

SOURCES FOR A HISTORY OF PLANT SCIENCES IN INDIA

II. THE *R̥G VEDIC SOMA* PLANT

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A brief survey of views thus far expressed in regard to the identification of the *R̥g-vedic Soma* plant is given. In the present study, the problem has been approached from the point of view of the effects produced by *Soma* drinking rather than from the morphological aspects of the plant. A comprehensive report on the later *Soma*-substitutes is also provided. The recent view that the *R̥g-vedic Soma* plant is an Agaric is negated by the interpretations of the *R̥g-vedic* text itself. No where in the Vedic literature *Soma* is referred to either as a leafless plant or as a climber. The summation of evidences leads to the irresistible conclusion that the *R̥g-vedic Soma* was prepared from *Cannabis sativa*.

1. INTRODUCTION

The history of identification of the *R̥g-vedic Soma* plant is involved at every step in a series of confused thinking. The starting point for this state of affairs is provided in the *R̥g-veda* itself where the poets have freely used the word *Soma* to denote the plant, its juice, the process of its preparation, the moon and sometimes the sun without clearly specifying the context. The *Brāhmaṇa* literature comes out with a number of substitutes for the *R̥g-vedic Soma* thereby contributing not a little added confusion in the choice of diagnostic characters of the concerned plants as well as that of the original *Soma*. The medical treatises too have superimposed their own share of dubious data causing added chaos in the arena. In spite of the nearly 200 years of efforts to identify the *R̥g-vedic Soma* plant, the situation has yet remained a mystery, or rather a "mystery of mysteries" in the words of Wasson (1972).

In providing a masterly treatment of the attempts towards the identification of the *Soma* plant in chronological perspective O'Flaherty (1972) has correctly diagnosed the drawbacks of the approaches that have been followed in the past. It is unfortunate that the genuinely interested persons in the determination of the plant were essentially Vedists and Sanskritists who were not equipped with the basic botanical knowledge. On the other hand, the few botanists who did take interest—although of a casual sort—were handicapped because of their lack of first-hand acquaintance of Vedic or Sanskrit languages. However, a vast crop of diversified speculative data

is now available which involves highly misconceived notions as basic principles in the identification of the *Soma*. Several of these principles have been nauseatingly invoked time and again either for restating a point of view or for perpetuating one or for proposing a fresh candidate.

Most of the attempts towards *Soma* identification resort to a backward-tracing method. As a result, a plant that figures in contemporary practice is forced to acquire the morphological epithets of the past as the time of the *R̥g-veda*, however, losing sight of the fact that the original *Soma* was practically unprocurable in the time of the *Brāhmaṇas*, a situation that necessitated the adoption of substitutes. The forward-tracing methods have been followed very rarely, the latest of which is the thesis of Wasson (1972) where he has proposed for the first time, a cryptogamic candidate, the fly-agaric.

I

BACKWARD-TRACING ENDEAVOURS ON THE IDENTIFICATION OF SOMA

(1) *Sarcostemma brevistigma*

The earliest record of this identity with the *Soma* plant is seen in Piddington's index (1832) wherein this binomial occurs as the equivalent of the Bengali *soom*. Voigt (1845), who was serving as Surgeon to the Danish settlement of Serampore again identified the Bengali *Shom-latā* with the same binomial. It should be emphasized in this connection that neither of these authors made any effort to ascertain the *soom*, *shom-latā* (presumably phonetic variations of *Soma*, *Soma-latā*) had Vedic connotations. Obviously their purpose was to find out the correct botanical identity of a plant which had been then known only by local names and they left it at that. However, Stevenson (1842) introduced this identification in his translation of the *Sāma-veda Saṃhitā*, obviously taking cue from Piddington's index. Lassen (1847) and Whitney (1853) accepted the same identity, the latter author adding that the plant grew "abundantly upon the mountains of India and Persia.....".

Max Muller (1855) cited a verse from Dhūrtasvāmi's commentary on an undated medical treatise and saw in it what he thought to be the description of a *Sarcostemma* = *Soma*. Although this paper spurred on a spate of discussion involving several other taxa on probable alternatives, some authors (Bohttingk and Roth 1855-75) accepted Max Muller's suggestion at least tentatively. Contemporary foreign botanists in India continued to record Voigt's equation in their medical floras (Drury 1858; Elliot 1859; Birdwood 1865; Forbes Watson 1866; Hooker 1872, *S. brunomienum*).

Many of the German scholars in their studies on the Vedic lore indicated their whole-hearted approval in favour of the *Sarcostemma* equation with the original *Soma* (Grassman 1873; Monier-Williams 1883; Hardy 1893). The same opinion was adhered to by the American author Uhl (1925); Roth (1883), Eggeling (1885) and Balfour (1885), however, were inclined to view the identification with reservation at

the same time accepting it provisionally. After a rull of nearly 60 years the *Sarcostemma* theme was revived by Chopra *et al.* (1949) and Danielou (1960).

While the above authors discerned the original *Soma* plant in *Sarcostemma*, others raised serious doubts whether it could not be a later substitute. As early as 1861 (also 1863) Haug relegated this plant to the substitute category. Zimmer (1879) agreed with Haug, adding that the nausea produced by *Sarcostemma* was in conformity with the description of *Soma* as found in the *Brāhmaṇas*. Similar opinions were expressed by West (1882); Kuhn (1886); Haug (1875); Philippe d Félice (1936).

In spite of the written word and prevailing popular opinion (in India) in favour of *Sarcostemma-Soma* identity, vehement notes of dissent have been expressed repeatedly. Roth (1884a) was never convinced of this equation even-though he had admitted it with reservations at an earlier period. In spite of rather casual and somewhat narrow approach to the problem Watt (1885) discounted the *Sarcostemma* hypothesis. Lewin (1924) rejected this plant on the ground that it failed to produce the effects as have been attributed to *Soma*. Drawing heavily on the legend of the bird as a medium of transmission of the *Soma* plant, Srivastava (1966) rejected *Sarcostemma* as its fruits/seeds were not disseminated through this agency.

(2) *Other Asclepiads*

The basic assumption that the original *Soma* was an aphyllous climbing plant has led investigators to look for other taxa of similar morphological features. In a treatise dealing wholly with Indian Palaeography Burnell (1874) remarked that *Ceropegia decaisneana* or *C. elegans* were used by the people of Malabar (Kerala) in *Soma* sacrifice. Ousianiko-Kulikovskij (1884) discussed the psychological aspects of the *Soma*-cult in which the extracts of *Asclepias acida* could have played a part. In his game of shifting ground Watt (1885) stood for a while in favour of *Periploca aphylla* as a candidate. Ragozin (1895) was certain that the *Soma* was an asclepiad. Being in doubt whether it was an Avestan or Vedic plant, Hopkins (1920) concurred with the Asclepiad hypothesis. Jouveau-Dubreuil (1936) also subscribed to the same view.

(3) *Ephedra*

The plant used by the modern Parsis in their *Haoma* rites was identified as *Ephedra vulgaris* by Thiselton-Dyer (1885). In his evershifting stand in the matter of *Soma* identification Watt (1890) proposed this plant also as a probable candidate, implying (though not in a clear term) the synonymy of *Haoma-Soma*. Aitchison (1887) noted that this was out of the plants known by the local names *hum*, *huma* and *Yehma* in North Baluchistan, all of which sounded like *Haoma*.

The *Ephedra* (*E. intermedia* or *E. pachyclada*) theme was reintroduced into the field of *Soma* search in 1951 by Geldner when he translated the *R̥g-veda* into the German language. He was quite aware that the original text described the colour of the *Soma* juice as reddish, but preferred to fall back on the traditional belief that

it was white after having been mixed with milk. The absence of white latex in *Ephedra pachyclada* did not deter Qazilbash (1960) from upholding this species as the *Soma*, as the *R̥g-vedic* epithets never attributed this quality to the plant used in the rites. He believed that the alkaloids contained in the fermented liquor raised the invigorating and stimulating effects. Emphasizing the bird-*Soma* myth as narrated in the *R̥g-veda* as a clue and also the epithet *sahasravalsam* (IX. 5.10) to mean a 'thousand boughs'—which, however, modifies *vanaspatim* and not the *Soma* plant—supported the *Ephedra* candidature. It should be observed that Lew in 1924 and Stein (1931) had rejected this plant amongst others on the ground that it failed to produce effects which are attributed to the genuine *Soma*.

Although the above three taxa represent those which have been most frequently discussed in *Soma* identification, several other plants have been shot at intervals in search of *Soma*. These are in general blind shots, the arrows having been taken from the quiver of contemporary heresy or of historically recent medical compendia or of folk-lore or of euphonic jumble.

(4) *Vermonia anthelmintica*

Voigt (1845) entered this candidate merely on the basis of its local Bengali name, *soma-rāj*.

(5) *Ruta graveolens* (mountain rue)

As early as 1866 Lagardes equated the Greek words $\rho\omega\mu\iota,\mu\acute{\omega}\lambda\nu,\pi\eta'\gamma\alpha\nu\omicron\nu$ with this taxon, which was a substitute used by the Greeks when they could no longer obtain the *hom*. He believed that the *R̥g-vedic* epithet *Sahasrapajas* (IX. 13.3; IX. 42.3) not only fitted the description of the plant but the second half of the word was related to the Greek $\pi\eta'\gamma\alpha\nu\omicron\nu$. It should be observed, however, that the Vedic epithet is generally taken to mean 'possessing a thousand forms, or 'colours' or 'rays'. Brunnhoffer (1910) concurred with Lagarde's views.

(6) *Calonyction muricatum* (= *Ipoea muricata*)

This plant was proposed on the basis of its local name, the 'moon plant' (Drury 1873).

(7) *Peganum harmala*

Wikens, a zoologist, as a result of his exploration of Turkestan, expressed the opinion that this plant could be the *Soma* (Roth 1884a).

(8) *Seteria glauca*

This was stated to have been known as *Soma* amongst the Marwara people (Duthie 18888).

(9) *Ficus religiosa*

This was proposed as a substitute—even possibly in the *R̥g-vedic* period itself—on the basis of the epithet *naicāśākha* ('with hanging branches') by Hildebrandt

(1891). The Sanskrit name he gave was *nyagrodha*, which is more aptly identifiable with *Ficus bengalensis*. (The *nyagrodha* fruit juice is prescribed for non-Vedists in *Kātyāyana Śrauta Śūtra*, 7.18.13)

(10) *Tinospora cordifolia*

This plant was brought forward as a candidate by Khory (1903) mainly on the ground that its name in Sanskrit is *soma-vallī*.

(11) *Nelumbo nucifera* (Lotus)

Cohen (1919) proposed this plant as his belief which was derived by the theme of the 'lotus-eaters' occurring in the Odessey.

(12) *Eleusine coracana*

The *Ṛg-vedic* comparisons of *Soma* to udder and the description of the juice as tawny prompted Havell (1920) to look for these qualifications in this cereal; he also cites the *kuśa* and *darbha* substitutes of the *Brāhmaṇas* in favour of the original *Soma* being a grass. An intoxicating beverage is brewed in some parts of India from the grains of *Eleusine*. Recent botanical opinion, however, states that this plant was never a part of the indigenous flora either of the *Ṛg-vedic* land or of India. The plant is of African origin and it was introduced into India in the early middle ages. Havell's proposal was challenged on other grounds by Mukherjee (1921).

(13) *Phoenix dactylifera* (Date), *Borassus flabelliformis* (Palmyra), *Cocos nucifera* (Coconut)

Unsupported by evidences or argument Slater (1924) stated that the fermented juice of one of these palms was '*amṛta*' (*Soma*). He is hopelessly mixed up when he says that the last-mentioned plant, the coconut, was brought to India from Mesopotamia.

(14) *Hordeum vulgare* (Barley)

Dumézil (1924) believed that the pre-Vedic *Soma* was beverage with a cereal base, which was called *amṛta* in Sanskrit. On the basis of linguistic similarity between the names of barley in Greek, Latin, Armenian and Celtic, he proposed that *Hordeum* was the material used in the preparation of the *amṛta*.

(15) *Rheum officinale* (Rhubarb)

The qualifications for this candidate are its montane habitat, the fleshy stalk and wine prepared therefrom (Stein 1959). The author, of course knew that this plant was not used in India. However, he maintained that the *Ṛg-vedic* descriptions of the *Soma* juice applied to his candidate. Hummel (1950) fully supported the stand taken by the proposer.

(16) *Vitis vinifera* (Grape)

Watt (1885) offered the suggestion that *Soma* could be the fruits of the Afghan grape, but later (1890) withdrew. Nearly 50 years later Herzfeld (1947) interpreted

the word *ambū* to mean 'shoot, tendril or bunch of grapes'. However, he did not press the point further.

(17) *Paederia foetida*

This climbing plant was equated with the 'moon-plant' by Nadkarni and Nadkarni (1954).

(18) *Crinum latifolium*

This bulbous monocotyledon is known by the local name *somvel* (Sharma 1956).

(19) *Anamirta cocculus* (= *Cocculus cordifolius*)

All the synonyms given for *soma-valli* in *Nāmaliṅgānuśāsana* (see Section III) were equated by Monier-Williams (1883) with this taxon.

(20) *Vernonia anthelmintica*

The *Soma-rāji* of the *Nāmaliṅgānuśāsana* is equated with this plant by Monier-Williams (1883).

(21) Honey

This insect secretion also was proposed as the pre-Vedic *Soma* (*madhu*, a name still current), which according to the authors was later replaced by the *Soma* juice (Schrader and Nehring 1929).

(22) There has been a belief in some quarters that *Soma* juice was a fermented drink. Starting from this presumption, Lindner (1933) postulated that a bacterium, *Thermobacterium mobile* was the agent which caused fermentation. He further thought that the hymns of the *R̥g-veda* referred to this bacterium.

II

THE POST-*R̥g-vedic* SUBSTITUTES FOR *Soma*

It is generally agreed that the *R̥g-vedic* people moved out of their original home in the montane terrain and gradually migrated in the south-east direction to the Indo-gangetic plains. Their cult demanded the performance of the rites and rituals—in the present instance the *Soma* sacrifice, the *soma yāga*. The *Soma* plant which had been obviously an endemic in the mountainous home was no longer available as they moved away farther from it. For a time the plant was procured from long distances and transported in carts to the place of the sacrifice, where the article was bought by the performer of the sacrifice. (This episode soon found codification as an integral part of the *Soma* rite in subsequent times). Progressive migration of the Vedists in the plains caused practical difficulties in obtaining the required plant, as a result of which substitutes had to be looked for.

The *Brāhmaṇa* literature mentions many substitutes and also lays down rigid rules for choosing one. The *Śābara Bhāṣya* on the *Tāndyabrāhmaṇa* declares that the substitute *B* should, as far as possible, be related to the original *A*; and in the event of *B* not being available the next substitute must be *C*, which must bear relation not

to *B*, but to *A*. (*Adhikaraṇa* 13). Following this guide-line the *Brāhmaṇas* and *Srauta-sūtras* prescribe ten plant taxa as substitutes for the *R̥g-Vedic Soma* and also the order of preferences :

	<i>pūtīkā</i>	<i>arjuna</i>	<i>prapota</i>	<i>phalguaṇī</i>	<i>ādāra</i>	<i>syenakṛta</i>	<i>aruṇadārū</i>	<i>kuśa</i>	<i>keśarīni</i>	<i>vṛhi of yava</i>
<i>Pañcaviṃśa Br.</i> 9.4.1; 9.4.5.	1	2	3	4						
<i>Taittariya Br.</i> 1.4.7				2	1					
<i>Śatapatha Br.</i> 4.5.10				1	3	2	4	5		
<i>Tāndya (Śabara Bhāṣya)</i> 4.13.16, 8.41	1		2							
<i>Āśvalāyana Sr. Sūtra</i>	1			2						
<i>Kātyāyana Sr. Sūtra</i> 25.301.	3	1			4	2	5	6		
<i>Āpastambha Sr. Sūtra</i> 14.24.12	1			3	2		4	5	6	7
<i>Baudhāyana Sr. Sūtra</i> 14.29				2	1					
<i>Sāṅkhyāyana Sr. Sūtra</i> 13.6.3	1	2								
<i>Taittariya Saṃhitā</i> ii.5.3.	1									

The botanical identity of the *Soma*-substitutes suffers from the same disadvantages as in the *R̥g-vedic Soma*. The texts do not afford reliable clues and, of necessity, backward-tracing methods are resorted to.

(1) *Pūtīkā*—This plant is equated with the *poi-sāg*, a regional name for *Basella alba*. This is a twiner with juicy stem and leaves and is in use as a pot-herb in some parts of India. There are Sanskritic names like *Pūtīkarāṅga*, *Pūtīkaparṇa*, etc., which have been taken by some as denoting *Caesalpinia jaybo* or *Pongamia glabra*.

(2) *Arjuna*—The identity of this has been presumed to be a grass. The *Brāhmaṇas* speak of two varieties, bearing red or reddish yellow panicles. The latter variety is preferred. Roth (1881) asks whether species of *Andropogon* or sugarcane could have been involved.

The term *arjuna* is also used in Sanskrit literature for *Terminalia arjuna*.

(3) *Prapōta*—Not identified or identifiable.

(4) *Phālguna*—Roth (1881) appears to presume that this is also a species of grass. The medical texts (cf. Caraka) refer *phalgu* to the fig (*Ficus carica*).

(5) *Ādāra*—Apart from the doubt whether this is a synonym of *pūtika*, there is no other suggestion offered in relation to the identity of the plant.

(6) *Śyenaḥṛta*—Which means, 'what the eagle brought', is a reference to the *Rg Vedic* legend of the *Soma* having been carried from heaven to earth by the eagle. Roth (1881) cites from a commentary on the *Kātyāyana Śr. Sūtra* where the word is explained as 'root sprouting shoots of trees whose stem withers'. For example, *Khadira* (a species of Acacia, probably *A. catechu*). The cryptic description, however, is as well applicable to species of *Ficus* with aerial roots.

(7) *Aruṇa-dūrvā*—Literally means the *dūrvā* grass (*Cynodon dactylon*) of the red variety. Excepting in connection with the traditional worship of Gaṇeśa, and in old *āyurvēdic* system of medicine, the *dūrvā* has no other use in India. When grown under drought conditions in specific types of soils, the grass often develops pinkish red colour particularly in the hotter months of the year. It is not clear if the authors of the ritualistic texts had this type of grass in mind.

(8) *Kuśa* — The botanical identity of this plant has been generally accepted as *Poa cynosuroides*. The use of this grass both in *gṛhya* and *śrauta* rituals has long been well-known, although there is no record of its having been used as a *Soma* substitute in modern times.

In addition to these substitutes, the *Śatapatha Brāhmaṇa* speaks of *Śyāmaka* as being most like *Soma* of all plants (5.3.3.4) and recommends *parṇa* (6.6.3.7) as a *Soma* substitute. Of these, the first is *Echinochloa frumentacea* (= *Panicum frumentaceum*), a millet crop that has been in cultivation in India from pre-historic times. *Parṇa* in the Vedic context, is generally taken to be *Butea monosperma*. The *Kauśītaki Brāhmaṇa* (2.2) also refers to the latter plant as a substitute.

III

COMMENTARIES, LEXICONS AND MEDICAL TEXTS

The earliest extant Sanskrit Lexicon, the *Nāgaliṅgānu-śāsanam* (5th century A.D.) lists a number of synonyms for *soma-vallī* :

It should be noted that while there is no warrant to presume that the author, Amarasimha, had the *Rg-vedic Soma* in mind, he attributed a climbing habit to the plant with the addition of the suffix *vallī*. Almost all later lexicographers follow Amarasimha by qualifying the plant as a climber. Thus the *Medinī* refers to the creeper *Soma* and the still later *Dhanvantariya* is no different.

The lexicon effect is clearly seen in the commentaries. While Yakṣa referred to *Soma* as an herb (*oṣadhi*) and its exhilarating property, Śāyaṇa describes the plant as a creeper. Śabarasaṁvāmin, in his commentary on the *Pūrvamīmāṃsā sūtra*, in addition, informs that the plant yields a milky juice.

Thus the commentarians and lexicographers grafted two new scions on to the *Rg-vedic Soma*, —(1) the climbing habit and (2) the milky juice (latex).

Suśruta Saṃhitā takes us into a baffling world of *Somas*. The author opens the 29th chapter with the words; ‘In the days of yore the gods like Brahmā and others created a kind of *amṛta* which is known by the epithet of *Soma*, for the prevention of death (here ‘death’ in all probability refers to the physical death of the tissues) and decay of the body. We shall now deal with the mode of using this ambrosia”. Then he goes on to describe 24 ‘species’ on the basis of their habit, structure, epithets and potencies. It is true that the Vedic poets referred the epithet *amṛta* to the *Soma* (juice); it is also true that the *Soma* drinkers prayed for long life. It appears to me that Suśruta has deliberately taken this particular ‘medicinal theme’ of the Vedic-*Soma*-context to describe his *Soma* plants in conformity with the medical context of the treatise. In other words, his intention never was to elaborate on the ritualistic *Soma*. He narrates that some ‘species’ of these ‘medicinal’ *Somas* bear a new leaf per day during the waxing fortnight and drop them off at the same rate during the waning fortnight of the month, so that on the new-moon day the plant is totally leafless. He also describes the *amśuman* ‘species’ as a bulbous plant with the odour of clarified butter; the *rajataprabha*—‘species’ possesses a tuber similar to that of plantain; the leaves of the *mañjavān* ‘species’ resemble those of garlic; *candramat* ‘species’ grows in water; etc. Thus it is clear that Suśruta employed the word *Soma* as a ‘generic’ epithet only to describe a morphologically heterogeneous assemblage of plants possessing the property of imparting long life. He ends the chapter by referring to the milky juice of the plants.

The mediæval medical treatises codify the description of the *Soma* as a black creeper, sour, leafless, yielding milk having fleshy skin, causing or preventing phlegm, causing vomiting and eaten by goats :

श्यामलाम्ला च निष्पत्रा क्षीरिणी त्वचि मांसला ।

श्लेष्मला वमनीवल्ली सोमाद्या छागभोजनम् ॥

It is clearly a hotch-potch of the epithets which have been used for the Vedic *Soma*, the *Brāhmaṇic* substitute *Soma* and the medicinal *Soma*. It is thus a conglomerate that was quoted by Max Muller (1855) as the ‘oldest scientific description of the *Soma* plant, which he knew. And it is this quotation that set off the ponderous, puerile and unproductive controversy, the results of which have been summarized in Sections I and II.

IV

ON THE *Soma-Haoma* ANALOGY

The Avesta of the Zoroastrians prescribes a ritual, though not in elaborate details, that parallels the *Soma* sacrifice. The plant used in the ritual is known as *Haoma*, a name which bears a euphonic similarity to *Soma*. During the pioneering days of

Soma identification it was felt that a botanical determination of *Haoma* may possibly throw some side lights which in turn would guide the path of the Vedic *Soma* seekers. Bournout (1844) expressed in clear terms that the *Haoma* and *Soma* represent one and the same plant species. Windischmann (1846) was of the same opinion, adding that the plant might have changed with the altered location as *Soma* did not grow in India. This theme was followed up by Ovisaniko-kulikovskiji in 1886 and like his predecessors he remained silent about the identity of the plant. However, he excluded the candidature of *Asclepias acida* from the *Rg-vedic* context. The *Soma-Haoma* identity was presumed by Hartwich (1911) at last in so far as the active principles of the juices were concerned and a similar opinion has been reached by Nyberg (1938) and Herzgeld (1947).

Long back Kuhn (1886) had clearly stated that *Haoma* and *Soma* were separate plants although they resembled each other in name and exomorphic features. Mills (1919) believed that the two plants grew independently from a common source. *Soma* is not what the Parsis now call *Haoma* (Basham 1954).

It is to be recognized that while the *Rg-vedic* references to the morphological features of the *Soma* plant are often conflicting though few in number, the Avestan references to the *Haoma* plant are practically nil. The contemporary use of *Sarcos-temma* by the Brahmins and of *Ephedra* by the Parsis in their respective rituals is probably indicative of independent practices from the beginning. Botanically the two taxa are wholly unrelated to one another although the two, from a popular stand point, agree in being leafless. As we have seen, this feature is a later imposition on the *Rg-vedic Soma* and has served only to mislead the seekers of the original *Soma* and *Haoma*. Again, the similarity of the process involved in obtaining the drink is meaningless in the context as any plant needs necessarily to be crushed in order to obtain its juice. There is no valid basis to speculate that the Avestan and Vedic peoples had been following the same rituals involving the same plant even in the remote past.

V

INTOXICATING VERSUS NON-INTOXICATING QUALITY

This inquiry was raised in connection with the modern pioneering efforts towards the identification of the *Soma*, in the hope that an answer in the positive or negative would help to clinch the issue. Contrary to expectation the inquiry has resulted in a conflict of opinions. It is not at all strange that this is a question which has never occurred to the Indian mind. He knew very well—whatever the original or substitute *Soma* be—that the juice was consumed almost immediately after pressing. Although the time interval between pressing and drinking is not specified, it should be borne in mind that there were three pressings in a day and that the juice once pressed was useless for a second offering. Therefore, the brief interval between pressing and consuming is too short a period for fermentation to set in, even should the juice be mixed with milk, curd, etc.

In his translation of the *Sama-veda* Stevenson (1842) observed that the juice mixed with barley was allowed to stand for nine days and felt that the ultimate product was a 'powerful spirit'. Mitra (1873), obviously referring to the same source, explained that the starchy base of barley and paddy produced 'vinous fermentation', a theme which he further stressed in 1881. In the same year Macdonald categorically stated that the best Sanskrit scholars admit that the *Soma* juice was intoxicating. Although Ovsianiko-kulikovskji (1884) was rather emphatic that the juice was a strong intoxicating beverage, he admitted the dearth of evidences in the IXth *maṇḍala* of the *Ṛg-veda*. Aalto (1959) expressed himself in favour of the opinion of the authors mentioned above.

Several authors attribute an intoxicating quality to the *Soma* juice largely on the contemporary practices in relation to the plants which they think was the original or substitute *Soma*. Whitney (1853) and Balfour (1855) believed that the juice was a fermented or distilled alcoholic fluid obtained from *Sarcostemma*; the juice was mixed with milk to help fermentation (Bergaigne 1878); according to Oldenberg (1894) the forerunner of *Soma* was mead, which was cognate with *madho* (honey) (*contra* Hardy 1893); the *rāgi-Soma* of Havell (1920) was intoxicating; the *amṛta* was the beer fermented from the juices of certain palms (Slater 1924); the rhubarb juice was mixed with milk to facilitate fermentation (Stein 1931); fermented product of grapes (Herzfeld 1947); *Ephedra* was allowed to ferment in order to yield a liquor which was intoxicating (Qazilbash 1960). Many writers have referred to the intoxicating property of the *Soma* juice without committing themselves to the plant in question and without giving any evidence or argument. (Aitchson 1885; Bergaigne 1878; Bloomfield 1908; Elliot 1921; Myberg 1938; Patil 1960).

Arguments to the contrary began to appear rather late in chronology. These contributions, like their opposites, do not go into the question of *Soma* identification. Pavgee (1921, 1924) put forward his rebutal and emphasized that the *Soma* juice caused a 'moral elevation' in the consumer. According to Regni (1940) the drink was non-alcoholic and syrup-like. Kunhan Raja (1946) argues that there was no time for the *Soma* juice to get fermented in the ritualistic pattern. A consideration of the *Brāhmaṇa* substitutes of *Soma* convinced Chinnaśwami Sastri (1953) that none of them had alcoholic properties. As the juice was consumed soon after it was prepared, it was non-alcoholic (Basham 1954). Rahrker (1955) provided arguments to conclude that the juice was neither alcoholic nor fermented. It is generally agreed that the process of distillation was not known to the Indo-Iranian folk and "therefore *Soma* could not have been a strong drink" (Wasson 1972).

VI

STATUS OF *SOMA* IN THE RITUAL

"Anything may be a clue" appears to have been the motto of the *Soma*-seekers from the time Max Muller kicked off the ball in the late 19th century. To begin with, he acted more as an umpire but when botanists broke into the arena he too

assumed the part of a player. In a reply to Roth he casually remarked that hops mixed with barley would give some kind of a beer and Lelan jumped at the remark and mentioned that *soma* (*sumer*) in the Romany tongue meant "scent or flavour... thus the hop gives the *suma* or *soma* to the beer..." This idea received the support of Watt in his "Second Note on the *Soma* plant". Max Muller's (1888) final word was that the *Soma* was used, like hops, to flavour the 'more effective ingredient' of the fermented grain. It is in this connection that Hillebrand (1891) suggested *Ficus* species in place of hops. The same trend of thought engaged Hartwich (1911) who finally stated that the *Soma* plant (presumed by him as *Sarcostemma* or *Basella*) was used only as a supplement, perhaps as a spice, to other known ingredients of the drink, that is, meal, milk and whay, in which alcohol might have been produced. Dumezil (1924) also believed in the secondary role of *Soma* in the ritual, the major participant in the beverage being barley (*yava*); it is this barley beer that is *amṛta*. It is with this background that Lindner (1933) suggested the identity of *Thermobacterium mobile* with *Soma*.

This line of inquiry has not attracted the attention of subsequent investigators. A close reading of the original texts gives the impression that the quantity of *Soma* plant required for the three pressings should be quite heavy during the *R̥g-vedic* times. Even the *Soma* of the *Brāhmaṇas* was transported in carts, thereby suggesting the enormous quantity of the material required for the ritual. The use of cereal or milk or curd or honey is prescribed only towards the finals and never figures elsewhere in the ritual. On the other hand, the entire ritual centres around *Soma*, the *oṣadhi*; *Soma*, the sun; *Soma*, the moon; *Soma*, the *Agni*; etc.

VII

SOMA, THE 'WILD-GOOSE'

With the rather unusually large number of notoriously varied candidates for *Soma* and with the controversies arising from a series of misconceptions and subjectivity-centred interpretations, it is no wonder that even genuine students of the *Soma* problem become baffled and 'lost' themselves. As early as 1882 Gubernatis expressed doubt whether the *Soma* plant at that time—when efforts towards *Soma* identification had just begun—could be identified at all. Caland and Henry (1906-7) felt that the problem cannot be solved. Macdonell and Keith (1912) stated that the *R̥g-vedic* data were inadequate to identify the plant; "it was very probable that the plant cannot now be identified." Keith (1914) concluded the *Soma* problem insoluble.

VIII

AN UNEMPHASIZED UNDERCURRENT IN SOMA RESEARCH

During the pioneering days of *Soma* identification Ovsianiko-kulikovskij (1884), not being satisfied about the arguments put forward to advocate an intoxicating quality for the *Soma*, cautiously suggested that it might have been some kind of

narcotic. He wrote : "It is possible that the narcotic power of *Soma* was greater than the similar power of other drinks used in the time of the Veda; possibly, it was of an essentially different nature. The action as something fascinating, elevating, illuminating."*

Independently, Mukherjee (1921) prepared a 25 point brief in favour of the narcotic, *bhang* (*Cannabis sativus*) as a probable candidate for the *Rg-vedic Soma*. This idea was however dismissed as a 'good but not always convincing case' (Barnett 1923) and more recently as 'purest twaddle' (O'Flaherty 1972).

In Hauer's thesis (1922) we see a rather unconventional trend of thought. He believes that the *Soma* cult made use of some plant which induced an ecstatic state. This trend of thought was pursued by Lewin (1924) and in spite of asserting that *Soma* was an intoxicating drink, suggested that Indian hemp (*Cannabis sativus*) could have been used in *Yoga* cult. Keith (1925) considered Hauer's hypothesis as a probability in that 'some poison to produce exhilaration or hypnosis' could have been used.

In contrast to the earlier authors who emphasized the presumed bitter, nauseating, abnoxious qualities of *Soma* many recent scholars highlight the exhilarating or invigorating qualities of the juice. Philippe de Felice (1936) referred the plant as possessing toxic properties inducing mystic experiences and Ray (1939) furthered the arguments of Mukherjee (1921) in favour of *Cannabis*. According to Basham (1954), the *Soma* may well have been hemp (*bhāng*), an opinion shared by Danielou (1962) although he had earlier favoured *Sarcostemma*. Fischer (1965) put forward the view that the state of mind described in the Vedic texts, 'comes much closer to alkaloid drug experiences than to alcoholic intoxication'. The year 1966, saw as if a culmination of this trend, Wasson's fly-agaric theory, which was 'sensational' but has yet left the problem ever as open (Kooger 1967).

IX

FORWARD-TRACING ENDEAVOURS

The chief basis for this approach lies in the psychotropic quality of the plant as described in the *Rg-veda* itself. There is no evidence in the text that the *Soma* was consumed by persons other than the priests who participated in the rituals. Nor there is any suggestive statement to presume that the drink produced intoxication or that it was unpalatable. As has been repeatedly stated by several investigators, nowhere in the text is seen references to its climbing or leafless nature; whenever the term *Soma* refers specifically to the plant, it is called an *oṣadhi*, a herb. On the positive side, the only definite clues the text provides are : (i) The plant inhabited mountainous terrain. (ii) The plant was erect, possessing branches, leaves, etc. (iii) The colour of the juice when pressed was greenish yellow, turning brownish due

*Translation taken from O'Flaherty.

to exposure. (iv) The juice was consumed soon after processing, (v) It produced exhilaration and vision.

The last point is referred to repeatedly in the *Ṛg-veda* :

- I. 96. 5—*ādārō vam matīnām*
 I. 91 22—*tvam jyotiṣāvitamōvavartha*
 VI. 47. 3—*ayam manīṣa muṣatīmajīgah*
 VIII. 48. 6—*agnim na mā mathitam sam didīpah pracakṣaya*
 IX. 25. 5—*kavikratuh*
 IX. 40. 5—*jariturvardhayā girah*
 IX. 46. 24—*pavamānam ṛtm bṛhachchukram jyōtira jījanāt kṛṣṇa tamasi janghanāt*
 IX. 78. 1—*prarājū vācam janyan*
 IX. 86. 11—*vīcakaṣṇah*
 IX. 95. 2—*pathyamṛta syēyarti vācam*
 IX. 96. 18—*ṛṣī manāya ṛṣī kṛtsvarṣāh*
 IX. 101. 5—*vācaspati*

Still other *mantras* of the *Ṛg-veda* use the words *dhārayā* (ix. 6.7; 9.72.5), *śata-dhārah* (ix. 86. 11, 27) *sahsradhāra* (ix. 13.1; 9.26.2). Some of the modern scholars who perceive *Ṛg-vedic* culture in the Harappan civilization, take these words to mean a sieve or filter with which the *Soma* juice was processed, in their attempts to identify some of the archaeological objects. However, according to Sri Devarata Sharma of Gokarna, a renowned vedic scholar, the word *dhārā* in the context should be taken to mean *vāk* (speech), thereby implying that dormant thoughts find unbridled expression through words.

The sum total of these clues is admittedly meagre. But it does provide an extremely valuable potential lead. At least it helps us to eliminate the plants that do not possess psychotropic or hallucinogenic property. The geographical locus also becomes restricted to the montane terrain. If the assumption that the north-western region of India (Hindukush, Persia, Southern Liberia, etc.) was the original home of the *Ṛg-vedic* people, our search of the *Soma* plant will have to be looked for in the flora of this region.

X

WASSON'S FLY-AGARIC THEORY

One of the plant organisms that inhabits the Aryan home is a brilliantly red coloured mushroom, *Amanita muscaria*, the common fly-agaric. The drink prepared from this base has inebriating property although non-alcoholic. It is used in the shamanic practices of Siberian tribal folk. Starting from this premise Wasson (1972) elaborates his thesis. First of all, he notices that the *Ṛg-veda* does not refer to the roots or leaves or blossoms or seed of the *Soma* plant and this he takes as an important clue to eliminate straight away all phanerogams from consideration. He cites *nṛ caukṣasah pitauro gaurbham oudadhuh* (IX. 83.3) in support of his contention.

The quotation merely means that the germ of *Soma* was laid by divine agency, which is a prevailing thought of the Vedic poets in reference to the origin of almost everything on earth. Too literal an interpretation of the poetic expressions of the Vedas in order to fit a given premise is not a commendable procedure.

After citing a number of pertinent references from the *Rg-veda*, Wasson agrees with many others that the *Soma plant* inhabited the mountainous terrain.

Then he projects his trump card that the *Rg-vedic* people used *Soma* in two forms : (i) drinking the crushed juice straight or after mixing it with milk or curd or honey, etc. (ii) drinking "the urine of the person who has ingested the fly-agaric in the *first-form*". Even at this step one can clearly see that Wasson has already come to the conclusion that the fly-agaric is the *Rg-vedic Soma*. Now he searches through the text for the passages which he thinks, support his view. He quotes from *sūkta* 66, which is attributed to the poet Śatam Vaikhānasa.

9.66 1-2

पवस्व विश्व चर्षणेधि विश्वानि काव्या ।
सश्वा सश्वथ्य ईद्यः ॥
ताथ्यां विश्वस्य राजसि ये पवमान धामनी ।
प्रतीची सोम तस्भतुः ॥

(All-seeing *Soma* who are the adorable friend (of the worshippers), flow for (us your) friends towards all (our) hymns of praise. You, purified *Soma*, rule the universe by those two halves (of the lunar month) which stand facing you.)

(Wasson : "cleanse thyself O (thou) to whom all peoples belong, for all wonderous deeds the praiseworthy God, the friend of the friends. With those two forms (dual, not plural) which stand facing us, O *Soma*, thou reignest over all things, O *Pavamāna*?"

9.66.3

परिधामानि यानि ते त्वं सोमसि विश्वतः ।
पवमान ऋतुभिः कवे ॥

(Since splendidous abound, you purified sage, *Soma*, are everywhere (associated with the seasons).

(Wasson : "The Forms (*Plural, not dual*) that are thine, thou pervadest them, O *Soma*, through and through, O *Pavamāna* at the appointed hours, O wonder-worker !")

9.66.5

तवशुक्रासो अर्चयो दिवस्पृष्टे वितन्वते ।
पवित्रं सोम धामभिः ॥

(*Soma*, the shining rays of you who are accompanied by brilliance, spread the purifying (water) over the surface of heaven.)

(Wasson : "Thy shining rays spread a filter on the back of heaven, O *Soma*, with (thy) Forms (*plural, not dual.*)

Wasson sees the mention of the dual forms of *Soma* in the verses cited above. He observes that the Vedic commentators not knowing that the fly-agaric was the Vedic *Soma* reached unsatisfactory interpretations. Therefore, he does not agree that the *first form* is "the simple juice of the *Soma* plant, and the *second form* is the juice after it has been mixed with water and with milk or curds." Because the fly-agaric is not used this way and because Wasson is convinced that the fly-agaric itself is the *Rg-vedic Soma*, he begins to search for evidences in the *Rg-vedic* text. Eventually, he comes across "a phrase not met with before and not to be met again!" This phrase occurs in 9.74.4. :

आत्मन्वन्नभो दुद्यते घृतं पय ऋतस्य नाभिरमृतं विजायते ।
समीचीनाः सुदानवः प्रीणन्ति तं नरोहितव मेहन्ति पेरवः ॥

The author of this verse is one *Kakṣivān*, and this happens to the only *sūkta* attributed to him in the whole of the 9th *mandala*. It is greatly surprising indeed that his phrase, if it should possess such a great potency of meaning as Wasson thinks, is not repeated by any other authors of the *Rg-veda*. Of course Wasson explains that the phrase in question was uttered at a time when the religious emotion reached a climax, "an intensity of exaltation, that is overwhelming." This granted, it is difficult to explain as to why *Kakṣivān* alone gave expression to this particular phrase while other authors did not! There is no room to presume that the latter authors did not experience the same intensity of religious emotion.

The word *mehanti* in this context is interpreted to mean 'urinate' by Renon in his translation of the *Rg-veda* into French. The full phrase is rendered thus : "Les (*Māruts*) seigneurs a la vessie pleine compissent (le *Soma*) missen-brande" which rendering is accepted by Wasson, whose translation reads: "The (*Maruts*) lords with full bladders piss (*Soma*) quick with movement."

The translation of the full verse, following the commentary of, Śāyana, reads as follows : Full of sap the butter and milk is milked from heaven, the bond of the sacrifice, the water is generated : the assembled liberal gives delight to him; (the *Soma* juice) the leaders, the protectors, shower down the accumulated (water). The word *mehanti* is interpreted by Śāyana as *varṣanti*, it rains.

I am inclined to understand the context in the traditional commentator's sense not for the sake of following the tradition but because I see in it the least degree of scope for reconciliation. The imageries of sky, cloud, rain, earth, etc. have been worked into the mystic language of the *Soma* hymns in the *Rg-veda* so repeatedly that the verse quoted above does not form an exception.

Wasson, believes that the *First form* of *Soma* was consumed by Indra and Vāyu, that is, by men who participate in the ritual with the respective designation. "They

in their persons convert *Soma* into the *Second form*". However, Wasson does not specify the persons who would drink this form of *Soma*; perhaps it is to be implied that other participants took it.

The secret practice of consuming one's own urine in certain forms of *yoga* cult has been known in India for a long period. In this context also the ingested fluid is called *amṛta* in the belief that it rendered the body resistant to physical deterioration. Wasson cites an anecdote from the *Mahābhārata* (*Aśvamedha Parvan*, 14.54.12.35) where Kṛṣṇa asks Uttanka to drink the urine of Indra, who appears before Uttanka in the form of a *caṇḍāla*. Of course, Uttanka first refuses. Whether the refusal is because of the undrinkable nature of the liquid or because it was offered by a *caṇḍāla* is difficult to say. In any case it is hard to see how this story can be fitted into the ritual of a Vedic sacrifice. The moral of the story after all could as well be that Uttanka (the son of Bhṛgu) being a follower of the Vedic tradition refused to accept a *Yogic* potent (urine as a drink) which was opposed to his religion and secondly to receive the fluid from a man of low-birth. The story itself is incoherent and appears to be an interpolation of a later period. It should not be forgotten that the Vedic and Yogic traditions have had independent beginnings and development and that cross-connections between the two appeared much later in history.

XI

THE CANNABIS (*Bhang*) THEORY

Although *Cannabis sativa* figured as a casual candidate for the *Ṛg-vedic Soma* in the late part of the 19th century (Roth 1884), it was more in a negative way. It was not until 1921 that specific attempts were made by Mukherjee to propose this plant as a positive candidate. Most of the evidences he offered in favour of his view were derived from contemporary practices and customs of comparatively recent origin in cultural and religious history. Of course, the western scholars could not agree with Mukherjee's thesis for their own reasons while the traditional Hindus thought it was a sacrilege to identify the sacred *Soma* with the ill-reputed *bhāṅg*. Wasson (1972) charges Mukherjee of having, 'conveniently ignored the fact that the *Ṛg-veda* placed *Soma* only on the high mountains, whereas hemp grows everywhere.'

I am afraid Wasson's objection is invalidated in view of the known distribution of *Cannabis sativa*. The wild species occurs "in the south of the Caspian sea, in Siberia, in the desert of Kirghiz. It is also referred to as wild in Central and Southern Russia, and to the south of the Caucasus. Bossier mentions it as almost wild in Persia and it appears to be quite wild on the western Himalaya and Kashmir, and it is cultivable on the plains of India generally. Indeed, the intimate relation of its various Asiatic names to the Sanskrit *bhāṅga* would seem to fix the ancestral home of the plant somewhere in Central Asia" (Watt 1889). The plant is also reported at altitudes upto 10,000 ft. in the Himalayas. Elsewhere the plant is in cultivation for its yield of narcotics or fibre.

Wasson observes that the "virtue of *Soma* lay in the stalks, whereas it is the resin of the unripened pistillate buds of *hashish* that transport one to the beyond; or, much weaker, the leaves, which are mentioned in the *Rg-veda*. The stalks of hemp are woody". A few comments are necessary on these statements. It is true that the maximum quantity of the narcotic is collected from the resinous secretions on the female inflorescence. The leaves, however, rarely exude the resin but yet do contain narcotic substances. As attested by Watt, in the plants inhabiting the montane habitat the bark spontaneously ruptures and the narcotic resin exudes. This happens before the flowers mature. In other words, under certain conditions, the entire shoot part contains the narcotic principle and it is not correct to say that it is endemic only in the pistillate buds. The Vedic text refers to this part as *amśu*. Certainly it does not mean specifically a leaf. The word merely imports the meaning of 'a part' (cf. *amśa*). Contextually, it may refer to a part of the stem, leaf stalk, and leaves. In other words any part of a body, shoot in this case, is an *amśu*. Because the *amśus* from the stem part contain the hard core of xylem (which becomes harder when dry) it was essential not only to soak them in water but also to pound the pieces with stones in order to express the juice.

Ray (1939) elaborated on the *Cannabis* theme. If the original home of the plant is Central Asia, the plant grows over there naturally in the mountainous terrain. As *Soma* has been designated as an *ośadhi*, it is a normal green plant with root, stem and leaves. There is no evidence whatsoever in the *Rg-veda* to point out that it was a creeper or that it was leafless or that it was a mushroom.

The colour of the expressed juice is described as *hari*, *babhru*, *aruṇa*; How the same liquid could appear in three different hues needs an explanation. Wasson argues that *hari* also means 'red' more or less the same shade as commonly implied for the words *babhru* and *aruṇa*. He feels that *hari* came to mean "green" in later times. While it should be admitted that the *Rg-vedic* hymns were written over a course of centuries, it is difficult to convincingly distinguish the earlier and later compositions. However, there are numerous non-*Soma* hymns in the text where *hari* means only one shade, that is greenish or green-yellowish (cf. *harimāṇam ca nāśaya*; *sukc sume harimāṇam* etc., the words uttered by a jundice-stricken person.)

When the green plant is pressed, the colour of the fresh juice is greenish yellow (*hari*). The juice crushed from dry twigs cannot be expected to retain this shade. The tannins and other phenolic compounds stored in the plant tissues along with the brownish coloured resin impart a tawny (*babhru*) shade to the juice. It must be remembered that the juice was stored in wooden containers and was exposed to air. It is likely that the stored liquid in part absorbed the soluble colouring matter from the wood itself and in part became oxidized due to exposure, as a result of which the colour of the liquid itself became intensified into *babhru* or *aruṇa* shades.

Wasson has selected some epithets and tropes from the *Rg-veda* to show that they are especially befitting the identification of *Soma* with the fly-agaric mushroom.

With some stretch of imagination the same epithets are equally applicable to *Cannabis*. Some examples :

9.69.5

अमृक्तेन रुशना वाससा हरिमन्स्यो निर्णिजानः परिव्यत ।
दिवस्पृष्टं बहूणा निर्णिजे कृतोपस्तरणं चन्वोर्न भस्मयम् ॥

“The immortal green-tinted *Soma* when purified is arranged in an uncleaned shining vestment; he has created (*Āditya*) who stands on the back of the sky for the destruction (of sin) and purification (and has created) *Āditya*'s brilliance, the cover of the two worlds”.

Wasson takes *hari* to mean ‘red’ in this context and readily pushes forward the crimson-red head of the fly-agaric (see his colour illustration on Pl. II). The import of the verse is equally applicable to the *Cannabis* plant as a whole, particularly when it has put on new verdure and the sun’s rays glitter on it from a particular angle. The mutuality of the Sun and *Soma* is frequently expressed in the *Rg-vedic* poetry and *Soma* is spoken of as being purified by Sun’s rays.

9.37.4

स त्रितस्याधि सानवि पवमानो अरोचयत् ।
जामिभिः सूर्यं सह ॥

(Wasson : “He has made the sun to shine.”)

On Plate IV, Wasson gives a coloured reproduction of a fly-agaric held in hand on which sun’s rays are reflected. The same imagery is suggested when a leaf of *Cannabis* is held in hand (or even on the plant) so as to reflect the sun’s rays.

9.71.2

प्रकृष्टिहेव शूष एति रोरुवद सूर्यं वणं निरिणीते अस्यतम् ।
जहाति वन्नि पितुरेति निष्कृतमुपप्रुतं कृशुते निर्णिजं तना ॥

“The powerful (*Soma*) advanced with a roar like a slayer of men; he puts fourth that *Asura*-slaying tint of his; he abandons bodily infirmity; the food goes to the prepared (alter); he assumes a form advancing to the outstretched (filter).

On Plate VI Wasson reproduces the head part of the fly-agaric showing the sloughing off of the outer sheath (velum). The imagery can be applied to the standing plant of *Soma* as well as to its pressed juice. In the first context, the ‘advance’ may indicate the rapid growth of shoots towards the sky and the sloughing off the excretion of the narcotic resin, which appears as an external covering. In the second context, the roaring and ‘advancing’ refers to the pressed liquid.

It is thus obvious that Wasson first determined the fly-agaric identity of the *Rg-vedic Soma* and then proceeded to discover ‘suitable’ epithets and metaphors.

As already stated, the specific clues available from *Rg-veda* (apart from the rather mystic attributes) are meagre (Section IX). Unwarrantedly imaginative and highly biassed or preconceived approaches have resulted in notoriously varied conclusions in reference to the identity of the *Rg-vedic Soma* plant. The one strong clue however, towards proper approach lies in the type of mental exhilaration experienced by the *Soma* drinkers.

In this connection, the psychotropic nature of the *Soma* narcotic is worth serious reconsideration. The *Cannabis* resins are known to contain several active constituents. Which one of these causes the particular effects experienced by the *Rg-vedic* people is not quite clear. For ages the crude drug (either resin or plant parts metabolizing the resin) have been used as a pain reliever, sleep inducer and as a medium which soothes restlessness. The drug is used as a smoke, as a chew or as a drink. Under such conditions the effects often result in most undesirable outcome both on body and mind, particularly with heavy or continued use. The *Rg-vedic* people, on the contrary, never resorted to such practices. To them it was essentially ritualistic and there is no evidence that they misused it. Furthermore, the process of preparation of the drink which they resorted to emphasizes the great dilution of the active principle (whatever it is) which triggered of their mental and intellectual awareness. The dry twigs of *Soma* (*Cannabis*) were soaked in water; crushed in flowing water; the last washing was filtered and used almost immediately without allowing the portion to undergo oxidation or fermentation. The active principle was further diluted by the addition of more water, milk, curd, etc. Although the quantity they consumed cannot be assessed, the *prayoga mantras* and the traditional practice indicate that it must be comparatively small, perhaps a cup of our contemporary understanding. Thus there is reason to infer that it was the water-soluble factor of the *Cannabis* narcotic and that too in great dilution which opened up their 'doors of perception' and gave vocal expression to their mystic experiences.

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