It was seen in the last chapter that the concept of 'dharana' has occupied the attention of the Jaina logicians and they are not entirely agreed on the function of 'dharana'. 'Dharana' has been considered as a condition of recollection. The psychological analysis of memory shows that retention is a condition of memory, and recollection and recognition are the forms in which memory expresses itself. We are, therefore, concerned here with analysing the concept of memory. We shall study retention, recollection and recognition as factors involved in memory.

Retention.

The Jaina philosophers are not agreed on the function of 'dharana', retention. Nandi-Sutra has mentioned three stages of 'dharana'. Umasvati has also accepted the three stages of retention. They make 'dharana' a condition of recollection, although some logicians like Vadi-Deva do not accept this analysis of 'dharana'. It was mentioned in the last chapter that Hemacandra reconciles the two views regarding the function of retention. He makes it both a factor in perceptual cognition and the condition of recall. This raises the problem of the
analysis of memory and the function of retention in memory.

Psychological analysis of memory shows that memory is representative. It is the process of remembering objects of past experience, while perception is a presentative experience. It is the interpretation of sense impressions produced by external stimuli. Sometimes the word memory is used as synonymous with retentiveness in general. But Stout says that this application of the term is inconvenient. Retention is a factor involved in memory. It is a condition of memory, as was stated. "Memory is ideal revival, so far as ideal revival is merely reproductive and does not involve transformation of what is revived in accordance with present conditions". Hume had said that when an impression has been present with the mind it again makes its appearance as an idea; and this it may do after two different ways. In its new appearance it retains a considerable degree of its first vivacity. This he calls memory. Retention is a condition of memory. In retention, the past experience is retained as a mental trace in the form of mental traces or mental dispositions, 'saṃskāras'. In physiological terms it leaves a structural modification in the brain due to the plasticity of the brain. However, retention is more mental. It is a 'saṃskāra' which is more cognitive in nature as

*2 'Treatise on Human Nature' by David Hume, Section 3.
Hemacandra described. The brain cannot be the repository of past experience as Mill and William James had said. Bain says that the faculty called memory is "almost exclusively found in the retentive power although sometimes aided by similarity". Thus, retention implies the power of preserving in the form of mental dispositions of the past perception.

In this sense the Jaina philosophers called 'dhāranā' a condition of recollection. Hemacandra mentions it as a condition of memory. In this sense also, we can interpret the description of the three stages of retention given in the Nandi-Sūtra and the Tattvārtha-Sūtra Bhāṣya. The three stages describe the stages in the development of memory. The first perceptual experience should continue to remain in the mind in some form, and it should not escape. Without this, recollection would not be possible. Retention is also a condition of recall. The absence of the lapse of experience is necessary for the revival of the experience at a later stage.

In the analysis of 'dhāranā' in the second stage the cognition formed by 'avāya' is retained. This later leads to recognition. Jinaabhadra describes the three stages of 'dhāranā' as: (1) the

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*3 'The Sense and the Intellect' by A. Bain as quoted in Classical Psychology by Rand. p. 466.
*4 'Pramāṇa-mīmāṃsā' I. 1,29.
*5 'Nandi-Sūtra' 35; 'Tattvārtha-Sūtra Bhāṣya' I. 15.
*6 'Jaina Psychology' by Mohanlal Mehta. P. 32.

He describes the psychological process of retention.
absence of lapse of perception (ii) the formation of a mental trace and (iii) the recollection of the cognition on future occasions. Hemacandra points out that perceptual judgement when protracted for sometime would become retention; and that is the absence of the lapse of perception. But the absence of the lapse of perception is also a condition of recall, because without the absence of the lapse there would be no mental trace and there would be no recollection. Retention then, is not memory itself although it is a necessary condition of memory because recollection would not be possible without retention.

Formation of a mental trace is an important factor in retention. We have seen that Hemacandra showed that, in a sense, retention can be described as a mental trace, a 'saṃskāra'. It is a continued existence of a cognition for a definite or indefinite length of time. He says that the mental trace or 'saṃskāra' is cognitive in character. It is a species of cognition. Mental trace or 'saṃskāra' may be compared to the mental dispositions of the modern psychologists. Some modern psychologists give a physiological picture of the mental disposition. They say that past experiences are retained in the form of physiological dispositions. They are not mental traces or mental dispositions. They are only structural modifications of the brain. They are unconscious cerebrations. In this sense, retention would become merely physiological in nature. It would be merely a neural habit. But this view is not adequate. Past experiences are retained in the form of mental dispositions, although physiological
traces may also be there. Mere physiological disposition cannot take the place of mental dispositions. Hellene says that they exist in the form of psychological (mental) dispositions, and not merely in the form physiological dispositions. Stout also maintains that the past experiences are retained in the form of mental dispositions which constitute the mental structure. We have seen that Hemacandra has made the mental trace or 'samskara' of the nature of cognition and not different from cognition as some philosophers like the Vaisesikas suppose. If it were not cognition it would not produce recollection which is cognitive in nature, nor would it be an attribute of the self.

Retention, then, can be described as the mental trace or 'samskara' by which experiences cognised in the definite form by 'avaya' are retained in mind and they do not lapse. Such retention of past experiences will form a condition of the recall of the experience on a future occasion. Hunter writes "retaining is a necessary condition for remembering, for without it there would be nothing to remember. Forgetting and retaining are related, for if there is failure to retain then there must be forgetting".

Recollection:

The second factor in memory is recollection. Very often recollection is considered to be a condition of memory, but it

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**7 'Memory: Facts and Fallacies' by S.M.L. Hunter. (Felicia Hook) P. 15.**

**8 Op. cit. P. 16.**
would be more appropriate to say that recollection is a form in which memory expresses itself. There is a distinction between recall and recollection. Hunter makes these distinctions very clear. For instance, if we remember a poem learnt earlier, it would be recall. But sometimes in recalling the poem we very often remember the personal experiences in learning. That would be recollection. For instance, we also remember the page on which the poem was printed and the room in which we learned the poem. However, such a distinction is not necessary for our discussion. We may take the word recollection in a broad sense as including recall also. We may sometimes term it as recall. Recollection may be termed as reproduction of past experiences. It is the ideal revival of past cognitions which have been retained in the form of mental dispositions. It is the revival of the original experience. It is an ideal revival, as Stout says, so far as it is merely reproductive. Retention alone is, therefore, is not a sufficient condition of memory. Experiences retained have to be recalled and then they would become memory. Every psychic process leaves behind some engram-complexes which are conserved in the mental structure of the individual and it brings about the change in it. The conserved elements are not the mere mass but they are organised wholes due to cohesion, as Drever describes. Such cohesion brings force and it facilitates recall. Perceptual experiences are retained in the form of mental dispositions. This is also Law of Spearman's \( \Delta \)Retention. Thus, retention is a necessary condition of recall. However, it is not itself recall and it
should not be identified with recall. We have seen that in the *Pramana-mimamsa* also there is a description of retention as a condition of recall.

Hemacandra describes the process of recollection. According to him it is 'smrti'. It arises due to the stimulation of mental dispositions, 'vasana', which may be considered to be equivalent to 'sanskara' by the Jainas. Perception once experienced continues to remain in the mind in the form of an unconscious mental trace, or an unconscious mental disposition. They are the latent conditions of memory. But when they are stimulated they come to the surface of consciousness and we recall the experiences which we once cognized which remained so far in the form of mental traces. Therefore, Hemacandra says that the stimulation of the mental trace gives rise to recollection.*9 The emergence of the latent mental trace by stimulation then constitutes a necessary condition of recall. Unless the stimulation is present recall is not possible.

According to the Naiyāyikas 'smṛti' is a form of qualified perception and it has reference to the direct presentation of some object, although it involves an element of representation. In memory there is a revival of past experience in the form of ideas and images, in the same order in which they were actually experienced by us and were retained by the soul.*10

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*9 *Pramana-mimamsa* I, 2,3. 'Vāsanabhedaḥhetukā talityākāraḥ smṛtiḥ
*10 *Tarka Saṃgréha* (Calcutta) p. 85.
The emergence of the mental trace to conscious level is, as seen, due to its stimulation. This stimulation is determined by different conditions. The conditions for the emergence of the mental trace to the conscious level may be classed into two types as (i) external condition and (ii) internal condition. The external conditions refer to environmental factors. Observation of similar objects is an external condition, for instance, necessary to arouse the mental trace to the level of conscious state. Mohanlal Vekta in his *Jaina Psychology* has mentioned that external conditions necessary for the fact of recalling may be classed into three types. The three types represent the three laws of association as the law of contiguity, law of similarity and the law of contrast.\(^{11}\) The recollection of an object experienced in the past refers to that object in the past experience as "that" like "that jar" and "that cloth". Perception always refers to the present datum while recollection has a reference to the content as existed in the past.

Bain mentions that contiguity and similarity are the fundamental basis of memory habit and they acquire powers in general. He says that writers of mental science have described the law of contiguity by various names. Sir Hamilton terms it as the law of 'red-integration'. "We might also name it as the law of association proper, or adhesion, mental adhesiveness or acquisition". Bain says that the second fundamental property

\(^{11}\) *Jaina Psychology* by Mohanlal Vekta. P. 87.
of intellect may be termed as consciousness of agreement or similarity. It is a great power of mental reproduction, or a means of recovering past mental states. It was noticed by Aristotle as one of the links in the succession of our thoughts.\footnote{12}

But the external conditions alone are not sufficient. More observation of similarity cannot give rise to recollection. It is not a sufficient condition, although it is a necessary factor for recollection. The 'internal competency' is also necessary. This refers to the mental preparedness, or, we may say, 'the conative urge'. In this sense Hemacandra says that though a disposition may have continued for a certain length of time it does not operate as a cause of memory unless it is aroused.\footnote{13} In this respect we may mention McDougall's emphasis on the conative drive as a condition of memory. McDougall says, 'like all thinking, remembering is a conative activity. We remember and recollect effectively in proportion as we have strong motives in doing so. This truth is too often ignored; we are apt to regard our memory fantastically as a mysterious automatic machine over which we have no control' and it is notorious that we remember emotionally exciting events better than others; which means that the strength of conation, our interest during any experience is a main condition of our remembering. There can be no doubt that an explicit volition,

\footnote{12} 'Senses and the Intellect' by Alexander Bain, P. 1 & 2.  
\footnote{13} 'Pramana-simamsa' I. 2,3 and Commentary.
purpose, or intention to remember greatly favours remembering and recollecting. *14

But the internal preparedness in the form of interest or conative drive is not also sufficient unless some psychic impediments are removed. The fact that our striving to recollect often fails and we get only partial recollection, the fact that we forget some times partially or totally shows that some psychic impediments counteract and some in the way of the proper recollection. This is made evident by the study of mental pathology. McDougall says that conation can determine not only memory but also forgetting. Just as desire for an object leads us frequently to remember that object, an aversion from an object (rooted in fear, disgust and painful experiences connected with it) may prevent the remembering of it. It may even make it impossible to recollect it by the most genuine voluntary efforts. McDougall states that thousands of cases of amnesia of this type occurred among the soldiers who suffered the horrors of the front during the First World War.*15 Freud also attributed failure to recollect to the wishes repressed in the unconscious. In his *Psychopathology of Everyday Life* he cites instances of forgetting in every day life. Thus, in order to get effective recollection, it is necessary to remove psychic impediments like aversion to the object, fear and painful experiences associated with it.

*14 *Outline of Psychology* by William McDougall. P.310.


*16 *Frames and Asacons* l. 2,3 and Commentary.
Such a removal of the psychic impediments was in a sense mentioned in terms of the removal of 'karma'. Hemacandra says that the subsidence and destruction of the obstructive veil of 'jñānāvaranīya karma' would be a necessary condition of recollection in addition to the observation of similar objects and the conative drive in order to arouse the stimulations. However, the Jainas mentioned the condition of the removal of psychic impediments in terms of the metaphysical concept of 'karma' and the operation of 'karma'. In fact, the Jainas say that the destruction and subsidence of the knowledge-obscuring 'karma', 'jñānāvaranīya karma', is a necessary condition of all cognition.

According to the Nyāya system, while memory has some general conditions like the original past presentation, 'pūrvānta', and its mental trace, 'sāṃskāra', it has a number of specific causes which are responsible for retention of the impressions and the recall in consciousness on future occasions. Several factors like attention, 'pranāma', association 'nibandha', repetition, 'abhyāsa' and 'pāpa' and 'puṇya' are operative as conditions in producing recollection and also in retaining the experiences. Chatterjee, in The Nyāya Theory of Knowledge mentions twenty three such causes given by the Naiyāyikas.

*16 'Pramāṇa-mīmāṃsā' I. 2,3 and Commentary.
*17 cp. cit.
*18 'The Nyāya Theory of Knowledge' by S.C. Chatterjee. Ch. ii. p. 25
The Jainas say that recollection is a valid form of cognition. In fact, it is a source of knowledge a 'pramāṇa', because it is never found to be discrepant with fact as in the case of successful activity like the search for a thing deposited by oneself. The Vaiśeṣikas and the Advaita Vedāntins also accept recollection as valid cognition. Sometimes, an objection has been raised stating that recollection is not a source of knowledge a 'pramāṇa', because it does not cognize the present datum and as such there is no objective basis. The Nyāya system does not admit memory as a separate source of knowledge, because it is only a reproduction of past experience in the same form in which it was once experienced. The Mīmāṃsakas say that it is not a presentative knowledge, 'anubhāva'. It is not a presentation of any objective fact but the representation of what was once presented. The object as remembered is different from the object as presented, since the object as presented before has ceased to exist. The Mīmāṃsakas also do not make recollection, 'smṛti' as a 'pramāṇa' since it gives us knowledge of things only previously experienced. It does not give any new knowledge but only a revival of the same old knowledge. The validity of the remembered knowledge only depends on the validity of the previously experienced knowledge.

But the Jainas say that while memory is conditioned by the revival of impressions of past experiences, its essence lies...

19 'The Nyāya-Sūtra Vṛtti' 1, 1, 3.
in the knowledge of something as 'that' in the past (tadityākāra). It is the knowledge of the previously experienced as past.

Memory is, in the language of T. Hobhouse, assertion of the past as past. That memory refers to a previously experienced object or that it is an assertion of the past is known by memory itself. The Jainas say that knowledge of the past given by recollection is valid like perception, because it leads to successful activity. They give the criterion also for establishing the validity of recollection. If recollection were not valid, an inference based on 'vyapti' the universal relation between the major term and the middle term would become invalid. Hemacandra points out that the recollection refers to an object that has once been experienced; and the reality of the object and not its actually felt presence is the condition of validity of a cognition. If it is contended that the object must be felt as present as in perception in order to get valid cognition, we may equally say that perception is also invalid as it is found to lack the criterion of referring to a fact that has been experienced in the past. If revelation of the relevant object be a criterion of validity, it is found to be equally present in the case of memory also.

Again, it has been objected that it would be difficult to understand how an object which is deficient can be a generating condition of recollection. But the Jainas say that this objection is also not valid. Cognition reveals its object when it is brought into being by the requisite condition of the operation.
of the sense organs and mind and the destruction and subsidence of the knowledge-obscuring 'karmas', just as light which comes into being on the operation of its own conditions reveals the objects like the jar, though not generated by those conditions. Similarly, if recollection is said to be invalid, one must give up inference also, since inference is not possible without recollection of the necessary comcomittance. 20

Some Vaisesika writers also contend that 'smṛti' recollection is a valid source of knowledge. They recognise both 'smṛti' and presentative cognition, 'smṛtyāsubhāve' as a form of valid knowledge. 'smṛti' arises out of the impressions of past experience, and it is the knowledge of the individual object 'as that' as something previously experienced like 'that bathing ghat' and 'that city of Banaras'.

Vallabhacarya also maintains that 'smṛti' is a separate 'pramāṇa' because it gives the true knowledge of certain facts. Although it depends on previous experiences it cannot be said that it is merely the repetition of same previous experience. It is something more. It gives the experience of the past experience as past. Awareness of its being past is not a part of previous experience; and memory gives us the knowledge of the new element.

20 'Pramāṇa-mīmāṃsā' I, 1,2 and 3 and Commentary.
Among the Western philosophers, Russell, Haeckel, and others recognise memory as the primary source of knowledge. Memory gives us direct knowledge of the past. Russell says, that the immediate knowledge by memory is a source of all other knowledge concerning the past; without it there would be no knowledge of the past by inference, since we should never know that there was anything past to be inferred. He says that memory resembles perception in point of immediacy and it differs from it mainly in its being referred to the past. Haeckel shows that memory is neither retention of past experience nor a mere image of the past experience, but an assertion as past on the basis of such retention and images. Ewing also thinks that the direct view of memory is clearly true if we have any knowledge of the past at all. If we knew the past, it is the past we know and not the present ideas. It is a mistake to suppose, as the Naiyayikas did, that we are directly aware of the past, the past must be so to speak bodily present to our mind or occupy the same position as present objects of perception.

Thus 'smarti' or recollection is considered a valid cognition and a separate source of knowledge by the Jaimas. In fact, even inference involves memory because it cannot take place without the recollection of the universal relation between the

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*21 'Problems of Philosophy' by Russell. P. 75
*22 'The Nyaya Theory of Knowledge' by S.C. Chatterjee, Ch. 17
*23 'Mind' April 1930 P. 142.
major term and the middle term.

The validity of recollection as a cognition is an epistemological problem, although it has a psychological significance. Recall is a revival of the past experience. It has past experience as its basis. But we must remember that perception is one mental event while recall is a different mental event. It is cognitive in nature and it is an independent source of knowledge. Breger says that percept is an event and memory of it is a new event. The Jaina analysis of recollection is mainly epistemological, although it expresses the psychological factors involved in the fact of recollection. The Jainas were primarily concerned with the analysis of recollection as a 'pramāṇa'. The psychological factors involved in recollection were incidentally referred to by them. In fact, all Indian thought gives mainly metaphysical and epistemological analysis of the problems of knowledge, although psychological factors are mentioned incidentally.

**Recognition: 'Pratyabhijā'**

Recollection 'smṛti', does not give us a complete picture of memory unless recognition as a factor operates. Complete memory involves retention, recall and recognition. We may however say that retention is a condition of memory and recall and recognition are not so much conditions of memory. They are forms of expressing the cognition experienced in the past. Remembering may take different forms. The effects of
past learning may manifest themselves through the activities of recall or of recognition, and they also manifest themselves by making it easier to relearn the original experience. Corresponding to these forms of remembering there are different procedures in which memory may be employed to test for the continued retention of the effects of learning. These are the methods of recall, recognition and relearning. We are not concerned with relearning because it is not a valid source of knowledge as such.

Recognition was defined as the remembering of some thing that was presented to the senses. For instance, as Woodworth mentions, we recognise a friend by his visible appearance or by the sound of his voice. His dog may recognise him by the sense of smell. The other senses may sometimes provide cues for recognising an object already experienced in the past. 'Cues or signs are used in recognition as they are used in perception. In fact, recognition is a kind of perception.' In finding the essence of recognition, McDougall makes a distinction between implicit and explicit recognition. The former is primitive and the latter develops out of it. The dog that runs away by the sight of the man who threw stone at it is showing only implicit recognition. The dog does not think 'this is the man who threw a stone'. In us, the utterance of the proper

*24 'Memory - Facts and Fallacies' by I.M.M. Hunter (Pelican) P.16
*25 'Memory - Facts and Fallacies' by I.M.M. Hunter (Pelican) P.16
*26 'Psychology - A Study of Mental Life' by R.B. Woodworth. P.569.
name of the object is an important part of recognition. The similarity of the effect on us is the essential ground of recognition. "The capacity for recognition, and so of all remembering, is at bottom of the fundamental function which James calls 'conception' and which perhaps is better called 'knowing'".27

The question regarding the nature of recognition was discussed by the Nyāya thinkers. Chatterjee mentions a distinction in the meaning of recognition. Recognition can be understood in two senses. In a wide sense, recognition means understanding the nature of a thing. In this sense it is the ordinary mode of perception. It may be referred to as 'saśikalpa pratyakṣa'. In a narrower sense, recognition means knowing a thing as that which was known before. 'Pratyabhijñā' is recognition in this sense. According to the Nyāyākās 'pratyabhijñā' is a conscious reference of the past and present cognition to the same object. For instance, I see a jar and I recognise it as something perceived before. Thus I say "this is the same jar that I saw".28

It has been maintained by some that recognition is a confusion of two cognitions, perception and recollection. The Buddhists think that recognition is a mechanical compound of presentative and representative mental states. It is not a

27 'Outline of Psychology' by William McDougall. P. 308.
28 'Nyāya Bhasya' 3. 1. 7, 3, 2, 2.
single psychosis because it cannot be perceptual as there is no sense object contact. Similarly, they say it cannot be a 'saṃskāra' for there is a sense of 'taisness' in the state of recognition. The Naiyāyikas contend that it is a kind of qualified perception giving us knowledge of the present object as qualified by the experience of the past. We see an object and we recognise it as having been seen on a previous occasion. Mīmāṃsakas and Vedāntins support this view. But the Jainas argue that the state of recognition is a simple psychosis. It is synthetic in nature and it is different from perception and recollection.*29

The Jainas give prominence to recognition as an important form of cognition. Hemacandra describes recognition, 'pratyabhijñā' as a synthetic judgement born of perception and recollection.*30 Perceptual experience and recollection work together to produce recognition. They are both combined to form a synthetic judgement. They are therefore conditions of recognition. Recognition as a synthetic judgement is expressed as 'this is that jar', and 'this is that cloth'. These are the cases of identity. We also get recognition as a synthetic judgement which expresses similarity in the form of judgement like 'the cow is like the 'gavaya'. In this sense the Jainas make

*29 'Pramoyakamalemaartanda' P. 97 & 98.
*30 'Pramana-mimmsa' I. 2,4.
'upamāna' a form of recognition, and they do not give 'upamāna' an independent status of 'pramāṇa'. We may also get the synthetic judgment of recognition expressed in the judgement of difference. For instance, we recognise that the buffalo is different from the cow. Thus recognition is a concrete psychosis. It is synthetic in nature expressed in the synthetic judgement like the judgement of identity, the judgement of similarity, and of difference. Perception is the direct and immediate cognition of the object when the object is presented to the senses. Recollection is the reproduction, 'ideal revival' of what was experienced in the past. It is the emergence of the mental trace to the level of consciousness. When perception and recollection are combined in a particular form to produce synthetic experience expressed in the synthetic judgement, we get recognition. For instance, when we get description like, 'know him to be Cātra who is shaggy all over the body, who has protruding teeth, who is dwarfish and who has broad eyes and snub nose,' 'the swan is capable of separating milk from water', we find out Cātra and swan when we see them next. Similarly, a man from the North happens to describe a camel as 'a cursed animal with long crooked neck and with ugly limbs, addicted to feeding on hard sharp bramble'. A man from South who had heard all this description happens to see a thing of such description. He then recognises the animal as 'camel' in the form of a synthetic judgement as 'the object ahead is the camel'. The Jainas have emphasised the synthetic nature of recognition. The Jainas have emphasised the synthetic nature of recognition.
of recognition as an act of cognition. However, it is a concrete psychosis in which the present and the past, perception and recollection are synthesised. In this sense recognition is different from recollection, although recognition involves recollection as a factor. In recognition the object is present before us; in recollection what is recollected is not present to the senses.

Psychological analysis of recognition shows that recognition is a fusion of a percept with an image. Recognition accepts or rejects the object recalled in memory. For instance, we recognise when we react from present experience as familiar. The sight of the face or the sound of a note, the smell of a rose, all those may be experienced as being familiar. But we recall a word by speaking it or we also recall past activities after some interval. It was seen earlier that, Hunter makes a distinction between recall and recollection. Recollection involves personal aspects in the memory. Recognition has also been described as a mental state which may be definite or indefinite. We may get indefinite recognition in which we only get the feeling of familiarity without getting the definite picture of that experience. Recognition will be definite when it refers to the place and time of its appearance. In such recognition we get, as Titchener said, the revival of the cognition of object once experienced associated with the group of other ideas and tinged with the feeling of familiarity. Thus,
in recognition the perception of an object and the recall of
the percept are synthesised to produce a concrete psychosis
of recognition. The Jaimas mentioned such a concrete psychosis
as recognition or 'pratyabhijña'. However, Stout says that
recognition in its mere primitive form does not require dis-
crimination of the universal from the particular, but only a
confused or implicit awareness in which the universal is not
separately apprehended as a distinct object of thought. In
recognition there is only a rudimentary judgement of recognition
in as much as the universal nature of the particular is con-
fusedly apprehended. Yet there is no judgement in which the
subject and the predicate are mutually sundered from each other.2

We are not here concerned with the analysis of the problem of
the apprehension of the distinction between the universal and
the particular in the perceptual judgement. However, it may
not be out of place to say that the Jaimas have made recognition
a non-verbal form of cognition in which the explicit expression
of a judgement in the form of the proposition containing subject
and predicate is not possible at this stage, although recognition
is a form of experience in which we are aware of the similarity
of the distinction and difference of the object which was experi-
enced in the past. In this, we are to understand the description
of recognition given in the Prawaṣa-mīśāṣṭi as a synthetic
judgement like the judgement of similarity, identity and dis-
tinction, although not explicitly expressed in language.

But the content of recognition and that of recollection are different because recollection cognises only what has been known before and refers to its content as 'that'. Recognition establishes the identity of the past datum with the present one.*33

The validity of recognition and the nature of recognition as separate source of knowledge, a 'pramāṇa' has been an important problem in Indian thought. It was very often contended by some other schools of Indian thought, like the Buddhists and the Naiyāyikas, that recognition is not an independent source of knowledge, a 'pramāṇa'. The Buddhists say that there is nothing like recognition as a separate source of knowledge, as anything different from the cognitive acts like recollection indicated by the word 'that' and perception indicated by 'this'. The Naiyāyikas say that recognition is a kind of qualified perception in which the present object is qualified by the distinct recollection of its past experience. But the Jainas say that such an objection is not valid, because the object that is known by recognition cannot be comprehended by recollection and perception themselves. The province of recognition is the substance which stands out as the identity in and through its antecedent and consequent modes. This identity cannot be the content of recollection which cognises only what has been experienced before. But we are aware of the identity of the object experienced in the past with that

*33 *Tattva-Samgraha* 453.
which is presented to consciousness. This identity cannot be
recognised by perception only which is limited to the cognition
of the present datum.

The Naiyāyikas maintained, as we have seen, that
recognition is nothing but a species of perception. The Saṅkya
theory also brought 'pratyabhijñā' under perception. The
eternal 'buddhi' undergoes modification by virtue of which it
becomes connected with the different cognition involved in re-
cognition. Similarly, Mīmāṁsakas and the Advaita Vedāntins
also hold that recognition is a kind of perception. Recognition
is that kind of perception in which the object is determined
by the name by which it is called like 'this is Devadatta', for
according to the Advaita Vedāntin, 'pratyabhijñā' is a percep-
tion of the 'nirvikalpa' type since there is in it no predica-
tion of anything about the perceived object, but an assertion
of its identity amidst the changing conditions. Saṅkara agrees
with the Naiyāyikas and the Mīmāṁsakas in holding that recogni-
tion is a perceptual cognition produced by the peripheral
stimulation and subconscious impressions co-operating together.
Aumārīla agrees with the Naiyāyikas in regarding recognition
as a presentative cognition, since it is present where there
is activity of the senses and it is absent where there is no
activity of the senses. We cannot treat recognition, he says,
as non-perceptual only, because it is preceded by an act of
recollection. In recognition also there is a contact of the
sense organs with the object, and wherever there is such contact there is perceptual cognition. But the Jainas say that such a view cannot be accepted to be true because the province of perception is limited to what is actually present and given to the senses. Hence, the identity of the past and a present datum cannot lie within the scope of perception.

It has been urged that a sense organ with the help of recollection does give rise to perception of such identity; and recognition is a species of perception only. But Hemacandra says that this is impossible because a sense organ cannot go beyond its sphere of the present datum. It is also not true to say that the senses will be able to comprehend identity when it is associated with recollection, as the organ of vision acquires additional potency when it is associated with the paint of collectorium. The additional efficiency that might be acquired by a sense organ is never found to overstep its proper jurisdiction. Therefore, recognition is not a form of perception. Nor is it a mere recollection. It is not even formed by the mere combination of perception and recollection. It is a synthetic judgement which expresses something more than the mere combination. Therefore, recognition is an independent source of knowledge, a 'pramāṇa'. Hemacandra says that it cannot be said to be lacking

*35 'Pramāṇa-mīmāṁsā' 1, 2, 3 and Commentary.
in validity, since the lack of discrepancy which is the criterion of validity which is present in it. On the metaphysical plane, if the identity of the self and the like as determined by the evidence of recognition were to lack objective reality, the logical justification of bondage and emancipation as states of the same ethico-religious aspirant would become impossible. The sense of identity will have a lease of life only if we accept recognition as a valid source of knowledge.\textsuperscript{37}

This is the picture of the validity of recognition as a source of knowledge. It is mainly an epistemological problem, although it has a great psychological significance. Recollection have been described 'smṛti' and recognition 'pratyabhijña' as forms of memory. Memory expresses itself, as we have seen in recollection and recognition. We have also seen that recognition is a synthetic judgment in which the identity of the present datum with that which was experienced in the past is expressed, although it is still a non-verbal form of cognition. As it is a synthesis of recollection and perception it would be difficult to maintain that it is an independent form of cognition, a concrete psychosis. Recognition is a form expressing memory. It is sometimes described as a factor involved in memory. And memory is ideal revival. It is mainly reproductive in nature and it does not involve transformation of what was revived in accordance with the present conditions. In this sense it is not possible to say that recognition

\textsuperscript{37} 'Pramāṇa-mīmāṃsā' I. 2,3 and Commentary.
is an independent form of cognition, although it may be called a psychosis which is synthesised by recollection and perception. However, the Jainas maintain that recognition is not a species of perception nor of recollection. This view is also true because recognition is not perception nor recollection merely. It is a synthesis. The synthesis gives the additional quality of the judgement of identity of the present datum with that which was experienced in the past. It may also express similarity and difference. However, this problem is more epistemological than psychological.

Thus, recollection 'smṛti' and recognition 'pratyabhijñā' have been considered by the Jainas as valid forms of cognition and the sources of knowledge. Retention is a condition of recollection as much as it is a condition of perception. The tendency to endure is a prominent factor in retention; and the absence of the lapse is a tendency to endure impression. Retention is also a condition of recollection because the mental trace retained in the mind makes recollection possible when it is aroused and revived. Modern psychologists make retention, recollection and recognition as factors involved in memory. In fact, we have seen, as Hunter points out, that recollection and recognition are forms of expressing memory, because memory is not a thing containing parts but it is the mental activity, although faculty psychologists made compartments of the mind and made memory the faculty of the mind. Even Hume had said that an impression makes its appearance in two ways; either it...
retains a considerable degree of vivacity in its new appearance or it loses that vivacity and becomes an idea. The faculty by which we repeat our impressions retaining the original vivacity is called memory.*38 But modern psychologists do not treat memory as a faculty or a thing but as an activity. We may better talk of remembering rather than memory.

However, remembering may take different forms. It may express itself through the activity of recall or recognition. In this sense, we may think of recall and recognition as separate memory and valid forms of/rasagāttihat/, rather than conditions or factors involved in memory. In this sense, we may say that 'smṛti' and 'pratyabhijñā' are the two valid cognitions. However, such an analysis would be mere epistemological than psychological.

'*Inference' : 'Anumāna'*

We now come to another source of knowledge, 'pramāṇa' which is inference, 'anumāṇa'. The Jains have mentioned 'Uhmāni inductive reasoning and 'śabda' scriptural authority as separate 'pramāṇa'. But these two are not relevant for our discussion because they have more logical significance than psychological. Inference or 'anumāna' is generally recognised by all the Indian systems as a 'pramāṇa' except in the case of Carvākas. Inference and reasoning are the expressions of thinking as an activity of

*38 "Treatise on Human Nature" by David Hume. Part I. Sect. iii.
of human mind. Modern psychologists have begun to take a greater interest in the study of psychology of thinking. The physiological and psychological analyses of the mechanism of thinking have been carried by the psychologists, especially the behaviourists and the Gestalt psychologists. William James recognised that thinking of some sort goes on. But, as Vinacke points out the fact of thinking presents two sets of phenomena as (i) the psychological process and (ii) and the neural process.\textsuperscript{39} The early philosophers in the West gave prominence to thinking as a special and differentiating quality of Man. Man was called 'homo sapiens'. Aristotle said that man is a rational animal. The highest form of mental life is reasoning which utilises the material from the sense and imagination, but goes beyond them into the realm of pure ideas. Aristotle worked out a logical system of reasoning which is called traditional logic.\textsuperscript{40} Early Greek philosophers gave theories about reasoning as of other mental states from logical systemization based on introspection rather than from empirical evidence in the modern sense.\textsuperscript{40}

Similar attitudes were present in early Indian thought. The Indian philosophers were concerned with building a logical structure of reasoning and incidentally with the epistemic conditions of reasoning, rather than the psychological analysis.

\textsuperscript{39} 'Psychology of Thinking' by Vinacke. Ch. V. P. 57.

\textsuperscript{40} 'Psychology of Thinking' by Vinacke. Ch. V. P. 57-58.

\textsuperscript{Note} : Recently Lukasiewicz in his book Aristotle's \textit{Syllogistic} has pointed out that Aristotle's logic cannot be identified with traditional logic.
of reasoning. The theory of knowledge and the analysis of the epistemic conditions of reasoning had a pragmatic value for them. For the Jainas, as for many other Indian philosophers the ultimate aim was 'mokṣa'. The realization of 'mokṣa' is possible by the right knowledge as also of right intuition and right conduct. It was therefore necessary for them to study the conditions and limitations of knowledge. The Jaina emphasis on the logical and epistemological problems of reasoning expresses the spirit of Indian thought. This study has to be restricted to the nature and conditions of inference as a process of thought. In the course of the study the psychological factors may be referred to and the psychological significance of the nature and conditions of inference will be mentioned. This has been included in the discussion, because reasoning is a source of knowledge and the analysis of empirical experience would not be complete without understanding the nature and conditions of inference as a source of knowledge.

The Jainas have recognised inference, 'anumāna' as a source of knowledge, a 'pramāṇa'. Most of the Indian schools of thought, with the exception of Carvaka, have given prominence to inference as a source of knowledge. Carvakas are materialists. They contend that perception is the only 'pramāṇa'. As perception cannot establish a universal proposition nor can it tell us anything about the past and future, perception cannot give us the knowledge of 'vyāpti' which is the universal relation between the major term and the middle term and which is the basis
of inference. Therefore, the Carvakas say that inference is not a valid source of knowledge as it has no sound logical basis. But the Buddhists have objected to such a contention of the Carvakas. The Buddhists say that Carvaka refutation of inference is itself a process of reasoning. Similarly, it is by inference that the Carvakas came to know that their views were different and that the other sources of knowledge were not valid. Hemacandra also says that Carvakas have to depend on other sources of knowledge like inference for the validity of their contention. Since perception will not be able to cognize the things in the past and the future, and even with regard to specific direct cognition, Carvakas will not be in a position to determine the validity or invalidity of the cognition to the satisfaction of others. Perception is subjective and it will not be able to establish objective validity of inference. It was seen earlier that in Plato's dialogue 'Theaetetus' Socrates examines the doctrine of knowledge through perception, and he shows that such a doctrine leads to the impossibility of knowledge. In the Pramāṇa-mīmāṃsā Hemacandra says that the validity of even perception can be established only on the evidence of its unfailing correspondence with fact. Hence, it follows that Carvaka must have recourse to a different

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by Radhakrishnan.

A1 'Indian Philosophy' Vol. I. Part II. Ch. V.
A2 'Pramāṇa-mīmāṃsā' I, 11. 11. and Commentary.
source of knowledge like inference. The Buddhists have accepted inference as the other source of knowledge. In fact the Buddhists make all non-perceptual cognitions as necessarily of the nature of inference.

The meaning of inference has been a difficult problem in Indian thought. There has been a general agreement on the essential nature of inference. The Jainas say that inference is mediate knowledge. It is knowledge obtained through some other knowledge. Hemacandra says that inference is the knowledge of the major term on the strength of the knowledge of the middle term.*44 The Jainas hold that 'anumāna' is the process of knowing an unperceived object through the perception of a sign and the recollection of its invariable concomitance with that object. It is called 'anumāna' because it is the organ of subsequent ( anu ) cognition ( māna ). The knowledge of the major term which is of the nature of authentic cognition of a real fact and which arises from a middle term either observed or expressly stated is called inference. It is really cognition which takes place subsequent to the apprehension of the middle term and the recollection of the necessary relation of the major term and the middle term.*45 In the Jaina Tarkāṇāśā the definition of inference as given in the Pramāṇa-mīmāṃsā is

*44 Pramāṇa-mīmāṃsā' I, 2,7.
*45 Pramāṇa-mīmāṃsā' I, 2,7. and Commentary.
mentioned. The Nyāya system has worked out an elaborate system of inference. It is primarily a study of inference. Vātsyāyana, in his exposition of the process of reasoning described by Gautama asserts that the process of reasoning is extremely subtle, hard to understand and only to be understood by one of much learning and ability. Keith says that the admission of such a nature is important because it points out how difficult were the first steps of understanding the process of reasoning.*46 'Anumāṇa' literally means knowledge which follows from some other knowledge. It is the knowledge of the object due to the previous knowledge of some mark, 'liṅga'.*47

The previous knowledge is the knowledge of the mark which shows the universal relation between the major term and the middle term. 'Anumāṇa' has been defined by the Naiyāyikas as the knowledge of an object not by direct perception but by means of a knowledge of a 'liṅga' or a sign which expresses the relation between the major term and the middle term. Bhāsarvajña defines inference as a means of knowing a thing beyond the range of the senses through its inseparable connection with another thing, which lies within the range of the senses. Gangesa defines inference as knowledge which is produced by some other knowledge. The object of inference is the knowledge of some

*46 'Indian Logic and Atomism' by H. Keith. P. 85.
*47 'Nyāya Bhāṣya' I, 1, 3, 1.
fact which follows from the knowledge of some other fact. By means of 'anumāna' we want to know that which may not be perceived but which is indicated by the previous perception. For instance, 'anumāna' leads to the knowledge of the hill having fire on the basis of the perception of the smoke in the hill.

All systems of Indian thought, except the Cārvākas, believe that inference is a process of arriving at truth not by direct observation but by means of a knowledge of 'vyāpti', universal relation between two things. The Buddhists believe that inference consists in the perception of that which is known to be universally connected with another thing. Such a connection is either due to the principle of causality or due to the principle of identity. According to the Vaiśeṣikas, inference is a knowledge derived from the perception of a 'ligā' or a sign which is uniformly connected with something else such as cause, effect, co-effect and correlative term. The Sākhyas, Yugas, Mīmāṃsā and the Vedānta systems define 'anumāna' as the knowledge of one term of a relation which is not perceived through the knowledge of the term, which is perceived and which is explicitly understood as related to the first term. In this sense, inference is a process of thought in which from something known we arrive at something unknown.

In the Western thought, Miss Stebbing distinguishes inference from suggestion and recollection. However, it is difficult to distinguish precisely between these experiences in The Nyaya Theory of Knowledge by S.C. Chatterjee, Ch. II. P. 253.
in which inference is not involved and those in which it is involved. Psychologists do not agree as to where the line should be drawn. It is not, however, legitimate to distinguish, she says, between two kinds of inference as psychological inference and logical inference. All inference is psychological, for inference is a mental process; but its validity depends on conditions that are logical. Inference, then, may be defined as a mental process in which a thinker passes from the apprehension of something given - datum - to the apprehension of something related in a certain way to the datum. The datum may be a sense datum or a complex perceptual situation or a proposition. The datum of an inference can always be expressed in a proposition. Hence, inference may be said to be a mental process in which a thinker passes from one or more propositions to some other propositions connected with the former in a certain way.\footnote{49} From the point of view of psychology, McDougall

\footnote{49} 'Modern Introduction to Logic' by Miss S. Stebbings. P. 211.
says that the essence of all reasoning is that a judgement and a new belief are determined by beliefs already established in the mind. If the old beliefs are true and the reasoning process correct, the new belief is true and it becomes an effective guide to action. In this, he includes inductive reasoning also. For instance, in the most striking cases the new belief is derived from a complex chain of processes from a previously established belief; as, when the astronomer Adams arrived at the belief that a hitherto unseen planet would be seen at a certain position in the heavens if a sufficiently powerful telescope were directed to that spot. Same modern psychologists have tried to reduce the whole thinking process to neural activity. They have made it implicit talking. But this problem is not relevant for us.

Inference has been distinguished from perception. It cannot be identified with perception, although, both of them are equally valid sources of empirical knowledge. Perception is independent of any previous knowledge, while inference depends on previous perception. It is sometimes defined by the Nyāyāniks as knowledge which is preceded by perception. It is based on the perception of the relation between the middle term and the major term as subsisting in the minor term. Secondly, perception is due to the contact of sense organs with the object.

*50 'Outline of Psychology' by W. McDougall. P. 402.
Hence, perception is limited to the cognition of the present. But in inference it is possible to get the knowledge of the past and the future in addition to the knowledge of the present. Perception, therefore, is direct immediate knowledge while inference is mediate knowledge. Hemacandra says that the perceptual cognition arises out of the datum present to the senses. It is incapable of taking cognisance of what has preceded and what is to follow. Therefore, it cannot discern a characteristic capable of determining the validity and the invalidity of the individual cognitions occurring before and after. Similarly, it is not possible to have acquaintance with what passes in other people's minds by means of perception. Udyotakara mentioned this point when he made a distinction between perception and inference. Perception is confined to objects of the present time and within the reach of the senses while inference relates to past, present, and future. Perception and experimental observation do involve an element of inference in that the perceived element is interpreted. Saṅkera says that where perception is available inference has no place. Buddhists made another distinction between perception and inference. For the Buddhists, perception gives, though inexpressible in words, the peculiar character, 'sva lakṣaṇa'...
of the momentary object, while inference deals with ideal
generality 'samanya laksana'. But the Naiyāyikas do not
accept this distinction. For the Naiyāyikas, perception
gives us the knowledge of the individual in its concrete detail
as well as its generality, while in inference we deal with
generality in abstract form alone. For instance, we have on
the one hand before us fire which we perceive; on the other hand
we infer the existence of fire past, present and future as
generally connected with smoke.

Types of Inference:

Indian logic does not make a distinction between
deductive and inductive inference as separate forms of inference.
An inference is a combined deductive and inductive process.
Similarly, the distinction between immediate and mediate infe­
rence is also not to be found. All inferences are in the form
of categorical syllogisms; and they have reference to formal,
and material validity. A distinction between deductive and
inductive inference is psychologically inadequate. Vimanck
points out that it has become conventional to recognise two
broad areas in logic, as formal logic which is called deduction
and scientific method which is called induction. 'It is now
commonly recognised, however, that these distinctions break down
in the actual process of reasoning, although deductive inference
is often the only observable process in formal syllogistic
situations. If syllogisms are extended into every day life
so that their origins can be traced, inductive processes
Dewey has endeavoured to rid logic of such distinctions as deductive and inductive inferences, because both kinds of enquiry are fundamental in science and because such a distinction is only possible for intellectual analysis. Even the distinction of inference into immediate and mediate is not psychologically sound. The process of inference is always uniform and one. It is the process of thought, in which we arrive at something relating to something new which is not present to the senses from something which is already known. In this sense, immediate inference is only a brief expression of the process of inference. The main function of mediate inference is to communicate systematically one's own reasoning to others with a view to convincing them or rather with a view to creating similar beliefs in others. For the sake of our own knowledge and conviction it is not necessary to establish an elaborate system of reasoning in the form of syllogism. In this sense the division of inference into immediate and mediate inference has no psychological significance, although it may have logical importance and validity.

In this sense also, it may be said that a distinction has been drawn in Indian thought in inference, as inference for oneself, 'svartha anumāna' and inference for others 'parārtha anumāna'. Almost all Indian systems have made such a distinction.

*54 'The Psychology of Thinking' by Vinacke. Ch. VI. P. 76.
In the *Praamana-mimamsa* inference has been similarly distinguished. Inference for others is described as syllogistic in nature, inference for oneself is subjective and 'it is calculated to remove personal misconception, and syllogistic inference is capable of removing the misconception of another person.' Subjective inference is also based on the knowledge of the relation of the major term with the middle term. Still it needs to be expressed in elaborate syllogistic form. The Naiyayikas made three classifications of inference as (1) 'svārtha anumāna' and 'parārtha anumāna', (ii) 'pūrvevat, seṣavat and saṁānyate dṛṣṭam.' and (iii) 'kevalānvayai, 'kevalāvyatirekā' and 'anvaya vyatirekā'. Keith points out that the distinction in inference as 'svārtha' and 'parārtha' was wholly unknown to Goutama and Kaṇḍā. This distinction was accepted by the Syncretist School. The classification of inference into 'svārtha' and 'parārtha' is a psychological classification which has in view the use of purpose which the inference serves. With reference to the purpose all inferences are either meant for acquiring some new knowledge for oneself or they are meant for the demonstration of a known truth to others. In the 'svārtha' inference a man seeks to reach the conclusion for himself. In 'parārtha' inference, the...

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*55 'Pramana-mimamsā' I, 2,8 and Commentary. 'Tat dvidha-svārtham parārtham ca.' 'Svavyāmohānivartanaścana svārtham'*

*56 Op. cit. 9.*

*57 *Indian Logic and Atomism* by E. Keith. P. 95

*58 'The Nyaya Theory of Knowledge' by Chatterje. Ch. II. P. 289.
aim is to demonstrate the truth of the conclusion to others. The conclusion is justified with the help of the middle term. For instance, in the 'parārtha anumāna', a man having inferred the existence of fire in a hill lays it down as a thesis and proves it for others. The other two classifications mentioned by the Naiṣṭāyikas have more a logical significance than a psychological value. Regarding the distinction between the 'svārtka' and 'parārtha anumāna', it may be pointed out that notional inference for oneself is 'jñānātmaka' as Sāṃkṣetara stated. Inference for others is verbal 'sabdātmaka'. Keith points out that the Nyāya view of the distinction shows that in inference as communicated by the syllogism that is 'parārtha' inference the hearer must perform the necessary mental operation which the teacher has already performed and which he now aids by syllogistic exposition the hearer to perform for himself. Therefore, it can be said that the 'svārtka' inference deals with the process of inference and the 'parārtha' inference is the formal expression in the syllogistic form. The first is characterised as 'artha-rupatva', as Śivācītya showed, the other is characterised as 'sabda-rupatva'.

Vainake points out that if deduction is regarded as a method by which already existing generalisations are used, it is found that deductive situations are widely encountered in everyday life. They are not always evident as such. They often

*59 ‘Tarka-Saṅgraha’ (Calcutta) P. 48. a9.
General, two aspects of the problem may be distinguished. On the one hand, there are the conditions under which the individual argues with other people; and on the other hand, there are more or less public arguments to which the individual is exposed. In the first situation we are obliged to make assertions, develop arguments and state conclusions with a view to using the knowledge for the purpose of communicating and demonstrating to others. In the second type of situations we find ourselves reading in the newspapers or magazines arguments presented implicitly or explicitly in deductive form. In all such situations the rules of logic are valuable information of valid arguments.

Although this distinction between the two deductive situations presented by Vinacke does not exactly correspond to the 'svārtha' and 'parārtha anumāna', the analysis of the first situation corresponds to 'parārtha anumāna'. 'Parārtha anumāna' expresses itself in elaborate argument in the syllogistic form.

Conditions of Inference:

The aim of inference is to attain some new knowledge of a thing on the basis of whatever has been already known. It arises out of the necessity to know something more as also out of doubt and anxiety regarding the thing to be known. Where perception is available, inference is not necessary because we

*60 'Psychology of Thinking' by Vinacke, Ch. VI. P. 87.
need not reflect much to know objects present to our senses. Inference is not possible regarding the things unknown and regarding the things definitely known. It functions only with regard to things that are doubtful.\(^{61}\) Doubt is a condition of inference. It implies not only the absence of certain knowledge about something, but also a positive desire or will to know it. Modern Nyāyaiks do not accept this interpretation, because they say there may be inference even when there is no doubt and in the presence of certainty. Similarly, there may be inference even when there is no will to infer. These Nyāyaiks say that inference is possible in the absence of that condition in which there are the presence of certainty and the absence of the will to infer. The inference aims at proving that which is yet unproved as there is a desire to prove the object. At the same time, as Hemacandra says, it is incapable of being contradictory. Therefore, it is generally accepted by all schools that a logical discourse does not come into play in regard to matters which are unknown or definitely established.\(^{62}\)

That the state of doubt is a motive of inference is very often recognised in psychology and philosophy. Doubt sets us thinking and it gives rise to efforts to the solution of the problem. The Jaina philosophers in fact all Indian philosophers have stated that the desire to know is an additional factor for inference.

\(^{61}\) 'Nyāya Bhāṣya' I, 1,1.

\(^{62}\) 'Kramaṇa-mīmāṃsa' I, 2,13 and Commentary.
Miss Stabbing shows that doubt is a psychological condition of inference.*63

Inference consists in establishing the relation of the major term and the minor term. Knowledge of such a relation depends on the knowledge of the 'vyāpti' Universal relation between the major term and the middle term. We have seen that Pramāṇa-mīmāṃsā describes the inference as the knowledge of the major term on the strength of the middle term. The knowledge of the major term which is of the nature of authentic cognition of a real fact and which arises out of the middle term either observed or expressly stated is in fact called inference. It is a cognition which takes place subsequent to the apprehension of the middle term 'liṅga grahaṇa' and the recollection of the 'vyāpti'.*64 Regarding the 'vyāpti' Basagupta points out that the Jainas prefer, like the Buddhists, 'antarvyāpti' (between smoke and fire) to 'bēhirvyāpti' (the place containing smoke with the place containing fire).*65 Buddhists showed that 'vyāpti' may be based on essential identity, causality, 'tādētma' and 'tadūtpatti'. Experience cannot be the sure ground of 'vyāpti' but the Vedantins make it the result of inductive generalization based on simple enumeration. Nyāyikas agree with the Vedāntins in showing that 'vyāpti' is established on the basis of uncontradicted experience.

*63 'Modern Introduction to Logic' by Miss Stabbing. P. 215.
*64 Pramāṇa-mīmāṃsā I, 2, 7 and Commentary.
Just as inference depends on the knowledge of 'vyāpti', it also depends on the knowledge of the relation between the middle term and the minor term. This is often called 'pākṣa dharmatā'. In inference, the minor term becomes related to the major term through its relation to the middle term. Chatterjee points out that while the validity of the inference depends on 'vyāpti', the possibility of inference depends on the relation of the minor term with the middle term which is also called 'pākṣatā'. 'Vyāpti' is a logical ground of inference while 'pākṣatā' is a psychological ground of inference. Kesava Misra explains the process of inference as follows: in the first stage the operation leads to the perception of an invariable connection between the major term and the middle term. This is arrived at due to frequent observations of the occurrence of the two in the past.

For instance, smoke is observed in the hill. We then remember the relation which perception has established between smoke and fire. This gives rise to reflection in the form that there is in the mountain smoke which is always accompanied by fire. Then we arrive at the inference that there is fire in the hill. Keith points out that this value of the conception of inference as a mental process is enforced in minute detail by the Nyāya school. From another point of view, stress is laid on the fact that the subject, the minor term must be something.

*66 'The Nyāya Theory of Knowledge' by S.C. Chatterjee. Ch.XII
*67 'Indian Logic and Atomism' by E. Keith. P. 113
regarding which there is a desire to establish something else. This desire may be for one's own sake or for the sake of others. Bosanquet also emphasises such a mental activity of inferring as the decisive feature of inference.*68

The conditions of inference have been discussed by modern Western logicians. Russell seems to think that the psychological element, our knowledge of the propositions and their relations, is not a necessary condition of inference. Validity of inference mostly depends on the logical condition of the implication between propositions. He says that we infer one proposition from another in virtue of a relation between two propositions 'whether we perceive it or not'. The mind, in fact, is as purely receptive in inference as common sense supposes to be in perception of sensible objects.*69 But, W.E. Johnson and Miss Stebbing have recognised both the psychological and logical conditions of inference. Logical conditions consist of the relation between the propositions. They are called 'the constitutive conditions'. The psychological conditions have been called 'the epistemic conditions' of inference. They refer to the relation of the propositions to what the thinker may happen to know.*70 Earlier in the chapter, Johnson says that inference is a mental process which, as such, has to be contrasted with

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*68 'Logic' by Bosanquet. Ch. VII
*69 'Principles of Mathematics' by Russell. P. 35
*70 'Logic' by W.E. Johnson. Part II. P. 8.
implication. The connection between the mental act of inference and the relation of implication is analogous to that between assertion and proposition. Miss Stebbing also shows that inference involves both the constitutive and epistemic conditions. The epistemic conditions relate to what the thinker who is inferring knows.  

The question regarding the special cause of inference, 'karaṇa' that brings about the conclusion in inference has been discussed by Indian logicians. According to the Buddhists, the Jainas and some Nyāyaśīkās it is the knowledge of the 'liṅga', the middle term that leads to the conclusion. The middle term known as such is to be taken as the 'karaṇa' or operative cause of inference. R.S. Woodworth says that reasoning very often depends on the use of the middle term. The Mimamsakas and the Vedantins believe that the knowledge of 'vyāpti' is a cause of inference. According to them the knowledge of the universal relation between the major term and the minor term is received in our mind when we see the 'liṅga' of the middle term as related to the 'pakṣa' or the minor term. This leads to the conclusion. But according to the modern Nyāyaśīkās 'liṅga' or the middle term cannot be the operative cause of inference. It cannot lead to the conclusion except through the knowledge of 'vyāpti'. Hence,  

*71 'Modern Introduction to Logic' by Miss Stebbing. P.215. 
*72 'Psychology' - A study of mental life by R.S. Woodworth, P.605.
they say that the knowledge of ‘vyāpti’ should be taken as a special cause, ‘karana’, of inference. However, ‘vyāpti’ does not directly lead to the conclusion. It has for its function the synthetic view of the middle term as related to the major term on the one hand and to the minor term on the other hand. This is ‘liṅga paramārṣa’. In this, the middle term is considered thrice. Hence, it is maintained by the modern the Naiyāyikas that while the knowledge of the ‘vyāpti’ is a special cause of inference, ‘liṅga paramārṣa’ is the immediate cause of the conclusion. Some modern Naiyāyikas, in fact, say that ‘liṅga paramārṣa’ is the operative cause of the conclusion. Bradley’s analysis of inference presents a similar picture. The premises or the data and the process of inference consist in joining them into a whole by ideal construction.*73 However, as Chatterjee points out, ‘liṅga paramārṣa’ is not an essential condition of all inference although it may make an inference most cogent and convincing.*74 In the case of inference for oneself, we do not require more than the major and the minor premises to arrive at the conclusion. There is a natural transition of thought from the premises to the conclusion. In the case of inference for others, we have to state the identity of the middle term occurring in the two premises and exhibited in the third premises which relates the same middle term to the minor and the major term.

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Thus, it is generally agreed that inference is a mental process, and the validity of inference is based on psychological and logical grounds. The validity of inference depends on the knowledge of the universal relation between the major term and the middle term. It is also based on the perception of the relation between the middle term and the minor term. Perception of the minor term as related to the middle term and the recollection of the universal relation between the major term and the middle term lead to the conclusion of the relation between the minor term and the major term. This is the picture of the psychological ground of inference as presented by the Jaina and other Indian philosophers. McDougall showed that all deductive reasoning involves apperceptive synthesis, although it is merely association. It is a process of 'mediate apperception'. In fact, he says, all types of reasoning are processes of 'mediate apperception'. They all make use of the 'middle term', and this use of the 'middle term' is the sole and essential feature of reasoning, in which it differs from other mental processes.

Structure of Syllogism:

All systems of Indian philosophy agree in holding that syllogism represents the typical form of expressing inference for others. However, logicians are not agreed as to the number of propositions constituted in the syllogism. The propositions

*75 'Outline of Psychology' by William McDougall. P.410 & 413.
are called 'avayayas'. Some logicians say that there are ten propositions in the syllogism. For instance, according to the old Naiyāyikas and also according to some Jaina logicians like Bhadrabāha a syllogism consists of ten propositions. But Vātsyāyana states that all the ten members of the syllogism are not logically necessary, although they may express the psychological process of inference. Logicians generally agree that a syllogism has five members. Goutama mentioned five members of the syllogism as: (i) 'pratijñā' is the first statement or an assertion of what is to be proved. For instance, the hill is fiery is the 'pratijñā'. It sets forth the thesis of enquiry. The suggestion presented controls the process of inference from the very start. (ii) The second preposition is the 'hetu'. It states the presence of the middle term. It gives the ground, 'sādhana' or the means of truth. For instance, it states 'dhūmāt' because of smoke. (iii) The third member of the syllogism 'udāharana' states the universal relation between the major term and the middle term and it gives examples in support of its contention. It is a combination of both the deductive and the inductive processes. It may be compared to Aristotle's major premise with the establishment of the universal proposition by means of examples. It presents an inductive process in stating examples. Dr. Seal writes that the third member of the syllogism combines and harmonises Mill's view of the major premise as a brief memorandum of like instances already observed with the Aristotelian view of it as a universal proposition as a formal
ground of induction.\textsuperscript{76} (iv) The fourth proposition 'upanaya' is the application of a universal proposition with its examples to the subject for the minor term of the inference. It may be called the minor premise of the syllogism. This may be affirmative or negative. (v) The fifth member of the syllogism, 'nigamana' is the conclusion. It states, "therefore the hill is on fire". What is provisionally presented in the 'pratijñā' is finally accepted in the conclusion. The Sāṃkhya and the Vaiśeṣika systems accept the five membered syllogism. But, the Mīmāṃsakas and the Vedāntins do not accept the five membered syllogism. According to them, a syllogism does not require more than three members to carry conviction to any. The two essential conditions of valid inference are the 'vyāpti' and the 'pakṣa dharmatā', the presence of the middle term and the minor term. Therefore, they contend, the three propositions would be sufficient to give full force to the syllogistic inference. The three propositions may be the first three like 'pratijñā', 'hetu' and 'udāharana' or they may be the last three like 'udāharana' 'upanaya' and 'the nigamana'. The Buddhists go further than the Mīmāṃsakas and reduce the syllogism to two propositions only. This is analogous to the enthymeme in the Western logic.

Among the Jaina logicians Shadrabāku seems to be in favour of ten membered syllogisms as we have mentioned earlier.

\textsuperscript{76} 'Positive Science of the Ancient Hindus' by Dr. Seal, P.252.
In his *Avasvaka Nirvutki* he describes the ten propositions constituting a syllogism. They are constituted by the 'pratijñā', 'hetu' and their 'vibhakti' and 'vipakṣa'. Similarly 'ākāṅka' and 'ākāṅka pratiṣedha' form the constituent propositions in such a syllogism. Radhakrishnan says that Bhadrabahu here adopts the double method of proof. When a reasoning is put forward, for instance, to prove the non-eternity of the sound, the counter-proposition is asserted and denied by means of the statement.\(^7\)

However, Bhadrabahu says that the number of the propositions in a syllogism depends on the calibre of the person to whom it is addressed. Accordingly it may be ten-membered syllogism or five-membered syllogism. Both these alternatives need not be rejected. 'We reject neither'.\(^8\) In the *Pramāṇa-mīmāṃsa*, Hemacandra describes the nature of the five propositions constituting a syllogism.\(^9\) Bhadrabahu's contention that the extent of the constituent propositions depends on the ability of the person to whom it is addressed has a great psychological importance. It implies that the inference is limited by the capacity of the individual's understanding the argument presented. Siddhasena Divākara mentions five members in a syllogism. However, Dasgupta says that regarding inference, the Jainas hold that it is not necessary to have five propositions in a syllogism. It is only

\(^{77}\) *Indian Philosophy* by S. Radhakrishnan, Vol. I, P. 81.

\(^{78}\) *Daśabākālikī-Nirvutki* 50. As quoted in *Pramāṇa-mīmāṃsa* I 9.

\(^{79}\) *Pramāṇa-mīmāṃsa* Book II. 1 to 15.
the first two propositions that actually enter into the inferential process. (Prameyakamalamartanda p. 108-109). When we make an inference, we do not proceed through the five propositions. Syllogism consisting of five propositions is rather for explaining the matter to a child than for representing the actual state of the mind in making an inference.

Aristotle's syllogism is a purely formal and deductive form of inference. We have seen that in Indian thought a distinction between deductive and inductive inference is not made. An inference in Indian thought is both formally and materially true. Aristotle's syllogism begins with the major premise, and then it proceeds to apply the universal proposition to a particular case. According to the Jainas and also in all Indian thought, we first get the 'pratijña' or the statement of the assertion to be proved. From the psychological point of view, we do not, in fact, proceed in the way of Aristotle. We do not begin with the universal proposition and then apply the universal proposition to a particular case unless it is to be a deliberate form of reasoning presented formally. It would be psychologically correct to say that we first begin by stating what is to be proved, and then find reasons to prove them. Aristotle's syllogism has more of a logical status than a psychological one. W.E. Johnson says that it is commonly supposed that the premises are the

*80 *History of Indian Philosophy* by Dasgupta. Vol.1. P.185.
propositions first presented in thought, and that the transition from these to the thought of the conclusion is the last step in the process. 'But, in fact, the reverse is usually the case, that is to say, we first entertain in thought the proposition that is technically called the conclusion and then proceed to seek for other propositions which would justify us in asserting it. A conclusion may on the one hand, first present itself to us as potentially assertible, in which case the mental process of inference consists in transforming what was potentially assertible into a proposition actually asserted.'

*81 'Logic' by W.E. Johnson. Part II. Ch. I. P. 1 & 2.