Part Two

ELEMENTS OF SĀMKHYA-YOGA IN ĀYURVEDA
CHAPTER 1

PRAMĀṆA-S IN ĀYURVEDA
The process of diagnosis and prognosis in Ayurveda are highly perpetual, experiential and intuitive. The Ayurvedic scriptures elaborately discuss the process of diagnosis and prognosis in a scientific and philosophical manner, as a necessary condition for clinical process. Caraka says that the physician, who fails to enter into the inner soul of the patient with his knowledge of disease and its treatment, will not be able to treat the disease properly.

ज्ञानबुद्धिद्विभवन यो नानिशति तत्वविदि
आदुरस्मान्तरात्मानं न स रेगासिबिकिलस्वति।

(CS. Vīmaṇa. IV. 12)

Hence the Ayurvedic preceptors are very careful while instructing the physicians when they go for diagnosing or prognosing disease of a patient.

Ayurveda employs a wide range of techniques for assessing various diseases. They rest mainly on the two pillars - disease and the patient. In the Ayurveda system of medicine the patient is generally examined by the three means viz., darśana (inspection), sparśana (palpation) and praśna (interrogation).\(^1\) It is a detailed process of identifying the patient's physical, mental and social circumstances. They are essential for diagnosing diseases. On the other hand, the diseases are
examined by their *nidāna* (cause), *pūrvarūpa* (pre-monitory symptoms), *liṅga* (symptoms), *upaśaya* (applicability of medicine and diet) and *samprāpti* (pathogenesis). These five-fold methods of diagnosing of diseases are known as *nidānapañcaka* in *Āyurveda*. It helps to get a complete history in relation with the causative factors of disease. Vāgbhaṭa states it as:

दर्शनस्यशङकः परीक्षेत च रोगिम्

रोगं निदानप्रयुप्तग्नास्यवास्तवधिम्।

*(AH. Sūtra I. 22)*

The preceptors of *Āyurveda* generally used to test eight factors for diagnosing diseases, viz., *nāḍī* (pulse), *mūtra* (urine), *mala* (stool), *jīhvā* (tongue), *śabda* (voice), *sparśa* (skin), *dṛk* (eyes), and *ākṛti* (overall appearance). According to Suśruta the six-fold examinations, i.e., examination by five senses and interrogation are essential for diagnosing a patient and a disease. Caraka describes ten factors for examining a patient. They are *prakṛti* (physical constitution), *vikṛti* (vitiation of *doṣa*-s), *sāra* (quality), *sampananana* (compactness of the body), *pramāṇa* (structure and physical proportionality), *vyāyāmaśakti* (physical strength), *sātmya* (adaptability), *sattva* (emotional balance), *āhāraśakti* (digestive capacity) and *vayāh* (state of aging). (See Fig-II.1.1). Vāgbhaṭa also mentions various factors of a disease to be examined by a physician.
before deciding its treatment. They are dūṣya (waste products), deśa (habitat of patient), bala (strength), kāla (season), anāla (digestive power), prakṛti (physical constitution), vayāḥ (age), sattva (mind), sāmya (adaptability), āhāra (food habits) and avāsthā (stages of disease).5

Besides these, Caraka briefly introduces a tenfold factor of examination for the physician who sets out to treat a disease. They are, 1. kāraṇa (cause): physician; 2. karaṇa (instrument): medicaments; 3. kāravyayoni (source of action): disturbance of the equilibrium of dhātu-s; 4. kārya (action): maintenance of the equilibrium of dhātu-s; 5. kāravyaphala (fruits of action): freedom from disease; 6. amuṣa (subsequent manifestation): longevity; 7. deśa (location): the habitat of the patient, location of the disease etc; 8. kāla (time): season and the state of disease; 9. pravṛtti (initiation): therapeutic action; and 10. upāya (means of action): excellence of physician.6

All these symptomatological and etiological process of treatment confirms their roots in the four-fold means of pramāṇa-s, namely āptopadeśa (verbal testimony), pratyakṣa (perception), anumāna (inference) and yukti (reasoning). Of these, yukti is unique to Ayurveda. Others are based mainly upon the doctrine of causal principles and epistemology of Sāṃkhya-Yoga.
Pentads of Āyurvedic Diagnostic Process

Trividha parīkṣā → darśana
Pañcavidha parīkṣā → nīdāna
Śaḍvidha parīkṣā → darśana
Āstāvidha parīkṣā → nādi
Daśavidha parīkṣā → prakṛti

sparśana → pūrvarūpa
sparśana → mūtra
拉萨ana → ūpāśaya
sparśana → jhāna
sparśana → ghrāṇa
sparśana → jihvā
sparśana → samprapti
sparśana → rasana
sparśana → śabda
sparśana → praśna
sparśana → vyāyāmaśakti
dṛk → sātmya
ākṛti → sattva
āhāraśakti
vayaḥ

(Figure- II.1.1)
Pramāṇa-s: Their Nature

Almost all philosophical systems of India devote a considerable space to discuss the procedure by which true knowledge can be derived. The sources or means by which a valid knowledge can be obtained, are known as pramāṇa-s. 'The word pramāṇa', says Hīranyaka, 'signifies the essential means of arriving at valid knowledge or pramāṇa'.

Generally, the pramāṇa-s are employed in philosophies to prove and to establish the theories related to cosmic creation, dissolution, soul, primordial nature, pure self, liberation and re-birth. The numbers of pramāṇa-s accepted vary from system to system. Similarly, there is a great degree of divergence among the various schools of Indian philosophy regarding the nature and functions of pramāṇa-s. According to Nyāya system, pramāṇa is the specific cause of pramāṇa or true knowledge. Pramāṇa-s are those by which things are rightly cognized. But the concepts of pramāṇa-s in Sāṃkhya-Yoga are quite distinct from other systems of thought. According to Sāṃkhya the formation of contrivances to be proved through the pramāṇa-s. The prameya-s, according to Sāṃkhya, are the twenty-five tattva-s or principles. Yoga considers the pramāṇa-s as one of the basic state of mind, 'cittavṛtti', which is to be eliminated because they produce kleśa-s for Yogi-s.
Vijñānabhikṣu also accepts it as a vṛtti.\(^{13}\) There are three ways by which we get true knowledge according to Sāṃkhya-Yoga. They are pratyakṣa (perception), anumāna (inference) and āptavacana (verbal testimony).\(^{14}\) As per the Sāṃkhya philosophy all other pramāṇa-s, such as upamāna, arthāpati and anupalabdhi can established by these three pramāṇa-s.\(^{15}\)

**Pramāṇa-s in Āyurveda**

The Āyurvedic term pariṅkṣā, which means scientific investigation,\(^{16}\) is on par with the pramāṇa-s of other Indian philosophical systems. Though the Āyurvedic scriptures employ the word pramāṇa in one or two instances in the sense of pariṅkṣā,\(^{17}\) the word actually stands for denoting the measurement of the bodily organs of a patient.\(^{18}\) Caraka also used the term hetu\(^{19}\) for pariṅkṣā while Suśruta used the word vijñānopāya\(^{20}\) for it. The term vijñānopāya also refers to the means of real knowledge.

According to Caraka, everything in the universe can be divided into two classes, sat (existent) and asat (inexistent). They can be analysed by means of applying the four-fold methods (pariṅkṣā), viz., āptopadeśa (scriptural testimony), pratyakṣa (direct observation) anumāna (inference) and yukti (reasoning).\(^{21}\) Suśruta does not accept yukti as a pramāṇa (pariṅkṣā) but counts upamāna as a fourth pramāṇa.\(^{22}\) Vāgbhaṭa, however
follows the statements of Caraka and Suśruta and mentions only three pramāṇa-s (parīkṣā), viz., āgama, pratyakṣa and anumāṇa.25 Caraka also mentions the other pramāṇa-s like upamāṇa, arthāpatī and sambhava in the context of describing the logical terms.24 But in connection with clinical practice he uses only the three methods (parīkṣa-s) namely āptopadeśa, pratyakṣa and anumāṇa. Caraka says -

आपोपदेशेन प्रत्यक्षकरणेन च
अनुमानेन च व्यावहार नामविभागकरणेन च

(Vimāṇa, IV. 9)

He further argues that for an intelligent person there are only two means of examination, namely sense of perception (pratyakṣa) and inference (anumāṇa) supplemented by instruction (upadeśa).25 It is to be noted here that Caraka denied the application of yukti in the context of clinical examination.26 The yukti is accepted by Caraka only for proving punarbhava or re-birth.27 (This is further explained in Chapter 4, p. 321). So, it can be concluded that Ayurveda accepts four pramāṇa-s, āptopadeśa, pratyakṣa, anumāṇa and yukti, which are clinically applied to obtain the knowledge of diseases and patients as well as various medicaments.
Āptopadeśa or Scriptural Testimony

Āpṭāgama, āptavacana and śabda are synonyms of āptopadeśa. It is the right cognition, which is related to the words (śabda) of reliable person (āpta). The term 'śabda' is widely used in Indian philosophical systems to denote a particular pramāṇa. Caraka also used the term 'śabda' in the context of enlisting logical terms and defines it as 'रुद्रे नाम वर्णसमानायः'।

According to Indian philosophical systems śabda is the third means of knowledge. But in Āyurveda it occupies the first place. It may be pointed out here that Suśruta proposed a variant order of the source of knowledge. According to him the āgama or śabda pramāṇa comes in the second place.

As far as Śāmkhya is concerned, āptavacana or śabda is the statement made by a trustworthy person. According to Y.Bh, āgama is the form of inherited knowledge, which acquires from a trustworthy person, or trusted friends, concerning matters that are seen or inferred. Āyurveda also defines it as 'अप्तोपदेशो नामान्वयनम्. Āpta-s are those persons who speak truth. Gauḍāpāda, the commentator on SK, states that the āpta-s are the preceptors like Brahmā. But the Naiyāyika-s do not restrict āpta-s into any specific cast or religion. According to them, the āpta-s are those who possess real knowledge and those who have a desire
to make it known to others, communicate directly and also proceed or act through ārtha or through the direct knowledge of things. This definition applies to rṣi-s, ārya-s as well as to the mleccha-s.\textsuperscript{34}

According to Caraka, the persons who are free from all doubts, have a clear memory and able to see the things impartially or rationally without any attachments are known as āpta-s.\textsuperscript{35} He also describes that the āpta-s are free from rajas and tamas hence they have a pure and perpetual knowledge of the past, present and future. The words of such persons are clear and always doubtless.\textsuperscript{36}

Caraka states that āptāgama is nothing but Veda-\textsuperscript{\textit{तत्तत्त्वप्रस्तावित:}}.\textsuperscript{37} Cakrapāṇin, the commentator of CS, is of the opinion that the āptāgama is primarily based upon Veda-s. Secondarily they are based on the ancient scriptures like Ayurveda and Smṛti, which are quite in conformity with the Vedic scriptures.\textsuperscript{38} In contrast with the philosophers, Caraka considers aitihya as āptopadeśa like Veda-s.\textsuperscript{39} Aitihya, according to Cakrapāṇin, is the instruction of non-worldly preceptors.\textsuperscript{40} It is to be remembered here that Caraka also mentioned adṛṣṭārtha, those based on unobservable statements of divine being, which constitute Vedic corpus, one among the four kinds of sabda.\textsuperscript{41} It shows that the ancient scriptures written by the sages based on their experience
and observations, are considered to be the authoritative instruction or āptopadeśa in Āyurveda. Sāṃkhya also reckoned the Vedic testimony as a means of valid knowledge.\textsuperscript{42} But the SK claims that 'it is due to the supreme preceptor Kapila that the entire Sāṃkhya doctrine have been clearly testified'.\textsuperscript{43} Thus the āptopadeśa or authoritative instruction for Sāṃkhya and Āyurveda, is nothing but the utterances of authentic personalities and also a kind of cognition by reading the scriptures written by a reliable person and proper understanding of their meaning. While referring to the authoritativeness of śabda pramāṇa, Gautama also illustrates Āyurveda.\textsuperscript{44}

Besides this, Āyurveda considers the revelations made by a patient as authoritative testimony. Because they also throw light on the causative factors and severity of the disease and so forth. But the words of all the patients are not to be taken as facts because they depend upon the mental state of a patient. Even if a patient is suffering from serious diseases he may be able to hide it because he is mentally strong whereas those who have mild disease may pretend seriousness, because of the weak state of mind.\textsuperscript{45} Caraka states:

\begin{quote}
तेषामेवेशुपुनमनन्तःप्रमाणम्।
अप्रमाणं पुनर्मेतोभवत्वः।
\end{quote}

(Vimāna. IV.4)
i.e., The statements, if it is true or false, made by the persons like,
intoxicated, mad, fool and the obsessed are not considered to be
authoritative.

Hence, regarding the definition 'आप्नात्माविश्वासिनः', who speaks out the real
state of his sufferings can undoubtedly be considered as authoritative.

**Importance of Scriptural Testimony in आयुर्वेद**

आयुर्वेद gives much importance to scriptural testimony. The
characteristic features of various diseases are very difficult to identify
without a thorough knowledge of आयुर्वेदic treatises. Hence before
arriving at conclusion with regard to the diagnosis or prognosis of a
patient it is necessary to have a comprehensive knowledge of the
scriptures of आयुर्वेद. According to Suśruta, the drugs, whose
characteristics are known clearly, should not be subjected to arguments
and further discussion but used as prescribed by the scripture.

अमामोंताय्यान्यायं चिकित्सानि प्रसिद्धैः स्वभव्यते ।

आगमनोपविधानि प्रेषणानि विचक्षणे ॥

(88, Sūtra XI, 19)
Caraka opines that, 'the physician who is not well-versed in scriptures should not venture to treat, just like a painter without eyesight should restrain from painting a picture'.

यो हि सम्बहु जानाति सास्रें शास्त्रविद्यमेव च।
न कृयात् स जियां चिठ्ठिनचक्षुकरिब चित्रकृत॥

(CS. Cīkṣās XXX. 340)

Cakrāpanīn gives another example as 'that a person will not be able to correctly identify the quality of gems if he is not well acquainted with a specific characteristics of various types of gems'.46 Hence the physician has to keep on updating his knowledge by learning the scriptures. Pointing out the importance of scriptural testimony, Caraka says, those should be regarded as the knowers of Āyurveda who are able to deliver tantra, sthāna, adhyāya and prāśna distinctly by the way of textual statement, textual interpretation and illustration.47 The physicians must learn from their preceptors how to treat a patient and help patients to maintain their health. That is why Āyurveda insists the student-physicians to select not only a suitable Āyurvedic text but also an ideal preceptor who is doubtless, well grounded in that particular scripture and to strive to have a good practical knowledge.
Factors Examined by Scriptural Testimony

There are various factors examined by scriptural testimony. They are, the causative factors of various diseases, sources or doṣa-s contained in diseases, mode of signs of diseases, nature of diseases, location or seats of diseases, pain of diseases, symptoms of diseases, connection with the five sense organs pertaining to the diseases, complications of diseases, association with symptoms of aggravation, maintenance and abatement of diseases, prognosis of various kinds of diseases, names of diseases, concomitants of diseases and the prescriptions and prohibitions in the treatment.  

Pratyakṣa or Perception

Pratyakṣa means direct sensory perception. Almost all philosophical systems of India accept it as the primary means of knowledge. It is the knowledge derived from the contact of the concerned sense organs with the object. Nyāyasastra defines it as - 'इन्द्रियार्थविद्या'  

The Nyāyasūtra also recognizes the role of mind in the process of perception. But there is no direct reference in the Nyāyasūtra that the mind to be considered as a sense organ. To Naiyāyika-s the five organs of cognition are the only indriya-s. Therefore, the relationship between sense organ and the object in the
process of perception is the prime concern of Nyāya system. But for Sāṃkhya it occurs in buddhi. Another notable point is that Īśvarakṛṣṇa used the term 'dṛṣṭa' to denote pratyakṣa. He defines the dṛṣṭapramāṇa thus: प्रतिपित्यायत्वक्षय दृष्टम्. It is the determined cognition of a particular object attained through the senses. Adhyavasāya, according to Sāṃkhya, is the function of buddhi. The most notable teaching of this system is its concept of perception in which buddhi assumes the form of the object and its knowledge is determined in the self. Sāṃkhya also considered buddhi as a synonym of manas. According to Sāṃkhya the eleven sense organs originate from ego (ahaṅkāra). Ahaṅkāra itself is a product of buddhi. The citta, the organ of internal perception, of Yoga also included the three factors buddhi, ahaṅkāra and manas. According to Y.Bh the pratyakṣa takes place when the external object reaches the citta through the channel of the sense organs and there by the citta attains the right knowledge or super-conscious vision. Hence in the process of perception, according to Sāṃkhya-Yoga, buddhi, ahaṅkāra, manas and the indriya-s function as a whole.

As per the principles of Āyurveda, pratyakṣa is the instantaneous intellectual knowledge gained through the association of the four factors, viz., soul, senses, mind and the object.
Cakrapāṇin is of the opinion that these four causative factors are not necessary in all kinds of perception. In fact, the perception, according to him, is only a result of the association of the sense organs with objects. He also describes six kinds of proximities of senses and object- saṁyoga, samavāya, saṁyuktasamavāya, saṁyuktasamavetasaṁavāya, samavetasamavāya and viśeṣaṇaviśeṣyabhāva. It seems that he strictly follows Nyāya philosophy. Daśahāṇa, the commentator of SS, says that the perception is that in which the true knowledge perceived. Caraka also opines that the ātman is that which is knowable by a person through his own senses and the mind.

It is also said that ātman is the seat of knowledge, śānasīlakṣaṇam ātman. According to Caraka, happiness, misery, desires, hatred etc., are perceived by ātman and the knowledge of sound, touch, colour etc., are perceived by the sense organs. In this sense the perception consists two types of psychic and somatic experience. Cakrapāṇidatta refers to it as abhyantarana and bāhyapratyakṣa. Sāmkhya also refers to the direct and
Immediate cognition as having internal and external objects. According to Vācaspatīmiśra, the pleasure, pain etc., are the internal objects and the earth water etc., are the external objects.\textsuperscript{61}

Factors Examined by Sense of Perception

The \textit{pratyakṣa parīkṣā} is generally employed in the clinical practice for diagnosing the patient as well as disease and also for specifying various medicaments. \textit{Pañcendriya-s}, the five organs of cognition, play a vital role in this process. Each of the sense organ has its own objects. In Ayurveda the disease and patient can be observed with all the five sense organs and objects of the senses occurring in the body of the patient. But the taste, though it can be examined through the sense, is not examined directly. (See Table- II. 1.1).

a. \textit{Darśanendriyaparīkṣā}

It is the visual perception. According to Caraka, the colour (\textit{varna}), shape (\textit{ṣaṃsthāna}), measurement (\textit{pramāṇa}), image (\textit{cchāyā}), physical constitution (\textit{ṣaṭrūtaprakṛti}) and others which can be perceived through the eyes are examined visually.\textsuperscript{62} According to Suṣruta, the development of physique, signs of lifespan, strength, disorders of complexion etc., are to be examined by eyes.\textsuperscript{63}
b. *Sparśanendriyaparīkṣā*

It is said that the sense of touch is spread throughout all the sense organs. The normal and abnormal tactual signs of the body can be examined by hand. Caraka also states that, if the social customs and beliefs do not allow the physician to touch the body of a patient, he can get it done by someone else. Cold, temperature, smoothness, roughness, softness, hardness etc., due to be examined by hand. According to Caraka the pulsation, dislocation of joints, diminution of muscle tissue and blood, etc., are the factors examined by tactualy. He also states that the body parts such as, feet, knees, thighs, abdomen, sides of the chest, vertebral column, hands, neck, forehead, shoulder, breasts, wrist joints, anus etc., are specifically used for the tactual examination.

c. *Śravyanendriyaparīkṣā*

The gurgling sound in the intestine, cracking sound in the joints and fingers, sound of heart beat, alteration in the voice of the patient etc., are examined through the ear. Suśruta is of the opinion that the vāyu impelling frothy blood comes out with sound.
d. *Ghrāṇendriyaparīkṣā*

Normal and abnormal body smell of the patient should be known by the olfactory sense organs.\(^{71}\) Odours like *candana*, *kuśṭha*, *tagara*, *aguru*, *madhu* and *mālya* are the pleasant smells. On the other hand the smell of urine, faeces and dead bodies are unpleasant ones.\(^{72}\) The smell of stool, urine, sweat etc., of the patient help the physician to diagnose various diseases and their stages.

e. *Rasanendriyaparīkṣā*

In this process the tastes are not examined by direct observation. They can be observed by indirect methods such as *praśna* (interrogation) and *anumāna* (inference).\(^{73}\) The *rasanendriyaparīkṣā* is very much useful for the *Āyurvedic* pharmacology. According to *Āyurveda* the medicaments can be classified into six groups on the basis of their taste, viz., *madhura* (sweet), *amla* (sour), *lavaṇa* (salt), *kaṭu* (pungent), *tikta* (bitter) and *kaśāya* (astringent).\(^{74}\) Each of these tastes also have some qualities and function. *Madhura*, *amla* and *lavaṇa* tastes are *vāta* alleviating. *Madhura*, *tikta* and *kaśāya*-s are *pitta* alleviating and the *kaṭu*, *tikta* and *kaśāya* are *kapha* alleviating.\(^{75}\) It is therefore the knowledge of taste is essential for understanding various functions and qualities of medicaments. (See Table- II. 1.2).
**Factors Examined by Direct Observation**

<table>
<thead>
<tr>
<th>Darṣanendriyaparīkṣā</th>
<th>colour, shape, quantity, physical constitution.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sparṣanendriyaparīkṣā</td>
<td>heaviness, lightness, coldness, heat, viscous, dryness, mildness, sharpness, immobility, mobility, softness, hardness, transparent, gelatinous, smoothness, coarseness, grossness, subtlety, density, fluidity.</td>
</tr>
<tr>
<td>Śravaṇendriyaparīkṣā</td>
<td>sounds of intestines, heartbeat, voice of patient.</td>
</tr>
<tr>
<td>Ghrāṇendriyaparīkṣā</td>
<td>smell of the body, urine, faeces</td>
</tr>
<tr>
<td>Rasanendriyaparīkṣā</td>
<td>sweet, sour, saline, pungent, bitter, astringent.</td>
</tr>
</tbody>
</table>

(Table- II.1.1)

**Substances: Tastes and their Actions**

<table>
<thead>
<tr>
<th>Tastes</th>
<th>Action</th>
<th>Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet</td>
<td>Increases <em>kapha</em>, reduces <em>vāta</em> and <em>pitta</em>.</td>
<td><em>jīvaka</em>, <em>jīvantī</em>, <em>śuklā</em>, <em>ṣatāvarī</em>, <em>mrdvīkā</em>, <em>ṣatapuspa</em></td>
</tr>
<tr>
<td>Sour</td>
<td>Stimulates <em>pitta</em> and <em>kapha</em>, reduces <em>vāta</em>.</td>
<td><em>āmra</em>, <em>kūvala</em>, <em>dādima</em>, <em>āmalaka</em>, <em>tintūḍīka</em></td>
</tr>
<tr>
<td>Saline</td>
<td>Stimulates <em>pitta</em> and <em>kapha</em>, reduces <em>vāta</em>.</td>
<td><em>saṇḍhava</em>, <em>sauvarcalā</em>, <em>sāmudra</em>, <em>maulaka</em>.</td>
</tr>
<tr>
<td>Pungent</td>
<td>Strengthens <em>vāta</em> and <em>pitta</em>, reduces <em>kapha</em>.</td>
<td><em>pippalī</em>, <em>marīca</em>, <em>saraspa</em>, <em>laśuna</em>, <em>kuṣṭha</em>.</td>
</tr>
<tr>
<td>Bitter</td>
<td>Increases <em>vāta</em>, reduces <em>pitta</em> and <em>kapha</em>.</td>
<td><em>candana</em>, <em>nimba</em>, <em>harīdrā</em>, <em>bakula</em>, <em>tagara</em>, <em>aguru</em>.</td>
</tr>
<tr>
<td>Astringent</td>
<td>Increases <em>vāta</em>, reduces <em>pitta</em> and <em>kapha</em>.</td>
<td><em>piṛyaṇku</em>, <em>loḍhra</em>, <em>jambū</em>, <em>aśvattha</em>, <em>aśoka</em>, <em>āmra</em>.</td>
</tr>
</tbody>
</table>

(Table-II.1.2)
Factors that Obscure Perception

Pratyakṣapramāṇa has its own limitations. According to Ayurveda the visible objects are limited and the invisible objects are unlimited. The non-perceptibility of an object, according to Sāṁkhya, is due to its minuteness and not because of its non-existence. Its existence can be known through its effects. There are many factors that obstruct the knowledge through perception. Sāṁkhya enlists the eight reasons for non-perception of the existing objects. They are long distance, close proximity, defects of sense organs, absent mindedness, extreme minuteness, obstruction, suppression and intermixture. Similarly Caraka also describes the possibility of non-perception. It is as follows:

"सताः च रूपाणामानितस्थिकत्वात् अतितिकार्यस्तात् आवरणात् करणांवेष्यात्
मनोवेष्यानात् सामानाभिहितात् अभिभवात् अतिसोक्ष्यात् च प्रत्यक्षानुमानि्
"

(CS. Sūtra, XI. 8)

1. *Atisannikāraṇā* (due to the close proximity) - The collyrium applied to the eye is not perceptible because it is too near.

2. *Ativiprakāraṇā* (due to long distance) - A bird flying very high in the sky is not perceived due to long distance.
3. **Āvaraṇīt** (due to obstruction of the object caused by other object) - A picture placed on the other side of the wall cannot be seen due to the obstruction.

4. **Karanaḍaurbalyāt** (due to the defect of senses) - A person who has jaundice cannot see the whiteness of cloth.

5. **Mano'vasthānāt** (due to the absent-mindedness) - A person whose mind is engaged in thinking about the beautiful face of his beloved not heeds the words of another person no matter how loud his voice is.

6. **Samānābhihārīt** (due to being mixed with similar objects) - A bel fruit thrown amongst a heap of bel fruits cannot be easily recognized due to its presence among similar objects.

7. **Abhībhavāt** (due to overshadowing) - Similar to stars which are invisible during the day time because of being suppressed or overpowered by the brighter rays of the sun.

8. **Atisaukṣmyāt** (due to subtle nature of the object) - Owing to subtlety the things like lice etc., are not visible even if placed just one or two yards away.

According to Āyurveda all these non-perceptible objects are inferred through the means of knowledge like āptopadeśa, ammnāna and yuktiva.
Anumāna or Inference

During the process of diagnosis and prognosis there are many things that cause sometimes to distort the knowledge brought about by perception and scriptural testimony. Anumāna is applicable on such conditions. It is the means of knowledge which comes after pratyakṣa in the hierarchy of means. Except Lokāyata-s all other philosophers accept anumāna as a source of valid knowledge.

The inference of Sāṃkhya is clearly restricted to causal implication designated by 'liṅga-liṅgipūrvaka'. That is the inference preceded by a knowledge of the liṅga (sign) and the liṅgī (signate). Liṅga indicates vyāpya and the liṅgī implies vyāpaka. Kapila described inference as 'it is the knowledge of the liṅgī derived from the knowledge of invariable concomitance (pratibandha) between liṅga and liṅgī'. For example - चालुक्योस्मिनां चूसित्वचालक। When we see smoke (liṅga) on a hill the presence of smoke leads us to infer that there is fire (liṅgī) on the hill. The knowledge of the smoke and the hill is obtained through direct perception. However, the knowledge of the fire is not directly obtained because we do not perceive it. We tend to infer its presence on the hill based upon the inseparable association between smoke and fire. It is impossible to infer the existence of fire without the direct perception of smoke.
Īśvarakṛṣṇa states that there are three kinds of inferences. But he
does not go deep into its divisions. While commentators like Gauḍapāda
and Vācaspatimīśra have elaborately discuss the nature and functions of
the three kinds of anumāna by referring to three names such as pūrvavat
(a priori), seṣavat (a posteriori) and sāmānyatodṛṣṭa (general observation),
similar to Nyāya philosophy. Vācaspatimīśra divides the inference into
vīta and avīta and classifies seṣavat under avīta and pūrvavat and
sāmānyatodṛṣṭa into vīta class.

Pūrvavat: It is an inference where the effect is inferred by the cause.
e.g., The likelihood of rain from the cloud.

Seṣavat: It is an inference where the cause is inferred by the effect.
e.g., Since a drop of sea water is salty it is inferred that the
sea water is salty.

Sāmānyatodṛṣṭa: It is an inference by general observation, e.g., One
who sees the mango trees blossomed in a place naturally tend
to infer that the same will have happened other places too.

As far as Āyurveda is concerned anumāna is the conflutant based
on reasoning. अनुमानं खशु तकौ युक्तपेष: To cite the words of
Cakrapāṇin, it is the 'अविनाभावं परोक्षज्ञानम्' Caraka has classified
anumāna into three kinds that are related to the past, present and future.
1. *Atītsakālika anumāṇa* - Inference of an action done in the past as a cause to the present effect. e.g., The past act of sexual intercourse from the present evidence of pregnancy.

2. *Vartamānakālika anumāṇa* - It is the general inference. e.g., The presence of fire is inferred from the smoke. Both happen at the same time though the fire is not visible.

3. *Anāgatakālika anumāṇa* - Assuming the knowledge of the future effect from something in the present cause, e.g., The emergence of the fruit is inferred from a seed.

It is to be noted here that there is no specific designations of *anumāṇa*, such as *pūrvavat* etc., in CS. It is simply refers to as ‘त्रिकालं चानुमीयते’, which is closely resembles SK as ‘त्रिकालं चानुमिस्यते’. Suśruta mentions *anumāṇa* only by name. While Dalhana interpret it as the knowledge of a thing is acquired afterwards by invariable signs. Hence, *anumāṇa* is the source of knowledge which helps to determine the
presence of an imperceptible object on the basis of the invariable association between the thing inferred and the source by which it is inferred. By correlating all these evidences, says B. G. Gopinath, 'a standard inference involves (a) Direct perception of some event (b) Reasoning that leads to the knowledge of either the cause or the effect or both, of an event'. In addition to these anumāna also necessarily depends on āptopadeśā, because one can draw logical inferences based on scientific principles as described by the preceptors and scriptures.

**Classifications of Anumāna according to various Scriptures**

(Figure- II.1.2)
Factors Examined by Inference

The role of *anumāna* is very important in decoding the etiology of diseases and diagnosis. According to *Āyurveda* there are many factors connected with disease that are inferred rather than perceived. In such cases the physician is required to observe the available links and arrive at a conclusion. Thus *anumāna* is highly useful in such context where the sufficient information are not available. Therefore the inference is a mental process by which the physician arrives at a conclusion based on the specific evidences. It is generally used in the psycho-somatic domains of medicine.

There are various things which can be identified by inference during the clinical examinations of *Āyurveda*. It is already mentioned that the taste can be examined by inference. The abnormal taste of the body should be inferred when the lice or flies go away from the body. Similarly the sweet taste of the body should be inferred when the flies are attracted towards the body. The tastes of a patient's mouth may examined by questioning. Suśruta describes the disease *prameha* (diabetes) to be diagnosed by the gustatory sense. According to him, it can be inferred by movement of ants. The ants would be swarming around the urine of such patients.⁸⁸ Similarly in the case of bleeding the nature of the blood can be
identified by giving the blood to dogs or crows. If they take the blood it indicates its purity. On the other hand their rejection indicates the blood is vitiated by *pitta*. Hence it is inferred that the particular patient is suffering the disease *raktapitta*.

Apart from this *Suśruta* also argues that the hidden foreign body can be located by applying the sandal paste and the ghee on the skin. If the sandal paste gets dried or the ghee gets liquefied that indicates the spot of foreign body. In this context *Vāgbhaṭa* adds that the shape of foreign body is determined by the shape of the wound.

Caraka also enumerates various factors that can be examined through the inference. They are as following:

1. अर्जित मष्कः - The digestive faculty by the practical digestion.
2. वल्ल व्यायमशस्त्रः - Strength by the ability of exertion.
3. अमोकादिनं सववल्यपग्राहणेन - Perfect functioning of the sense organs by their capacity to perceive the respective objects.
4. ज्ञातोत्तरत्वसंयमनेन - Existence of mind by the perception of specific objects even when all other senses perceive their own objects.
5. विज्ञान व्यवसायेन - Knowledge by determination.
6. रजः सहस्रः - *Rajas* by attachment.
7. Mohumāyan - Fainting by lack of profane knowledge.
10. Rasamāyana - Joy by exhilaration.
11. Priya nāsana - Gratification by contentment which is reflected on the face and eyes.
12. Bhayabhishāṇeṇa - Fear by depression.
13. Prāyamāyana - Fortitude by composure of countenance.
15. Abhūyamāyana - Resoluteness by absence of mistake.
17. Sambhāṣaṇa - Intelligence by the capacity of apprehension.
18. Śrāṣṭha - Consciousness by recognition of names.
19. Smṛti - Memory by remembrance.
21. Śālāyamān - Habits by constant use of things.
23. Upādihāya - Hypocrisy by subsequent manifestations.
24. Śrāddha - Steadiness by absence of cupidity.
25. वस्त्रसादं विनेताय - Submission by obedience.


27. उपस्थितश्रेयस्तथा कल्याणामिनिवेशन - Forthcoming prosperity by attention to good deeds.

28. अमलं सत्यमिकारण - Pure mind by the absence of abnormal sentiments.

**Yukti or Rational Thinking**

*Yukti* means rational thinking. The rational investigations made by a person to confirm various things are considered as *yukti*. *Yukti*, the remarkable source of knowledge, specifically mentioned only at the section re-birth according to CS. Except CS no other philosophies accept *yukti* as a *pramāṇa*. Similarly it cannot be found in any other Āyurvedic scriptures. It is not surprising because in ancient times the advocates of the different *sāstra*-s appear to have adopted various means for asserting their theories. Thus the *tāntrika*-s have adopted *ceṣṭā* and the rhetoricians have adopted *pratibhā* as a means suitable to their theories. Caraka defines *yukti* as -

बुद्धिः पञ्चविस्तित या भावान् बहुकारणयोगचारः।
The intellect that assess the things of the union of many causative factors, valid for the past, present and future, is called yukti. It also helps to guess trivarga-s, viz., hetuvarga, liṅgavarga and aṣṭadbavarga. Most of the scholars interpret the term 'trivarga' as the three basic objectives, dharma, artha and kāma, of human beings. Basically the term trivarga in Āyurveda do not mean the human objectives (puruṣārtha-s). Caraka cites example for yukti as:

जलकर्षणवीज्जातुसंयोगात् सर्वसंभवः ।

युक्तः श्रद्धातुसंयोगाधार्मां संभवतवा ॥

मध्यमन्यनक मन्त्रांसंयोगाधिनांसंभवः ॥

युक्तिवन्का तदुपायदसंपद्धार्थिष्चिन्नवहै ॥

(Sūtra. XI. 23- 24)

That is the future growth of crops or plants is known from the proper combination of rain, ploughing seed and seasons. Similarly, the formation of embryo from the combination of six dhātū-s, the emergence of fire from the churning of the fire-drills (araṇī-s), and the recovery of illness by four limbs of therapeutic measures.
Thus, the \textit{yukti} as a mode of reasoning which takes into consideration of a multiplicity of divergent observations. That is the knowledge of the future effect out of the present causative factors cannot be happen simultaneously. But the \textit{pramāṇa}, \textit{yukti}, helps to identify an effect in relation to the union of several causative factors.

\textit{Yukti} is an unavoidable tool for diagnosis and prognosis when there is involvement of various \textit{doṣa-s}, presence of various confusing symptoms and availability of few options of treatment due to the contradiction of the patients \textit{prakṛti} (physical constitution) and \textit{vikṛti} (vitiation of \textit{doṣa-s}). In such circumstances the diagnosis and prognosis always need physician’s knowledge beyond the limits of perception. His medical knowledge, practical experience, intelligence, observation and analytical skill etc., are depended upon for the effective treatment.

It is to be noted here that one of the three therapeutical methods of \textit{Āyurveda} is also known as \textit{yuktivyupāśrayacakītā}, the rational treatment.\footnote{As Caraka says, \textit{yukti}, rational application depends upon the time and dose of therapeutical administration. But the success of a treatment depends upon the rational application rationale (\textit{yukti}). A physician, who is proficient in the principles of rationality, is always superior to those who acquainted with the drugs only. It}
The term *yukti* is also used to denote *yojana* or administration of several conditions to decide the medicine to be used, its dose, method of usage and its effects. Says Caraka:

\[\text{सर्व प्राणों तद्युक्तिः प्रभुत्वमिव तद्युक्तिः} \]

\[\text{विष्णु प्राणहरु तच्च युक्तियुक्ते रसायनम्} \]

\[\text{(Cikitsā, XXIV, 60)}\]

That is when the food, which is the sustainer of life, taken not properly or not in a disciplined or controlled way, it causes death. Similarly, poison, which causes death, works like life saving medicine when it is used in appropriate manner.

Thus in brief, the *yuktiyamana* helps the physician like a lamp in the darkness.

**Yukti and anumāna**

Except Caraka, all others did not consider *yukti* an independent *pramāna*. Caraka also says that 'अनुमानः तक्यो युक्तिप्रेक्ष्यः'. Based on this definition the scholars argue that Caraka included *yukti* into *anumāna*. 
Apart from this in the context of diagnosis Caraka accepts only the three pramāṇa-s, viz., āptopadeśa, pratyakṣa and anumāṇa. The distinctive means of knowledge yukti is missing here. While discussing the theory of re-birth it is considered as an independent pramāṇa. It is to be noted here that Caraka does not provide any clue to yukti, as it is included in anumāṇa. Sāntarakṣita, the author of Tattvasaṅgraha, however, recognised yukti as a separate pramāṇa and maintains Caraka’s view.94 He argues that there is similar instances in anumāṇa but not in yukti. Similarly, in contrast with anumāṇa, there is no need of drśṭānta or example in yukti. Hence yukti is always different from anumāṇa.

अस्मिन् सति भवत्वच न भवत्वसत्तिति च
तस्मादतः भवत्वच यूक्तिरेशापिन्योऽयते॥
प्रमाणान्तरभविणिभव चरर्को मूलिः
नानुसिद्धते यथा प्रसारप्रत्यक्षनि न विख्यातेः॥

(1692-1693)

**Difference between Yukti and Anumāṇa**

<table>
<thead>
<tr>
<th><strong>Yukti</strong></th>
<th><strong>Anumāṇa</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No need of prior experience.</td>
<td>Prior experience is necessary.</td>
</tr>
<tr>
<td>There has to bear vyāptiyāna first and then comes anumāṇa.</td>
<td>Vyāptiyāna is preceded by anumāṇa.</td>
</tr>
<tr>
<td>There is no difference between sādhya and sādhaka.</td>
<td>There is difference in sādhya and sādhaka.</td>
</tr>
<tr>
<td>No need of pratyakṣajñāna</td>
<td>Pratyakṣajñāna is essential.</td>
</tr>
</tbody>
</table>

(Table- II.1.3)
Today, *Ayurveda* remains very well advanced medical field. Modern medical equipments for diagnosis like stethoscope, microscope, scanning, x-ray are extensively used nowadays even in *Ayurveda*. It may be noted here that various instruments like several types of speculates sounds, catheters etc., were permissible and were employed in diagnosis by ancient preceptors of *Ayurveda*. There is enough scope for suspecting the relevance of indigenous diagnostic methods of *Ayurveda* today. But without doubt it can be said that those seemingly less-advanced methods have their own space in practical aspects of *Ayurveda* even at the technical age.
Notes

1. दर्शनप्रमाणस्यः परोक्ष विज्ञान स्मृता | *CS. Cikitsā. XXV. 22.*

2. तस्यानि विद्वानसाधनानुवर्तकः पलिंगायत । शास्त्रात् । *Ibid., Nādi. I. 6.*

3. पहुँचने रक्षा कर्मानि विवादानीयः, तत्त्व–परमार्थ विरोधार्थिष्ठं प्रमन्ये यतः | *SS. Śūtra. X. 4.*

4. *CS. Vīmāṇa. VIII. 94.*

5. दृष्टि देखि कर्म कालमन्वन्तिर प्रसूतिः यतः। सत्त्व साहाय्य तथापि वस्तुस्वावलम्बन व्यवस्थितः | *AII. Śūtra. XII. 67.*


7. *Outlines of Indian Philosophy,* p. 177.

8. *Cārvāka-s* accepted only one *pramāṇa,* viz., *pratyakṣa.* The Jaina-s, *Buddha-s* and *Vaishēṣika-s* accept *pratyakṣa* and *anumāṇa.* *Sāṃkhya & Yoga* entirely relied on *pratyakṣa, anumāṇa* and *śabda.* The *Naiyāyika-s* include *upamāṇa* in addition to *pratyakṣa, anumāṇa* and *śabda.* *Prabhākara-s* recognised one more *pramāṇa* namely *arthāpatti.* *Bhāṭṭa-s* and *Vedāntin-s* add one more viz., *anupalabdi as pramāṇa.* The *Paurāṇika-s* recognised two more to the list viz., *sambhabha* and *aitihya.* *Tāntrika-s* adds *ceṣṭā* into the list. Some other on the other hand recognised *pratibhā as pramāṇa.* Thus the total number of *pramāṇa-s* reaches ten.

9. प्रमाणानि प्रमाणम | *Nyāyabhāṣya,* I. 1. 1.

10. प्रमाणस्य विद्या: | *SK. 4.*

11. *Prakṛti, puruṣa, mahat, ahaṅkāra,* eleven sense organs, *five tanmātra-s* and *five bhūta-s.*

12. युज्य: विद्या: विद्या: | *YS I. 5.*

13. प्रमाणोऽविनिर्देशः न | *Sāṃkhya-pravacanabhāṣya,* 87.

14. *SK. 4; YS. I. 7.*

15. *Gautāpadabhāṣya in SK. 4.*

16. परस्परस्य व्यवस्थान्तः वर्तुस्वक्षमानश्च यतः परोक्ष प्रमाणस्य | *Āyu.Dī in CS. Śūtra. XI. 17*

17. *CS. Śūtra. XI. 33.*

18. *Ibid., Vīmāṇa. VIII. 117.*

19. द्वार-आधार-विभागारः, तत् प्रत्यक्षम, अनुभावम, एतत्त्वम, औप्यमयितः | *Ibid., 33.*
20. चित्रितेतिविज्ञानादेशः संगमः प्रच्छं शंकित्वं। SS. Sūtra. X. 4.
21. इवविभेद खलु सर्व सत्यमात्माः। तत्स्य चतुर्भुजः परिश्रमः। अनुज्ञातः। प्रच्छं। अनुभव, युक्तिबद्धे। C.S. Sūtra. XI. 17.
22. तत्स्यावस्यायं प्रत्यक्षस्वाध्ययनानीवः सुविदक्रमायुस्मात्माः। SS. Sūtra. I. 16.
23. Astāṅgasāṅgraha, Sūtra. XX. 11.
24. C.S. Vimāna. VIII. 27.
25. इवविभेद खलु सर्वश्रुतिभावानाः संगमः। प्रच्छं। अनुभव, अनुज्ञातः। एततद् सुविदक्रमायुस्मात्माः। ibid., 83.
26. इवविभेद खलु सर्वश्रुतिभावानां भवति:। तत्तथा। अनुज्ञातः। प्रच्छं। अनुभव, अनुज्ञातः। ibid., IV. 3.
27. ibid., Sūtra. XI. 32.
28. ibid., Vimāna. VIII. 38.
29. आनात्रक्रमायुस्मात्मां खलु। SK. 5.
30. Y.Bh I. 7.
32. आनात्रक्रमायुस्मात्मां यथा निहिता। Sūtra in SS. Sūtra. I. 16.
33. आनात्र काल्पनिकम्। Gaudapādabhāṣya in SK. 5.
34. आनात्र। खलु सामान्यतरं ध्वनिक्रमित्वं। बिस्माहितविज्ञानं प्रमूखं उपर्युक्तं। सामान्यतां क्षणं अवश्य आत्माः। तथा। प्रत्यक्ष इत्यादिः। C.S. Vimāna. IV. 4.
35. आनात्र। इवविभेदक्रमित्वानां बिक्षुप्रणालिक्रमं उपर्युक्तं। तथा। श्रवण:। श्रवण:। यथा। सत्यमात्माः। यथा। C.S. Vimāna. IV. 4.
36. आनात्र। इवविभेदक्रमित्वानां बिक्षुप्रणालिक्रमं उपर्युक्तं। तथा। C.S. Sūtra. XI. 18, 19.
37. ibid., 27.
39. Similarly while describing the āhu he does not mention āptopādaśka and mentions ātithyā (cf. ibid., 33).
40. लोकिकविविधक्रमायुस्मात्माः। Āyu. Di in C.S. Vimāna. VIII. 41.
41. शिवो नृ वर्णमानमतः - त चाहुऽविनः - शुद्धार्थश, अनूठार्थश, तपश्च, अनूठार्थचिन्ती। CS. 
Vimāna. VIII. 38.

42. परस्पामायनामातु सिद्धम् | SK. 6.

43. ibid. 69.

44. मन्त्रकृष्णासाध्यवच्छय तत्तत्वाभिः | Nyāyasūtra, II. 1. 68.

45. गुर्वप्रत्ययविविश्वं सन्तोषविलाकलाल। 
दृष्टेऽप्ययवकार्यं विविश्वविविश्वो भवेत्। | AH. Sūtra. XII. 69.


47. तत्रात्स्तेष्वविविश्वासाध्यवच्छते 
पुरुषश्च वायुश्च वायुविविश्वो विविश्वधर्मवाच्यात्र भवतः | 
CS. Sūtra. XXX. 16.

48. रोपनेनकद्वियवाकार्यविविश्वाय 
त्र्यमादसाध्यवच्छते भवेत् | Sāmkhyasūtra, I. 7.

49. Nyāyasūtra, I. 1. 4.

50. भागानन्दासार्थवश्चाय 
सृज्यार्थम सृज्यार्थम भूतं। | ibid., I. 1. 12.

51. SK. 5.

52. अथवायसार्थ दुःखः ibid. 23.

53. साधृत्यायसार्थ साधृत्यायसार्थ | Sāmkhyasūtra, I. 7.

54. श्रव्येऽपि अविविश्वासाध्यवच्छते | SK. 22.

55. Y. Bh. I. 7.


58. Tarkasaṅgroha, p. 12.

59. सन्धाणात्माः सवर्गायसालापः शब्दायशिविश्वविविश्वसाध्या। CS. Vimāna. VIII. 39.


61. STK. 5.

62. वर्गानन्दासाध्यवच्छते, सत्तेऽसाह्यविविश्वाय, 
सृज्यायसार्थवश्चाय चायसार्थसार्थवश्च भवे। | CS. Vimāna. IV. 7.

63. विविश्वविविश्वाय: सत्तेऽसाह्यविविश्वाय 
सत्तेऽसाह्यविविश्वाय | SS. Sūtra. X. 5.
64. τοροινίπηδικάναμινιδικώνλεκτομῇ | CS. Sūtra. XI. 38.


66. τοροινίπηδικάναμινιδικώνλεκτομῇ | ibid., Indriya. III. 4.

67. τοροινίπηδικάναμινιδικώνλεκτομῇ | SS. Sūtra. X. 5.

68. παραγγελίανδικάναμινιδικώνλεκτομῇ | SS. Sūtra. X. 7.

69. παραγγελίανδικάναμινιδικώνλεκτομῇ | ibid., Vimāṇa. IV. 7.

70. παραγγελίανδικάναμινιδικώνλεκτομῇ | SS. Sūtra. XI. 5.

71. παραγγελίανδικάναμινιδικώνλεκτομῇ | CS. Vimāṇa. IV. 7.

72. παραγγελίανδικάναμινιδικώνλεκτομῇ | ibid., Indriya. II. 13.

73. παραγγελίανδικάναμινιδικώνλεκτομῇ | ibid., Vimāṇa. IV. 7.

74. παραγγελίανδικάναμινιδικώνλεκτομῇ | SS. Sūtra. XI. 3.

75. παραγγελίανδικάναμινιδικώνλεκτομῇ | ibid., 4.

76. παραγγελίανδικάναμινιδικώνλεκτομῇ | CS. Sūtra. XI. 7.

77. παραγγελίανδικάναμινιδικώνλεκτομῇ | SK. 8.

78. παरαγγελίανδικάναμινιδικώνλεκτομῇ | ibid., 7.

79. ibid., 5.

80. παραγγελίανδικάναμινιδικώνλεκτομῇ | Sāmkhya-sūtra, I. 100.

81. παραγγελίανδικάναμινιδικώνλεκτομῇ | SK. 5.

82. Nyāyasūtra, I. 1. 5; STK and Gauḍapādabhāṣya in SK. 5.

83. STK. 5.

84. CS. Vimāṇa. IV. 4; VIII. 40.

85. Āyu. Đī in CS. Vimāṇa. IV. 4.
88. *SS. Sūtra*. X. 5, with *Nib. Sa*.
91. युतं प्रथु चन्द्रकोणों निपुदं च समासतः
अद्वयस्वरूपस्य श्रेष्ठस्य विभाववेलः।

*AH. Sūtra*. XXVIII. 18.
94. Śāntarakṣita was a 9th century Buddhist scholar. See also *Āyu.Dī* in *CS. Sūtra*. XI. 25.