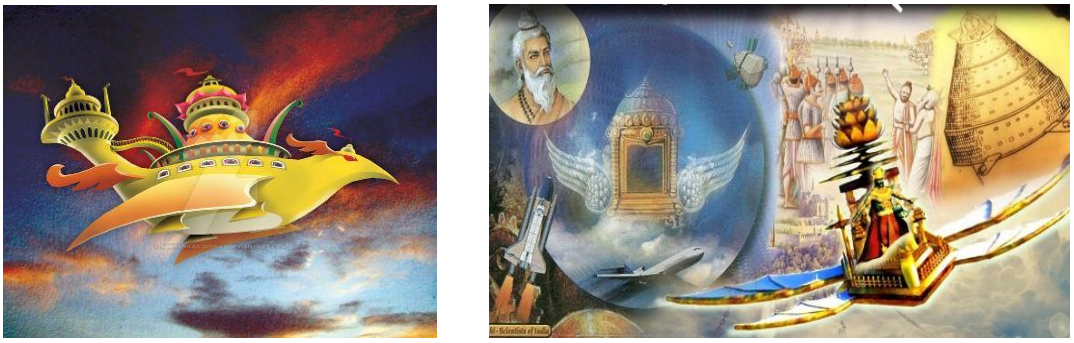
Agnihotra-vimana

Gaja-vimana

Figure 2

As per Ramayana Pushpaka (the flowery Chariot) was originally made by Vishwakarma for Brahma the Hindu god of creation. Brahma gifted it to Kubera, the God of wealth, but was stolen, along with Lanka, by his half brother, the demon king Ravana. It reportedly resembled the sun, and could go everywhere at will. There are mentions of Lord Rama using it, and under the command of Raghira (Captain), the chariot reportedly rose up into the higher atmosphere. This celestial self-propelled car was large, had two stories and many chambers with windows and was draped with flags and banners.

The Pushpaga Vimana is often called Flying Palace. Pushpaga in Sanskrit means Flowers. It is the first flying Vimana mentioned in Hindu mythology. The Pushpaga Vimana was originally made by Maya for Kubera, the God of wealth, but was later stolen along with Lanka, by his half-brother, the demon king Ravana. The special characteristics of this Vimana is that whatever may be the number of people sitting in it, always there will be one more seat vacant i.e. if N passengers sit, there will be (N+I) seats. It was basically a Vimana that could soar the skies for long distances **[5]**.



Pushpaka Vimana (Mechanical birds)

Figure 3

Recent Research Study on Vedic Sciences :

Mr. G. R. Josyer, former Director of the International Academy of Sanskrit Research in Mysore, claimed that the Academy had collected manuscripts that were compiled by ancient Rishis thousands of years ago. One manuscript dealt with Aeronautics, construction of various types of aircraft for civil aviation and for warfare. Designs and drawing of a helicopter-type cargo plane, specially meant for carrying combustibles and ammunition, and a double and treble-decked passenger aircraft carrying 400 to 500 persons were reportedly recorded **[6]**.

Vaimanika Shastra translated in early 20 planes are described in great detail. In 1991, a book by David Hatcher Childress, 'Vimana Aircraft of Ancient India century covers definitions of airplane, pilot, aerial routes, and& Atlantis' covered the secrets of constructing aero planes that will not break, will not catch fire, and cannot be destroyed. Also secret of making planes motionless (hovering), of making them invisible (stealth), the secret of retrieving photographs of the interior of enemy planes (intelligence), the secret of ascertaining the direction of enemy planes approach (radar), the secret of making persons in enemy planes lose consciousness and the secret of destroying enemy planes.

Vedic Science say "Vimanas are powered by some jet engines. This seems to be true from the description of the flight behavior. Elephants ran away in panic; grass was thrown out because there was a lot of pressure from behind those Vimanas. The Vimanika Shastra refers to metals used in these crafts. There is mention of electricity and power sources, of pilots and their flying clothing, about the food that they eat. It talks even about the weapons that are kept on these air ships. The flight manuals of the Vimanas are quite similar to the flight manuals you find in the modern civil and military aircraft. It suggests that Vimanas were powered by several gyroscopes placed

The Nazis developed the first recent pulse-jet engines for their V-8 rockets. Hitler and the Nazi staff were interested in ancient India and Tibet and sent regular expeditions to both these places in the 30's to gather evidence Interestingly, Soviet scientists discovered old instruments used in navigating cosmic vehicles in caves in Turkestan and the Gobi Desert.**[7]**

Ancient Indian Vimana. Image Source: aloneworld.in **[8]**

Figure 4

Classification of Viman in Vedic Science:

There are three types of Vimanas mentioned in Vimana shasthra classified depending upon the Yugas: **Maantrika, Taantrika and Kritaka**. All these are described and designed by analyzing the resources available on earth and also depending on the Human intelligence to control the Vimanas. Sanskrit texts date back to several thousands of years ago. Such intelligent advanced technology is known by our ancestors, but how? The Yugas in Vimana shasthra mentioned that

the first humans were able to fly themselves without any machine, and the later humans started facing difficulty and had to use mantras, and the next humans had to use machines.

Now investigating these facts, it is clear that there is spiritual knowledge consideration and the usage of brain. Ancient Ancestors use 100% of their brain and can fly without any machines and the usage of brain decreased as generations passed by. There may not be a possibility that the first Humans intelligent and use 100% of brain by default by birth, But may be influenced by any Extraterrestrials. The Early man era was described in our history and the Archaeological evidences such as caves describe that the early man was not so intelligent and the planet was often visited by UFOs **[7]**.

3. Result and Discussion :

3.1 Used Metals/Alloys in Vedic Viman by Viman Shastra:

Ten sections deal with uncannily topical themes such as pilot training, flight paths, the individual parts of flying machines, as well as clothing for pilots and passengers, and the food recommended for long flights. There was much technical detail: the metals used, heat absorbing metals and their melting point, the propulsion units and various types of flying machines. The information about metals used in construction name three sorts, somala, soundaalika and mourthwika. If they were mixed in the right proportions, the result was 16 kinds of heat-absorbing metals with names like ushnambhara, ushnapaa, raajaamlatrit, etc. which cannot be translated into English.

All the three sages commonly point at three kinds of root metals for aviation applications Somaka, Soundaalika, and Mourthwika. Apart from lightness, metallic property targeted is heat absorbing / resistance.

The root metals [in ore form] are described to be available at identified layers of earth's crust out of about three thousand metal bearing layers. Different layers contain different metal ores in varying grades **[9]**.

Three ancient scientists quoted are

[1] Shownaka,

[2] Manibhadra (in his Manibhadra Kaarika)

[3] Saamba

Loha Kalpa and Lohatantra are described as the master texts on metallurgy. To obtain different **alloys** for manufacture of varieties of vimanas, sixteen alloys have been stated to be processed from the three core metals by mixing in different proportions. They are given in the table.

Table 1. Use of Alloys in Vedic Vimanas

S.No	Name of Vedic Metals/Alloys	Metas/Alloys
1	Ushmambhara	Ammonium chloride: NH4Cl
2	Ushnapaa	Benzoin C14H12O2
3	Ushnaahana	Lead
4	Amlahana	Lodhra plant - used to prevent radiation
5	Vishambhara	Sea-foam: Derived from offshore and algae.
6	Vishalyakrit	Iron pyrites
7	Vijamitra	Mercury
8	Sheetahana	Iron
9	Garalaghna	Natron (NaHCO3)
10	Raajaamatrit	Saltpetre KNO3
11	Veeraha	Borax Na2B4O7 10H2O

12	Panchagna	Mica
13	Agnitrit	Aconite:C34H47O11
14	Bhaarahana	Silver

The ancient scientists have propounded that formation of metallic ores is attributed to forces of:

- Gravity of the centre of earth
- Gravity of global earth
- Solar flood
- Air force
- Planetary forces
- Sun's gravitational force
- Moon's gravitational force
- Interplanetary gravitational forces in the universe

The work ponders a great deal over various forms of energies [forces] that lead to the synthesis of each of the three types of core metals. For the benefit of the readers summery is given in table form.

S.No.	Composition of metals	Properties
1	Core metal or Beeja loha With exponent sage and governing text.	Alloys under each category
2	Souma [sage Atri] in Naamaartha kalpa Related-works— Paribhaasha chandrika- -Vishwambhara kaarika	Souma, Sowmyaka, Soundaasya, Soma Panchaanana, Praanana, Shankha, Kapila.
3	Soundala Type	Viranchi, Souryapa, Shanku, Ushna, Soorana, Shinjika, Kanku, Ranjika, Soundeera, Mughdha, Ghundhaaraka
4	Mourtwika type	Amuka, Dvyaamuka, Kanka, Tryamuka, Svetaambara, Mridambhapa, Baalagarbha, Kuvarchaa, Kantaka, Kshvinka, Laghvika.

3.2 Vimana Materials: Rajaloha Investigation:

Importance of raja loha: Hatakasya alloy -> high heat absorbing alloy used for bodies of various flying crafts.

3.2.1 Properties of Mica and its uses:

Mica gives shiny and glittery appearance. Mica has high thermal resistance allows it to be used as an insulation various electronics. It is invariably used for fillers extenders along with providing smoother uniformity.

Prescribed ingredients in specified proportions purified and mixed, filled in Kurma crucible – placed in Padma furnace - using bellows heat up to 800° -pour into cooler results in Mica alloy, very attractive for pillars **[9]**.

3.2.2 Properties of Mercury and its uses:

The chief source of mercury is cinnabar (HgS). The metal was named after the messenger of gods in roman mythology. Heavy silver white in colour liquid. It is a liquid at ordinary temperatures and expands and contracts evenly when heated and cooled. Mercury and its vapour conducts electricity, its vapour is also a source of heat for power usage. Mercury amplifies sound waves and does not lose timber in quality. High frequency sound waves produce bubbles in the liquid mercury when the frequency of bubbles grow to match that of the sound waves the bubbles implode releasing a sudden burst of heat. A mercury -filled flywheel can be used for stabilization and propulsion in discoid aircraft/space craft. Mercury atom offers the most stable gyro device in nature and has the additional advantages of saving space and weight. This is particularly valuable on long distance flights where all space and weight must be very carefully calculated and conserved **[9]**.

3.2.3 Properties of Iron Pyrites (FeS_2):

In 16th and 17th century pyrites are used as a source of ignition in early guns. It is used as semiconductors with in crystal detectors. In the crystal detectors these pyrites are behaves as rectifier (it turns A.C current to D.C current) in crystal radios. If pyrite is cut and polished to form jewellery. It can broadly have classed as gemstone **[9]**.

3.2.4 Properties of Borax (Na2B4O7), Boric Acid (H3BO3) and its uses:

It is used as neutron absorber in nuclear reactors. It is used as flame retardant. It is used for manufacture of fibre glass, household glass and the glass used in LCD displays **[9]**.

3.2.5 Properties of Saltpeter (KNO3) Potassium Nitrate:

It is used as rocket propellants. It is used in fireworks. It is soluble in water, hygroscopic and it absorbs 0.03% water in 80% relative humidity. It works as aluminum cleaner. In heat treatment of metals as a medium temperature molten salt both usually in combination with sodium nitrate. Its oxidizing quality, water solubility and low cost make it an short term rust inhibitor. In molten stage form with the solar energy it can act as thermal storage medium in power generation systems **[10]**.

Figure 5

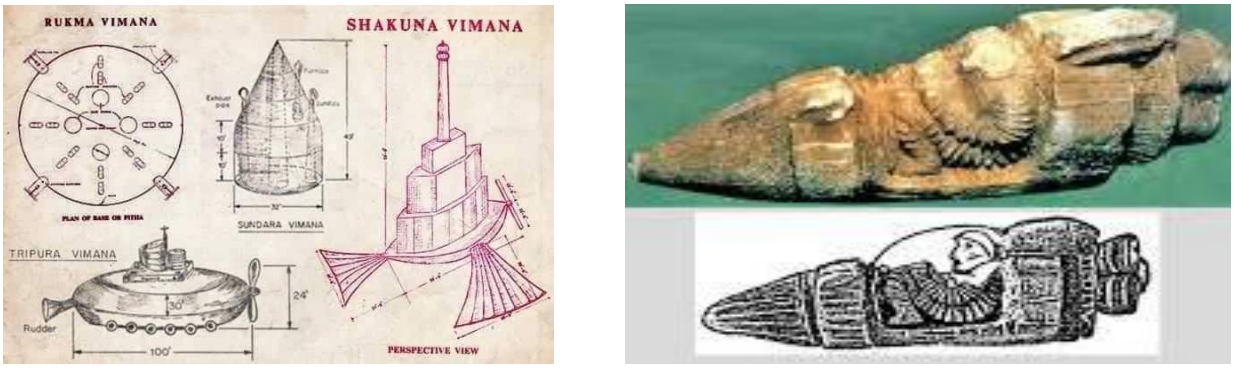


Figure 6

This above picture is Marutsakha vimana by Talpade. It looks exactly like Tripura vimana. The fan at the front and the structure located at the top. We have no proper evidence of Marutsakha vimana yet. But it confirms that he tried to construct an airship and it flew successfully. We find in internet that his vimana had mercury ion engine, but the truth is: His Vimana didn't include any ion engine, but later his research was mostly on mercury ion engine.
Srimad Bhagavatham (sixth canto, para 3) describes king Citaketu traveling in the outer space on brilliantly effulgent airplane given by Lord Vishnu saw Lord Shiva **[7]**. The arrows released by Lord Shiva appeared like fiery beams, emanating from the sun and covered the three residential Vimanas which could no longer be seen. The figure below shows an alien in the Vimana.

4. Few Points to keep in mind by Vedic science:

Most of the materials mentioned in the manufacturing process are not known to us. We will be able to know the materials from a person who knows Sanskrit or old people who follows the traditions and knows the names of all materials. The mentioned information doesn't make any sense to us, till we understand the materials used in it. The materials include items from the kitchen too. But we must not neglect it as a useless description. Let me give you an example of cleaning agent used for utensils. A tamarind can clean better than the Chemical product bought in the shop. So, the fruits or vegetables, whatever mentioned in the materials do make a sense for the manufacturing process. The materials which indicated origin from plants might have been extinct by now. So this information can be only at theoretical stage forever. Other than aeronautics, many inventions have been made from ancient Sanskrit texts. But IF non-existing materials then inventions related to aeronautics also can be made **[10]**.

5. Metallurgy in Vedas:

Metallurgy is art and science of extracting metals from ores and using them for different purposes. The present day use of metal has followed a long path of approximately 6500 years. Vedic people knew the art of designing tools, vessels and arm ours. The Vedic verses talk about few processes involved in metallurgy .Let's have a look over them.

The above Vedic verse refers to the process of smelting of metal. It is the process of extracting the metals from their ore (source) - involving heating and melting. Features of metallurgy can be discovered from use of copper and bronze in ancient India. Copper and bronze along with other metals were in common use in ancient India. The metal copper is denoted by the word *syāmam*. The word *ayas* in *Rgveda* denotes metal in addition to gold. Metals other than gold and silver are classified in two categories - *syāma ayas* or iron and the *lohita ayas* or copper or bronze in verses of *Yajurveda*and *Atharvaveda* **[11]**.

Metallurgy in Vedas

Figure 7

The metallic objects used by the Vedic people include the metallic tip of the arrow made of iron, kettles, cups, bowls, heater, pans of iron and oven.

6. **Lallacharya's classification of metals:** is distinct in its own way and it is source related as follows:
   - Kritaka or artificial
   - Corrupted
   - Mud-born
   - Aquatic
   - Mineral-born
   - Vegetation born
   - Evolved from vermin
   - Flesh born
   - Grown from salt
   - Hair born and egg born

6.1 Crucibles – Mooshadhikaranam:
Ancient metallurgists seem to have developed a wide variety of crucibles to suit each process. Guiding text is Moosha Kalpa. The process of manufacture of 'Antarmukha' [Inward looking] crucible stated to be prescribed for preparing metals for **vimana** is given in detail. ire place [furnace] or kunda – vyaasaatikaadhikaranam. Kunda Kalpa, the guiding text stipulates the use of koorma or tortoise shaped furnace for melting aircraft alloys. Kunda Nirnaya goes further to outline the constructional aspect of these furnaces **[11]**.

6.2 Bellows - Bhastrikaadhikarana: Guiding text—Bhastrika Nibandhana. For the purpose here, a specific type of Bellows to match with Tortoise shaped furnace is prescribed. The constructional details include specific leather for the body of the bellows and a variety of organic and inorganic materials **[11]**.

7. Conclusion:
Knowledge of metals in ancient India was not confined just to basic metals such as Iron, Copper etc., Development of **metallurgical technology** apparently scales up to aviation requirements. Enormity of basic research in the entire process can be visualized. Knowledge of factors causing formation of ores in earth's crust must have existed. How far this theory matches with geo-physical phenomenon of modern science can be a separate study. Geological studies and mining

of ores apparently existed. Discussion on interplanetary forces influencing earth's crust stated here are indicative of comprehensive and deep knowledge that existed in ancient India. Considering the number of alloys mentioned, very fine property-specific developments must have been aimed at in metallurgical processes. A brief chapter thereafter deals with the purification [more appropriately, refining] process of metals and alloys. The processes are slightly different for each class of metals. Guiding text is 'Samskara Darpana'. Several types of acids, decoctions, charcoal, salt and native materials of **Ayurvedic** origin feature in these processes. Modern metallurgists would find it strange that a variety of organic substances participate in the process of refining. Deliberating on production of Ooshmapa metals [heat resistant] under the category of Souma, Soundala and Mourtwika, mixing of each alloy under each variety and their proportion of mix has a special connotation. Each alloy is given a number under the three core metals against which proportions are prescribed for the mix to obtain the desired quality of alloy Deeper study should be very gainful

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