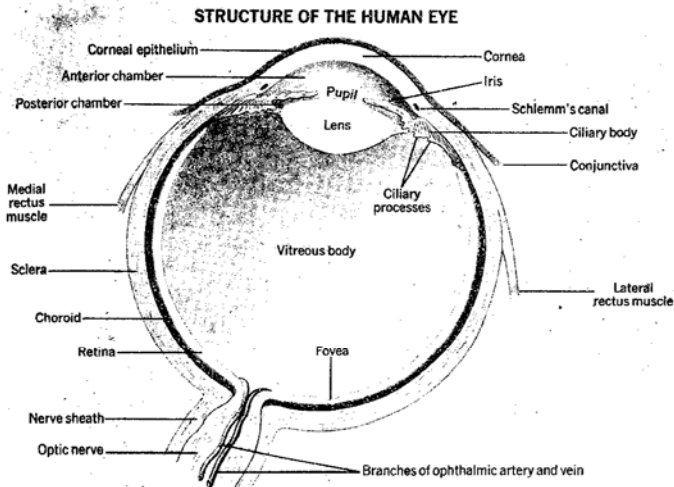


CHAPTER 3

EYE AND FACE

3.1. Structure and Function of Human Eye

The eye is a very important organ by the use of which we acquire knowledge about our environment. The objects around us reflect and/or emit light in our environment and with the help of our eyes we recreate the world around us using this light. The human eye is, indeed, an integral part and an outgrowth of our forebrain. The following diagram gives an outline of the anatomical structure of human eye.



The light-sensitive layer of the human eye is found deeper in the body. Light reaches this layer through a transparent cornea. Retina receives the light and converts it into chemical energy. The nerves are activated by the chemical energy and they conduct the messages received to the higher regions of the brain. Retina is an outgrowth of the forebrain and has a very complex nervous structure. There are four main layers involved in the conduct of messages received. The pigment epithelium has the function of secreting aqueous humour. Beneath the epithelium is the layer of rods and cones. These are the light sensitive cells. The layer of neurons, that is, nerve cells, receive the changes induced in the rods and cones by light. The layer of neurons consists of bipolar cells, similar to the sensory neurons that carry messages from the touch and heat receptors of the skin and transmit them to the cells of the spinal cord or the medulla. The transmission process is the same as in other parts of the nervous system. The messages are initiated in one element and are transmitted or relayed to others via synapses. As we all know, medulla is the part of the brain that is a continuation of the spinal cord. The bipolar cells are connected with the innermost layer of neurons, namely, the ganglion cells. The transmitted messages are carried out of the eye through the optic nerve fibres. The optic nerve is a central tract, not simply a nerve. It connects two regions of the nervous system, namely, the layer of bipolar cells, and the cells of the lateral geniculate body. The geniculate body is, indeed, a visual relay station in the rear portion of the forebrain. Some of the optic nerve fibres separate from the mainstream and reach the mid brain centre, called the pretectal nucleus. This nucleus is a relay centre for pupillary responses to light.

The retina is composed of three different areas: the fovea, the macula and the peripheral region. The fovea is in the centre of the retina. It is, indeed, a small circular pit, where light has an almost unrestricted passage to the light-sensitive cells. This part of the retina is employed for accurate vision, enabling individuals to see sharply very, very small objects as well. The eyes are directed towards the objects in such a way that their images fall in this restricted region for accurate vision. Macula surrounds fovea. Macula is an oval, yellow body of colour sensitive cells. The macular vision is not as clear and sharp as foveal vision, but much clearer and sharper than the peripheral vision. Macula vision is employed for reading and similar activities. The vision in the peripheral region is not sharp and clear, but perception of movements is easily carried out. Movement is exaggerated in the peripheral vision. The vision is coarse. Strait edges, and alternate black and white bands are noticed in this region. The optical system produces an inverted image of the visual field on the retina and the system behaves as a convex lens. The eyes are not stationary; they are stationary just for a fraction of a second. The eye movements may be made under voluntary control or as reflexes. Most of the actual movements of the eyes are carried out without ourselves being aware of such movements. These movements are in response to movements of the head or the rest of the body, and reflex responses. Since only fovea, which is a small portion of the retina, is generally employed for distinct and accurate vision, the muscles that carry out adjustable movements for accurate vision are under voluntary control. The eye movements are of three types, namely, the irregular movements of a very high frequent nature, flicks and slow irregular drifts. All the three movements are essential for an image to be registered in the

central nervous system. In other words, the non-stationary nature of human eye is conditioned/governed by the underlying neurological structure of human eye. What is most important for us is to remember that this nonstationary nature of human eye helps identify objects as stationary and captures the movement of objects.

The aperture in the iris, pupil, restricts the quantum of light entering the eye. There is light reflex in the pupil. Also dilation of pupil occurs as a result of strong physical stimuli. Dilation is generally associated with fear and pain. Researches indicate that the dilation of the pupil may be involved also in other psychically induced acts.

The foveal look is the look of attention and pointed focus, one of seriousness and thoughtful look in terms of nonverbal communication in many societies. Attentiveness is measured or identified and associated with looks involving fovea. The looks involving macula are generally taken for the looks of wonder, astonishment and of anger; this is also associated with wakefulness. The macula look is the look of wide eyes. The employment of peripheral regions of the eyes signifies that the look is one of a secretive nature, performed stealthily and/or shared between individuals in a fleeting moment. It is also a look intended to take stock of the situation and to make secretive assessments. Further investigation in these lines will benefit from a study of the eye in art and sculpture.

A few evolutionary facts as regards human eye are in order just to illustrate the importance of the functions of eyes in human communication. Vision was the latest sense to evolve among the species. Hall (1969) suggests that there is a general

relationship between the evolutionary age of the receptor system (olfaction, hearing, smell, touch and vision) and the amount and quality of information each of the receptor systems conveys to the central nervous system. There is a parallel here between the spoken and written forms of language. Spoken language was there before written language, that is, written language is the last to evolve, but it has greater sweep than the spoken word. Of the components of eye, the fovea was the most recently developed part in the evolution of eye. It is found in birds and in anthropoid apes. Clarity of vision as well as reality of vision in the sense of ability to identify sharply the contours and colours, thus, is an ability acquired very late in the evolutionary process of eye. As already pointed out, purposive, serious and thoughtful looks, looks of deliberations, are associated with the quality of looks facilitated by fovea, in nonverbal communication contexts. There appears to be a hierarchy between the peripheral, macular and foveal visions, which ultimately came to be associated with/assigned differential functions both in anatomically controlled performance and socially guided performance.

The living organisms reveal and exhibit different types of "eyes". Some "eyes" gather and give only information that light is present or absent. The "eyes" of some other organisms gather and give information as to the direction from which light is coming. They may also indicate the relative intensities of light from different directions. The "eyes" of some organisms may form images of objects "seen" and give information about the shape of objects. The eyes of some organisms, in addition, give information as to how far away the object is, how fast it is moving and what colours it emits or reflects. Also note that the "eyes" of some organisms are so developed that

they specialize, among various features, on one particular feature and excel all other organisms in that particular feature. 'It seems nearly impossible to think of a practical means of photoreception that has not appeared in one group or another, or in more than one. And yet the theoretical best or the perfect eye has never been achieved. All fall decidedly short of the ability to gather all the information that light can convey' (Hall, 1969).

Just as there is variety in the quality of information as regards light received and consequently the images of objects conveyed, there is also variety found among the organisms in the part of the body used as "eye". In the organisms which do not have the differentiation of cell and organ, which have only a body undivided into cells, the body as a whole may act as the "eye". In some a light sensitive spot in the body may have been developed. In some of these single-celled organisms, there may even be lense-like refractive sensitive spot. In the multicelled organisms, light sensitive cells may be scattered all over; the cells may be localized in a spot as well. The "eye" varies in size, number, shape and position -- flat plates, groves, basins, or bubblelike vesicles. These "eyes" may be turned towards the incoming light, away from it or be at an angle to it. The number of light sensitive cells, the layers of these cells and the quality of functions performed by these cells may also vary greatly. These may or may not be accompanied by light concentrating cells. Also similar parts of the apparatus may arise in different ways in different groups. The image forming eyes of several organisms including humans are also of different types. Image forming eyes gather information about incoming light and also about the objects from which the light comes. Image forming eyes are

found in animals with great anatomical complexity. Image formation requires highly differentiated parts as well as complicated activity. Furthermore, for image formation to proceed smoothly and effectively and to be of any use to an organism, the organism needs to have matching or near matching complexity of other functional parts as well. Structural level of the organism and its way of life seem to have determined the emergence and quality of image formation.

The image forming eyes also are of different types, using different optical principles: lens, pinhole, and multiple tubes. Some examples are the use of lens in humans, pinhole in the chambered nautilus and the multiple tubes in flies. It is also possible that the concave reflector optical facility may have been used in some species extinct now. Lenses can gather light and form images but lenses might have started with the function of gathering light only.

The importance of vision for gathering, processing and expressing information cannot be exaggerated. Firstly, the richness of the optic nerve in terms of the number of neurons it contains is a sure indication of the importance the vision is given in the scheme of things. The optic nerve contains several times as many neurons as the cochlear nerve. Also more information is gathered via vision than via other senses. However, note that vision does not merely consist in "seeing" but in understanding and interpretation. Seeing, understanding and interpretation involve not merely the process of seeing via the physical eye but also a linkage between other sense organs on the one hand and the socially motivated information on the other. In fact, the retinal images are converted into images of world, governed and modulated by information from other senses

as well as social and cultural norms and interpersonal necessities of communication. There can be, indeed, a lot of distinction between the retinal image and what one makes out of this retinal image in real world communicative contexts so much so that the real world image could even negate and fail to see, and recognize the existence of the image as provided by retina.

In humans, apart from the biological functions, the eye performs several physical and social functions as well. The eye identifies universal physical perspectives of the terrain. It is inextricably involved in all communication processes at all levels. It gathers information, conveys information, communicates information and also interprets the information. In the context of Sapir--Whorf hypothesis, it becomes a tool for the use of language as well. Man identifies men and materials around him, near and far, with the help of his eyes. He is able to move around, avoid obstacles and danger, and he negotiates different sorts of terrain with the help of his eyes. He is able to design and use tools, make displays and receive information as regards emotions, etc., with the help of his eyes. His eyes *gather* as well as *convey* information. Just as eyes convey information at the interpersonal level, they convey information at the social and cultural levels also. The eyes are regulated in their operations by social norms and language. As Hall (1969) points out, man learns while he sees and what he learns influences what he sees. This makes for greater adaptability and enables him to exploit past experience.

3.2. Eye and Religion

Communication via eye plays a very crucial role in ritual and other religious/mystic experiences. In the Hindu pantheon of gods, Siva is endowed

with three eyes, and Indra has eyes all over his body. While the provision in the former signifies power, the provision in the latter signifies knowledge of everything around. Vishnu's eyes are half-closed in the sleeping posture but they are wide awake within, aware of and regulating every object and phenomenon in all the worlds. Eyes play crucial role in the worship of folk deities as well. In essence, study of the functions of eye in religious and mystic practices gives us an insight into the role eye plays in nonverbal communication in the secular, social, cultural and interpersonal levels also. This is so because, at least in Hindu religious practices, one notices the replication of behaviour found in secular social levels. Study of nonverbal communication modes via eye in the religious practices also provides us with explanations for certain nonverbal behaviour activities in the secular social levels. Furthermore study of nonverbal behaviour in religious practices, insofar as ancient and recorded religions are concerned, becomes a clear illustration of nonverbal behaviour studies initiated by and based on literary and other texts.

An excellent study of role and function of eye in religious practices is the one by Gonda (1969). This study is text-based and presents many insights not only into the practices recorded in the Vedas, but also into the nonverbal communication practices prescribed in the Vedas and generally practised by priests and others over thousands of years. Many practices continue even today at the religious level, while several others have been absorbed into conduct in the secular social realm. Gonda's analysis covers a large number of texts, not included or treated in any chronological order; the analysis notes down the practices, interprets the words, phrases and sentences involved in the framework of contexts of such words, phrases

and sentences, and brings out a long list of activities that revolved around eye and gaze. A world view of the ancient man in India as found in the Vedas vis-a-vis nonverbal behaviour via eye and gaze is the result. Thus, the purpose of text-based analysis of nonverbal behaviour is to interpret the texts correctly on the one hand and on the other to cull out information to build up a coherent picture of the world view then present. In order to achieve this purpose, Gonda takes note of information as regards the use of other senses as well.

Gonda's study finds that, in ancient India, the language of the eyes must have been more advanced -- eye as a communicative medium is referred to in many poems and other works of literary art. Expression of emotion by the eyes attracts special notices in dramatic works also. At the religious level too eyes are seen as 'a means of expressing feelings, of imposing silence, of signifying content or satisfaction, of expressing will, love or reverence, a means also of participating in the essence and nature of the person or object looked at'. Eye -- its glance, gaze, any meaningful contact by means of eye -- plays a role in different rites of Vedic religion. The eye, here, serves a variety of purposes. The texts prescribe various kinds of significance. The significance of types of looks was understood and special value was attached to correct performance.

The act of seeing is regarded as a sign of life. Eye power represents the power of the whole person. Vedic texts reveal that ancient Indians assumed the existence of a relation between the form of the eye and a man's character. A blood-red eye signifies evil and is characteristic of angry and wicked people, barbarians, demons and awesome gods. A wide eye may point to a concentration

of vitality and wakefulness. Fixation of eyes is often feared. Also the glances of heavy souled people or mighty men who have the power to affect others injuriously.

Vedic rites reveal that a conscious, directed look is an obligatory preliminary of mental contact and psychical process. In most Indian societies people address each other looking at one another. The man in need looks up at another to obtain a favour from him or to enter into a friendly relation with him. This usage must have been in existence for very long and has been adopted in ritual attempts to achieve a similar purpose. In the ritual sphere keeping the eyes fixed upon a person means more than politeness. It serves to transfer the powerful purport of a text to the person who is aimed at by the person reciting it. The effect of a destructive act in the ritual sphere is enhanced when it is accompanied by a look directed towards the object which must be struck.

A look is consciously regarded as a form of contact. This is clear from the combination of "looking" and "touching". Casting one's eyes upon a person and touching him are regarded as related activities. The equivalence of the sight of a thing or event and other modes of direct contact is suggested in the Vedas. The texts appear to treat the fact of looking at an object as a means of entering into contact with the properties of that object or with the powers or conceptions which that object stands for. Accordingly, from the point of view of Vedas, no essential difference between looking and touching seems to be recognized (note that this approach is found in texts of many other religions as well). Looking is indeed regarded as practically identical to touch and grasping. Prajāpati, the lord of

offspring, is considered to be able to impregnate women by his mere look.

Next, a combination of look and an appropriate prescribed *mantra* achieves a definite effect, according to Vedic religious practices. In the performance of marriage rites, some authorities ask the bridegroom to make the bride look at the pole star (*dhruva*), the star Arundhati and the seven seers. While looking at them, the bride is required to address them in the following manner. "You are *dhruva*, firm, immovable, constant, steadfast and the pole star. Let me be firm in the house of my husband". For Arundhati, the bride is required to say "May I be held fast by my husband". The fixed regard helps to transfer part of the power, which is on the strength of the names believed to be inherent in these celestial bodies, to the young woman who is speaking.

The deliberate look cast in a ritual context has several functions. A major function of looking in a Vedic rite is its replication role. A look in a rite may be a replica of mythical event and thus becomes a remembrancer in Steiner's sense (Steiner, 1972). In searching for Agni one must look at the lump of clay. This lump of clay is something which is used for making fire pans through the hollow part of an ant-hill. The ant-hill is identified with the earth. Earth signifies all the worlds. And gods searched for Agni in all the worlds. Thus, there is a chain of remembrances and at the end of all abstraction is the original mythological event. In addition to what has been listed above, a deliberate look cast in a ritual context can bring to life in the minds of the performers of rites the original mythological context and shower on the performers the attendant benefits of the original mythological context. The remembrance is initiated by the deliberately

cast look. By looking intentionally at an object which a god had, in mythological times, seen or regarded first, one becomes able to repeat a divine act of power: The man who looks at the sacrificial butter knowing Indra's exemplary act will prosper and conquer his enemies.

Vedic texts suggest that looking attentively or meaningfully is not only a physical but also a psychical process. A close association between mind and eye is revealed in the observations in Vedic texts. At the same time, the texts also recognize the difference between mere physical sight and understanding with the mind. The combination of eye and ear is also emphasized. What is important is the suggestion that a gaze on an object accompanied by a formula could result in the object acquiring that quality. Note also that the close relation between the directed looks and formulae may lead to their interchangeability.

The ritual texts prescribe a conscious and directed look so as to enable the spectator to derive some advantage from looking on a mighty being or event, 'to participate in its nature or essence, to be purified or raised to a higher level of existence by being vis-a-vis with such a man or deity or by witnessing such an event'. Belief in the beneficial results of visual contact has led to a variety of ritual practices. One such practice is the ritual instruction to cast a glance on the sacrificial butter. Religious instruction and initiation are also done by the eye contact. In Saiva Siddhanta, the guru liberates his disciples from the soul's delusion controlling the discipline by his eye contact with the disciple.

Darśan (sight) is a very important institution -- darśana of the image of god has the purificatory and sanctifying power. Darśana of a holy man or an

eminent person has the potential to lead one to participate in the high qualities of the exalted personage. Not only the man but also objects belonging to him could be objects of worship by darṣana. Even if one does not participate in all the steps of worship performed in a temple, darṣana of the deity, sight of the deity, is more than adequate to have a salutary effect on the devotee. Darṣana is to be restricted to only worthy persons. Thus, there is the obligation to place a screen before the image of Visnu so that unworthy persons may not see the worship while it is performed.

Visual restriction is found in other spheres of religious import as well. The men of high rank should not be seen eating or drinking by those in the lower social scale. There is fear of the evil eye; the eyes of those in the lower social scale would pollute the meal of persons of high rank. It is also prescribed that objects of value should be protected against the envious or inimical looks of the evil-eyed one. The evil eye could not only be envious but also angry or furious, giving offensive meaningful look. Some specified definite persons can cause injurious effects by their look, even without themselves being aware of the effects. In a similar manner, the look of a king or some other mighty being will bring esteem and be considered a token of favour. Such looks also counteract evil, danger and injustice.

Looking into a direction, looking up and looking at are all common in the rites. Looking into a direction is a means of coming into contact with the powers residing there. Men believe in turning to gods or other beings to seek help in straitened circumstances. This implies looking at the gods. To look up is another form of bestowing respect of those looked upon. Likewise the gods are beseeched by the devotees to look down upon

them from above to bestow blessings by their glances. Indra is expected to bestow his benefits upon the devotees by directing a benign look towards them. We obtain every good thing in life as a consequence of Lakshmi's glance. It is easy for us to obtain health, strength, happiness, etc., if Lakshmi directs her gaze towards us. The glance or gaze of a malevolent god or goddess creates all kinds of obstacles in our career.

Brahma has four heads each looking in different directions. He is all seeing that way. Gods and men of divinity are believed to possess an extraordinary potent visual organ. The super normal eyes help gods and gifted men to have foresight, and uncommon and exceptional experiences. These eyes inspire, excite and bring out the thought which takes the shape of hymns or formulas of great potency. The demons also have extraordinary keen sight. The eyes of the gods keep watch over us and guard us against all evil. Agni is called the eye of gods and men and is considered the first divine power. This pre-eminent place assigned to Agni is in consonance with the guiding function of the eye in the body.

3.3. Eye and Nonverbal Communication : Literature

The eye conveys nonverbal information and receives and interprets the same. This process, as already pointed out, has several levels: the level of anatomical facilitation and constraints, the physical perspectives more or less universal (Gibson, 1950) and seen through the human eye, the social, cultural and linguistic regulation of the process of seeing by the eye, and the interpersonal norms and interpretation of nonverbal communication through the eye. Literature, a creation of man's mind and civilization, gives us excellent descriptions of nonverbal behaviour

and to this mine we have already referred. We understand through literature how we all see in interactions. In literature we find that all the aspects of the human eye are dealt with. For example, *Tirukkural*, a Tamil poetic work of early Christian era, dealing with, broadly speaking, *dharma*, economics, love and married life, often makes references to the information conveyed by the human eye under various contexts. It makes references to the anatomy and physiology of the human eye when it describes the shape and size of the human eye in metaphorical terms relating these features to the shape and size of objects such as flowers, spears, etc., in the external world. It also discusses and gives description of the facilitating and constraining influences of human eye in perceiving things. The highest level of its concerns relates, however, to the ultimate values attached to eye by man and society.

In *Tirukkural*, use of eye for communication is portrayed more frequently in the sections dealing with love between man and woman. Of the different types of seeing, glance takes the pride of place. In fact, in the portrayal of communication via eye between man and woman who are in love, the emphasis is not on seeing, but on the avoidance of seeing one another straight, face to face. Avoidance of looking at the lover in public, and looking at him when he does not look, all indicate the love the woman has for the man whom she loves. Those who are secretly in love with one another hide their love from others by looking at each other as enemies. Also the eyes of those who are secretly in love with one another look at each other as if they were strangers. That words are of no use when the eyes reveal the love for one another is also recognized. That is, eyes express certain matters better than words. It is also recognized that whereas mind can travel

to places far beyond, the eye cannot. The glance of the girl one is secretly in love with is death personified (since the glance kills the man, takes away his life). The eye of the girl one is secretly in love with is compared to flowers, moon, fish and stars on assumed similarity in shape and quality. The power of the eye is derived from its beauty. Stealing glances is a major part of revealing one's love. Again, the glance of the girl one is secretly in love with performs two functions simultaneously. Sleeplessness, to be lying wide awake without even a wink is yet another form of nonverbal communication to indicate the intense feelings caused by separation. It is the eye that leads one to fall in love and it is the same eye that bears the brunt of suffering caused by separation -- sleeplessness, crying, anxiety, restlessness. It is the eye that reveals one's suffering caused by love, in spite of the girl's effort to hide the suffering. Eyes communicate the lovers' physical state and mental suffering caused by love. It is the eye that craves to see the lover. When the girl sees her lover, all her suffering leaves her on its own. It is the eye that gives hope to the lover. It is the secret glance that consoles. And then, one is unable to see the fault of the lover when he is present just as one is unable to see the object clearly when it is closest to the eye.

In spheres of life other than love between man and woman also reference to eye as a communicating tool is often made. There cannot be any sign better than tears that reveal the love locked in. Numeracy and literacy are the two eyes that the human beings (should) have. It is only the educated who should be considered as having eyes. All others have nothing but two wounds in their faces. The purpose of having eyes is to have mercy/love for other beings. For the king the two eyes are the intelligence services and the

authoritative books on state-craft. A chief characteristic that a spy should have is a fearless gaze. Also a major function of the eye is to retrieve the implicit meaning in a communicative event. Man's intelligence is dependent on his eyes. Eye is also associated with valour.

In essence, the literary works consider eye as a carrier and communicator of emotions. Eyes are seen engaged in revealing, hiding and giving misleading information. They abet and are linked with other body parts in the communication process. The literary works transfer the role and function of the human eye from the physical and earthly interpersonal planes to the plane of high moral values, prescribed in a society, as their ultimate function. The eyes are metaphorically extended to highlight abstract moral values/skills on the one hand and to earthly objects in terms of their size, shape and quality on the other.

3.4. Eye and Nonverbal Communication : Proverbs

Tamil proverbs focus their attention on the structure and function of the human eye at least on ten different aspects: (i) Need for cultivating precaution through a diligent use of eye symbolizing prediction of what will happen is emphasized. (ii) That it is difficult, rather impossible, for one to find fault with oneself is also emphasized by metaphorical extension of one's inability to see what is in one's eye. (iii) Eye is to be used as a diligent guide and instrument for one's proper mobility in the physical world and for one's proper conduct in the society. (iv) The eyes are employed to hide the information as well as to reveal the hidden feelings and information. (v) Eyes are compared with objects and beings to highlight the importance, the essential nature and the leadership and guardianship qualities of these objects and

beings. (vi) Eyes reveal the anxiety, disappointment, affection, intelligence, valour and cunning. (vii) Pre-tension is practised with or without success through the manipulation of eyes. (viii) The ever-shifting eye shows a measure of speech with which speed of events and objects are measured. The ever-shifting eye also symbolizes the shifting qualities of human nature. (ix) Also the eye is used as a measure of beauty -- 'beauty that cannot be contained in eyes' is one way of describing the exquisiteness of objects, events and individuals. (x) In general the size and shape of the eyes are compared favourably with objects, such as flowers, stars, fish, etc. (xi) Eyes reveal jealousy, greed, anxiety and anger. Eyes reveal love and affection. Eyes, indeed, reveal everything one has in his/her mind. (xii) Eyes reveal the status one has.

Proverbs in all the Indian languages give out information such as the above. What is most revealing is the similarity in ideas on as well as functions of the human eye found in religious texts, literary works and in proverbs. All these focus upon the evil and good aspects of glance, social functions of the human look and the values attached to various looks in different kinds of relations.

3.5. Eye and Nonverbal Communication : Sculpture

Eyes play a part in early Indian sculpture in revealing the emotions portrayed by an image -- 'the drowsy eyes of a somnolent crocodile, and the grim look of the bulldog, rendered in so annoyingly charming a manner form part of the perfection in the portrayal of the anatomical features in Harappan art' (Sivaramamurti, 1961). This cannot be said for sculpture in historical periods. For reasons see below. Most of the Indian sculpture do not portray/exhibit pupil of the eye. This

is more so when divine beings are portrayed. If one looks only at the eyes of the images, most of the images appear to be emotion-less, with a sort of nonchalance, a blissful, carefree and indifferent look because of nonportrayal of the pupil. Since the pupil is not carved, there are certain constraints imposed on the use of eye as a communicator. The peripheral side glance indicating directions of look is not portrayable directly since the pupil is not carved. Also the emotions cannot be directly portrayed for the same. The pupil-less eye leads on to the look of nonchalance, etc., mentioned above. However, the emotions are conveyed not through the eyes but through the posture of the body or bodies involved, the pose of the eyelids, supported by other facial expressions and also through other suggestive designs including the story and conventions that are expected to be the basis of interpretation and portrayal of the sculpture. In other words, interpretation and portrayal of emotions in the sculpture are made possible by episodes and by other suggestions in the sculpture, and not by eyes in most cases.

Perhaps there is some greater truth and validity in what is said, since in real life as well there are cases wherein eye alone cannot express all the emotional denotations and connotations for certain emotions. That is, certain emotions are expressed in a joint manner by all the parts of the face, body posture, overall linguistic and non-linguistic contexts with perhaps eyes taking a lead role, while certain other emotions can be independently expressed by the human eye. For the latter category, the pupil and pupillary movement are essential. Since these are not provided for in the traditional Indian sculpture in most cases, nonverbal communication via the eyes in the sculpture depends on other means indicated above.

In spite of all the above conditions, it is still possible to have a categorization of looks in the sculpture based on open, half open and closed eye variables. We find in some cases the categorization can be made on the basis of provision or lack of provision for the pupil. It is also our surmise that when Indian sculpture began to portray images of real human beings, such as kings, poets, etc., and when it began to release itself from the Buddhistic faces of humans, the pupil began to appear in the carvings of images of kings, dancers, etc. From the perfect body and perfect and emotionless eyes of the gods and even humans, we go to a portrayal of human bodies and eyes indicating real age of the person portrayed and the emotion intended to be exhibited through eyes, eyelids, pupil-position, etc.

3.6. Eye and Nonverbal Communication : Social Factors

Proxemics is directly related to social institutions in Indian contexts while at the same time it is also important for the interpersonal relations outside the pale of social institutions. Neither vision nor eye is directly related to the same extent to or is exploited by the social institutions. However, there are certain phenomena which could be considered as falling within social institutions. Superior status of the person addressed is indicated in certain Tamil castes by speakers not looking at the addressee. Respect is shown to the individual addressed in this manner. The individuals shown this respect may be close relatives, (males-in-law elder to the speaker), individuals of higher socioeconomic status and employers. This form of communication posture is resorted to more by womenfolk. This posture is achieved by looking away from the individual addressed, including looking down on the ground in case the

person addressed stands face to face. While this form of communication is generally adopted to show respect, there are also certain religious injunctions that proscribe looks of individuals of lower castes upon superiors and on food and other objects offered to the deities. Sometimes these members of the so-called lower castes are also proscribed from seeing the idols/objects of worship. To carry out the above it is conjoined upon the members of the so-called upper castes to conduct themselves and their religious acts in such a way that the members of the so-called lower castes would have no opportunity to cross the proscribed limits of vision and space. Note that, in this, social behaviour expected from the members of some so-called upper castes and lower castes, proxemics of vision plays a crucial role. Also note that in the social plane, as explained above, nonverbal communication via eye is nonverbal communication negating or proscribing the use of vision. At the level of religious practices also, proscribing vision is often practised. For instance, on certain occasions of *abhishekams* a cloth curtain is raised between the idol and the devotees. The priests will be performing special pujas behind the curtain. Sometimes the Ganesha image made up of clay and kept and worshipped at home on the day of *Vinayaka Chaturthi* is taken out and disposed of in the river or in the well without others seeing the image. The image is generally taken out by individuals covering the image with a towel/cloth and is thrown into the river or well. Note also that after performing certain religious rites one is asked to proceed straight without looking back. Here also vision is proscribed. Casting of the evil eye is another familiar notion. Again, here one is expected to protect himself or herself by not giving any opportunity to others to see what one has or does. Thus in many cases at the social level

vision is proscribed; proscription and adherence to proscription come to communicate.

3.7. Eye and Nonverbal Communication : The Interpersonal Plane

(i) Various Types of Looks

The vision or look between individuals engaged in communication is of several types, namely, one sided look, face gaze, eye gaze, mutual look, eye contact, gaze avoidance and gaze omission (von Cranach, 1971). One sided look is the gaze by one person in the direction of another's face. Face gaze is directing of one person's gaze at another's face. Eye gaze is directing of one person's gaze at another's eyes. Two persons gaze at each other's face in mutual look. In eye contact, two persons look into each other's eyes and are aware of each other's eye gaze. Avoidance of another's gaze is called gaze avoidance. Failure to look at another without intention to avoid contact is gaze omission.

In general, eye plays very many roles in the communication processes between individuals. Eyes signal communication as well as communication avoidance. They also provide information and feedback which regulate speech between individuals. Eyes perform monitoring, regulatory and expressive functions in interactions between individuals. 'Monitoring occurs when the speaker looks at the listener for cues on which to base his future behaviour, such as at the end of long utterances (to see if the listener wants to speak) or at the end of phrases (to ensure that he is being followed). A speaker can regulate conversation with his eyes by looking away (to maintain the floor) or by giving the listener a prolonged look at the end of his utterance to signal that a response is desired' (Kendon, 1967). Eyes serve

to initiate and terminate social interaction. As part of their expressive functions the eyes express likes and dislikes, reveal the status of individuals in the contact situation, and become the vehicle of expression for several categories of emotions.

Each of the seven types of looks listed above has several communicative functions. Both gaze avoidance, which is deliberate avoidance of another's eye gaze, and gaze omission, which is failure to look at another without intention to avoid contact, indicate either a desire not to communicate or an unreadiness to communicate. In the case of gaze omission, the individual who fails to look at another is not even aware of the presence of the other individual. Omission is not deliberate in the sense that the individual who fails to look at another does not plan the omission; it comes to him naturally, either by cultivation as a means to exhibit one's status or through sheer sloppiness. Gaze avoidance, on the other hand, may be indicative of loss of self esteem and/or guilt on the part the individual who avoids looking at others; it may be also indicative of emotional arousal and/or the condition of being emotionally upset. Another reason for gaze avoidance could be the dislike the individual has for the other whom he avoids to look at. Sorrow or fear could be another reason for gaze avoidance. Communication of submission is yet another function of gaze avoidance. In all these there is a common thread of some negative value running all through. It also appears that both gaze avoidance and gaze omission seem to exhibit and/or are based, in some not so clear sense, on social norms and values than the other types of looks. That is, while other types of looks could be more or less guided by interpersonal relations without involving social values, gaze avoidance and gaze omission, however, do become vehicles of expression of these values and norms.

In the mutual look, two persons gaze at each other's face and this imitates as well as maintains speech. During the course of interaction, each looks at the other for a particular length of time. 'For how long at a time each looks at the other depends upon the dyad'. The status of individuals involved, the emotional attachment the individuals have for one another, the sex of the individuals, the urgency and importance of the matter conveyed verbally or nonverbally, the emotional conditions of the individuals at the time the exchange takes place are some of the important variables that govern the frequency of mutual look as well as the length of time of the mutual look. For example, the person who assumes a lesser status in age, sex (female generally in Indian contexts) or in socio-economic and political terms strive his/her best to maintain the mutual look for a considerable length of time whereas the person assuming a superior status is at liberty to maintain it or not. Mutual look is demanded when instructions are to be given by the person assuming a superior status. Since the person assuming a superior status is at liberty to discontinue the mutual look at his will, the frequency and facility with which the mutual look is converted to one sided, fixed look on the part of the other individual acts as a measure of status for the individual who refuses to maintain the mutual look posture. Mutual look is also demanded when attention is to be paid to the content of communication. Mutual look helps secret communication between individuals. The length of time of mutual look and the frequency of mutual look are then dependent upon the nature of content communicated. In many cases just a mutual glance is enough to communicate confirmation or negation of a matter shared by the individuals looking at each other. In several others mutual look at infrequent or regular intervals is resorted to. Thus, while investigating the role and function

of mutual look we have to distinguish between mutual looks that are ordinarily and naturally exchanged between individuals engaged in face to face communication which has the primary function of initiating and maintaining speech as well as creating empathy between the individuals while giving supportive props for what is conveyed by speech, on the one hand, and the various types of mutual looks that carry values over and above the former functions. It is also necessary to identify as to whether the mutual looks are employed for secretive communication. Mutual look may also be employed for assessing each other.

The distinction between mutual look and eye contact is one of duration. Eye contact is the initial phase of mutual look. Two persons look into each other's eyes and are aware of each other's gaze. The gaze in eye contact changes into mutual look once the contacts are established and when the gaze is exploited by more regular and established exchanges. The eye contact has the function of recognition, conveys the feeling of anticipation, may begin a secret communication between the persons in eye contact, can indicate the agreement and consent between the individuals. It can also reveal mutual interest and can arouse emotions, and further cement inwardly the inter-personal relations.

Eye gaze which is the directing of one person's gaze at another's eyes is one of concealment, or a deliberate or a genuine failure to recognize the other. Such an eye gaze is generally found in the beginning of an encounter which very soon gets transformed into mutual look, eye contact, gaze avoidance or gaze omission, in the course of the interaction. When compared with face gaze, which is directing of one's gaze at another's face, eye gaze is indulged in if one is interested

in pursuing a path of some sort of interaction with the other individual. In other words, the face gaze generally takes place earlier than eye gaze. Also note that one sided look may precede face gaze. All the three -- one sided look, face gaze, and eye gaze -- described in this manner are generally relevant in encounters between individuals who are not, or may be a little, familiar with one another. When two individuals (who are familiar with one another) encounter one another for purposeful interaction, one sided look, face gaze and eye gaze take on different functions. Very often under the latter conditions, the one sided look aims at assessing the other's reactions and/or arousing intended emotions in the other. The one sided look could also instigate and accelerate decisions in the other's mind. It gives or rather creates, under certain conditions/contents, some trust in the other as well. But the one sided look is engaged in for a very brief span only, although it could be applied at regular intervals to accelerate the ends desired. The face and eye gaze, however, are signals of indecision, distress, negative feelings and noninvolvement. It is, indeed, difficult to say whether any hierarchy between the two in terms either of order of occurrence or of importance can be set up.

(ii) Functions of Looks

We have already given, or rather indicated, certain functions and processes while discussing above the types of looks. In what follows here we look at the functions again and identify the inter-relationships between looks in terms of their functions. We must first of all recognize that a single visual act may have a number of functions. The same visual act may function as an act of observation, while at the same time performing functions of inspection, act of concealment,

act of distraction and so on. Apart from the functions of monitoring, regulatory and expressive roles, gaze has, as already pointed out, the function of indicating the readiness to communicate. All these may be considered as the function of visual behaviour in relation to or in support of verbal communication.

Another function of visual behaviour is its facilitation of interpersonal influence and control. Very often visual acts reveal, establish and regulate interpersonal relationship, especially interpersonal attraction. We have a tendency to approach persons who look at us as opposed to those who look away. In this, the liking - looking relationship is involved. As we saw earlier, literature adds an interesting dimension to the relationship between looking behaviour and interpersonal attraction, namely, gaze aversion of a different sort. The woman in love avoids the face-to-face, eye-to-eye gaze with the man she is in love with, but only momentarily, for she comes back to him with a gaze in the next moment. Gaze avoidance which certainly exhibits functions of guilt, concealment and so on, has here the function of asserting one's love and attraction for the other, when the same is converted into rather a game of gaze aversion. This particular form of visual behaviour clearly shows how a form of visual behaviour can have several, even conflicting, functions.

Apart from attraction and aversion functions, visual behaviour may also be used to reveal and strengthen or eliminate the power or status relationship. For example, gaze is related to perceived power or status or dominance. More a person is looked at by other group members, the more he feels valued and the greater his own and other's ratings of his power. It may also be used to erode the established power or status relationship and

establish newer power or status relationships. We have already indicated how this is carried out in some contexts. Gaze omission, among other things, clearly includes assumed and/or recognized status. Ordinary language expressions abound in every language to indicate this. When a person attains a higher status it is commonly expected of him that he would have eyes only for certain people and things and not for others. He has the choice to see what he wants and this, many a time, comes so naturally to him that its initial phase of cultivation is surely forgotten in course of time and the attitude becomes natural to him in some sense. An individual is shown his/her place by gaze omission engaged in by the one who assumes a superior status. When a man becomes a pauper or puts on poor dress, nobody looks at him. A poor relation is not recognized. Gaze omission also is employed to show the anger an individual has for another. Even here, higher status, at least for the moment, is assumed by the individual who is angry and who indulges in gaze omission.

Another function of visual behaviour is arousal of awareness in the individual being looked at. Under this comes the special category of staring, against which in most societies there is a strong social norm in interpersonal interactions. However, in the worship of folk deities (Thirumalai, 1983), staring is one form of "coercing" the deity to grant what the devotee wants from the deity. It is also used as a means to get into a trance in the worship of folk deities. Violation of the social norms against staring has several significant, very violent, consequences for intra- and interpersonal behaviour. It generally leads on to challenge and quarrel, wordy and/or physical, especially when the subject of staring by a male is a mixed couple/female. Also by staring, one induces

conformity in the subject being stared at. In the animal kingdom, 'one of the most frequently reported components of agonistic or threat displays in primates is a steady, direct gaze at the object of aggression. Typically it occurs as a prelude to attack or as a substitute for it depending upon the reaction of the other animal. This reaction is usually flight, a submissive display, a return gaze, or a combination of these elements' (Hall, 1969). Note that 'staring is not necessarily perceived as a threatening signal, and does not automatically elicit flight'. While a stare has the initial function of arousal in one who is being stared at, ultimately it takes on the function and means of establishing the status relationships among individuals staring at one another.

This study of staring takes us to the next related function of visual behaviour, namely, the effect of being observed. This is the function of visual behaviour as perceived or attributed by the person who is being subjected to the visual behaviour of another. When an individual looks at us, we start attributing certain characteristics to that individual based on the types of looks that emanate from that individual. These characteristics we attribute to the individual, based on our assumption of personality traits, moods, reactions, or attitudes exhibited by that individual through various types of looks emanating from him. Thus, the visual behaviour of the one who looks at gives out as much information to us about the one who is looking at us as his look tends to take in. But in both the processes subjective assessment instigated by personality factors as well as social norms play a crucial role. A person who looks is ultimately looked at and judged for his personality and motives, etc., based on the very look which initiates the visual conversation.

Intimacy and such other contents are also conveyed via looks. In a meeting, a high eye contact from a listener makes a speaker think that he is listened to with attention and then the situation becomes pleasant and intimate to him (the speaker). This is caused also by physical proximity, topic intimacy, and facial behaviours such as smiling. However, note that this intimacy as revealed by frequent eye contact is like a double edged weapon -- it could lead to discomfort as well. Discomfort would induce shifting of looks. However, when intimacy causes an increase in liking, the increase in looking also occurs.

While a major function of the eye is to see all and reveal all, another major function of the human eye is concealment. The concealment process can be looked at in several ways. One type of concealment is total as the successful concealment of emotions and information. Another type of concealment is concealment intended for purposeful and accentuated revelation. In the second category concealment is a means to reveal whereas in the former concealment is for real concealment. Under the first category the eyes conceal truth to express falsehood. Also under the same category there is the concealment of falsehood to protect another. In both these sub-categories, however, the concealment is done with the help of other parts of the body including face and with the help of general behavioural patterns. Some of these are as follows: distraction by way of changing the subject; when the subject matter that may reveal what is hidden from the addressee is dealt with, a different aspect, not the aspect that might lead on to the matter concealed, of the same subject is focussed on; the person who tries to conceal may leave the place abruptly or in a non-suspicious manner; the individual puts on an innocent look (clear eye, plain eye,

with an indifferent posture). Also note that successful concealment depends on trust and credibility of speakers as well as the motives and exploratory skills of the listener. Concealment failure is due to failure of the eyes -- the eyes give away. This giving away may be effected in several different ways: mere empty looks, fearful looks, shifty looks, through accessories of eyes, such as tears, winks, through accessories of body parts, through emotional expression in conjunction with facial expressions and through lack of coordination between eyes and words. Also note that frequent glances exhibited by the one already suspected, coupled with distance of avoidance, presumed or real, will lead to judgement of unreliability.

The effect of social proximity on visual behaviour also reveals the constraints imposed on visual behaviour by social factors and their facilitative influence. Two persons, apparently equal, exchange eye contact frequently to express their assessment of the third person who is present and who may or may not be socially inferior to them. Again we see that social proximity and frequent personal contacts do induce more communication via eye. Another point that one notices is that the superior does not always look at the inferior, whereas the inferior is expected to have his/her look fixed on the superior. Social proximity among men and women, however, does not lead on to more frequent visual contacts than the quantum and frequency of contacts generally noticed, unless there is also a personal element that binds the man and the woman in the interaction. Very often we may look at each other's ears, shoulders, or adjacent areas during interaction. Also when two individuals are seen exchanging glances more frequently, the observers assume that these individuals like one another and are intimate. Thus, gaze also provides important

cues for making inferences about the relationship among individuals. Prolonged one sided looks by a female to a male suggests a long relationship whereas the same behaviour by a male to another male is taken to mean the opposite. Females appear to believe that frequent sympathetic looks indicate affection. They appear to consider frequent, longer duration and reciprocal eye contact cues as revealing positive relationship. Sex differences are found more in nonverbal communication than in communication via language in all communities. This is so because there is a heavy influence of social norms of conduct on nonverbal communication behaviour. In a way nonverbal communication becomes an instrument of social norms and structure. Among nonverbal conduct, differences in the use and interpretation of the use of eye is found more between sexes. Already we have referred to several differences in functions of visual behaviour between men and women. One general finding is that women engage themselves in more general looking. Sex differences also appear to be generally consistent across age. Females wish to see their partners while speaking. Adolescent girls' adjustments towards males find, both in proxemics and visual behaviour, appropriate socialization processes.

3.8. Approaches to the Study of Visual Behaviour

Experimental investigations, theoretical models based on experimental investigations as well as reason and observation, biological approaches, anthropological investigations, literary and other text-based studies are the major approaches to the study of visual behaviour. The Argyle-Dean affiliative conflict theory is a good model of a balanced blend of experimental investigations and intuitive theorization. The theory suggests that approach and avoidance forces operate to determine

the occurrence, frequency, and quality of eye contact. Affiliative need and a desire and urge for visual feedback operate as approach forces. Avoidance seems to be based on fear of being seen and of revealing one's inner feelings. Eye contact generally serves the following functions: information seeking, signalling that the channel is open, concealment and exhibitionism and establishment and recognition of social relationships (Argyle and Dean, 1965). Experimental investigations cover very many situations of interpersonal and group contacts. The findings all converge on certain basic patterns. But these basic patterns differ from one group of investigators to another group of investigators. For example, while the Argyle-Dean affiliative conflict theory emphasizes the role of approach and avoidance in communication via human eye, several other investigators focus on the retrieval of personality factors revolving around the use of eye as a communicative means (Mehrabian, 1971; Anastasi, 1958). Another focus has been on the relationship between visual behaviour, liking, status and power. Yet another focus is on the proxemic characteristics of communication via eye. Pupillary movements in relation to personal choice of objects and the processes of decision making form another level of experimental investigations. However, the relationship between eye and language use has not yet attracted the attention of experimental investigators.

Study of biological bases and/or constraints of visual behaviour forms another major approach. We have already referred to the position of Hall (1969) in section 3.1. Hall points out that the structure of eye may impose certain constraints and/or facilitate certain angles of viewing. Attempts are also made to identify the biological bases of visual behaviour through researches on direction of gaze. Researches are undertaken to study the

direction of gaze and brain functioning. The relationship between right handedness and eye movements is also investigated. Right handers solving verbal problems look to the right. They look to the left when solving numerical and spatial problems. Left handers are more equal in the frequencies of their eye movements. Pupillary movements are also investigated; the facilitating and constraining factors are identified.

Relationship between proxemics and use of eye for communication marks the major focus of investigations based on anthropological approaches. Social-cultural influences in the use of eye are another dimension of these studies. There is a close linkage between anthropological approaches and the literary and text-based studies of nonverbal communication via eye. At times, it is, indeed, difficult to distinguish between the two.

3.9. Face and Nonverbal Communication : What is Face?

Face is a very important area and channel of nonverbal communication. More than any other body part, face instantaneously communicates, and readily reveals and exhibits the emotional states. The interpersonal attitudes and relations are more clearly established on the face. Face is the first part of the body that one looks at. Face is defined as the front part of the head, from the forehead to the chin. While this definition refers to the anatomical area of face, the use of the word referring to face in many languages refers to several other extended concepts. The word for face is used to refer to a look or expression on the anatomical area defined above, to refer to an expression or look which indicates ridicule, disgust, etc., grimace, boldness, impudence, outward appearance, outward show or pretence,

good reputation, dignity, and prestige. It also indicates the amount specified in a bill or note, exclusive of interest, the manifest sense or express terms as a document, the geographic characteristics or general appearance of a land surface, the surface, the side or part of a side upon which the use of a thing depends, the most important or most frequently seen side, front, the acting, sticking or working surface of an implement, tool, etc., geometrically any one of the bounding surfaces of a solid figure, in mining the front or end of a drift or excavation, where the material is or was mined, in printing the working surface of a type, of a plate, etc., the general style or appearance of type, any of the outer plane surfaces of a crystal, when confronted with, entrance, gate, and so on. The word *face* thus covers a great many meanings with extended values. However, there are, indeed, not many words to describe different facial behaviours, although the expressions one could put on the face are countless. The words used to describe facial expressions include smile, frown, furrow, squint, etc. Facial muscles must be viewed as very complex based on the countless expressions shown on the face. These countless facial expressions can occur one after another in quick succession and in so many different patterns. Lastly, the importance of face is derived also from the fact that quite a lot of information is conveyed by face in a very short span of time. The variety of information is also very wide.

The parts of the face and the movements of the parts of the face that are involved in the nonverbal communication are as follows:

- 1) Lip movements,
- 2) -Lifting/shrinking the cheeks,
- 3) Nose and its movements,
- 4) Eye brows and their movements,

- 5) Eye lids and their movements,
- 6) Chin shaking,
- 7) Opening, closing and various other postures of mouth,
- 8) Yawning,
- 9) Manipulation of face with the help of other body parts,
- 10) Overall face,
- 11) Tears,
- 12) Smile (a clearly distinct behaviour-based involvement of specified parts of face),
- 13) Moustache,
- 14) Ornamentation of face,
- 15) Forehead, and
- 16) Ornamentation of the head including head-gear and hairdos.

Although one could identify various parts of the face, as we have done above, it is indeed difficult to identify with any exactitude the functions of various components that constitute face. For certain parts of the face, for example, we may be able to assign specific functions/roles in facial expressions. However, in most cases, all the parts of face combine with one another to give a total effect of the expression intended. Yet, that one could differentially show emotions, in a simultaneous fashion on the face, has been demonstrated in theatrical performances and in sculpture. That is, for different uses of the potential, different parts of the face are there and the potential has been visualized. But the exploitation of this potential does not seem to have been linked with any interpersonal or social institution in societies. Even the experimental investigations have not proceeded very far. There are, however, only a few component studies. This is due probably to the difficulty in deciding what to measure in the face. One could view and focus on separate areas of the face -- forehead, eyelids, cheeks,

nose, etc., and come to definite conclusions in regard to some emotions. At the same time, for a fuller comprehension of the emotion exhibited it is the total face that should be studied. While each area of the face can theoretically distinguish among emotions, and for this there is evidence in the sayings of ordinary language, caution should be exercised if one wants to base his studies on the assumption that there is one movement in one facial area for each emotion. The sayings in the ordinary language, which assign one emotion in a specified manner to one particular area of the face, act as a tag to label the emotion and assign it to the most involved area of the face in the production and exhibition of that particular emotion. Once a reference to that particular area of face is mentioned, convention brings to our memory a chain of activities that are anchored on to that particular area of face in the communicative convention of our society. And this accentuates our understanding of the situation. Thus, the ultimate aim of linking an area of the face with specified emotion or emotions in the utterances of ordinary language, is to aid communication, and not to focus or establish the area of the face as *the* place of origin and exhibition of that particular emotion. It is clear from our own observations that for a single emotion there may be several attendant areas of the face and movements. And yet, as already pointed out, one could perhaps do research more profitably, if one persists on quantifying such information, by assuming that the facial areas may differ in terms of their relative involvements of affect-specific components and nonaffective movements. The brows and forehead are more specifically involved in certain types of emotions. Generally speaking, convention as obtained through the sayings in the ordinary language and naturalistic observations of areas of face involved in emotions indicate that fear

and sadness are best produced by and judged from the eyes and eyelids area. A combination of cheeks, mouth, eyes, and eyelids reveals happiness. Surprise is identified in brows and forehead more clearly. Surprise is identified also in eyes and eyelids as well as the combination of cheeks and mouth. Note that there is a certain amount of social hierarchy involved in the choice of the above combinations. Also note that the instantaneousness and the intensity of the event that surprises one will also influence the course of choice of the particular combinations. As for anger the entire face seems to be involved: cheeks, mouth, brows and forehead areas, and eyes and eyelid areas in some proportion of involvement. All these areas are invariably seen involved in the expressions of the emotion of anger.

3.10. Relationship Between Face and Eye

Facial expressions are clearly related to expressions via eye. Face is the most important part of the "face to face" bodily encounters. The expressions on face are retrieved and comprehended via eye, and the facial expressions depend on the support of the expression via eye. Smile is among many expressions that depend not only on facial parts, such as lips, mouth and cheeks, but also on the expression given out by eyes. In a way facial expressions communicated via facial parts other than eye and the expressions communicated via the eye are independent as well as inter-dependent.

3.11. Face and Emotions

A major item of expression via face is the expression of emotions, so much so that most of us fail to recognize that face is used to express other contents as well. Facial expressions of

emotions are very specific in the sense that there are specific conventions for their interpretation. Since the face is the primary site of our emotions in human interaction, we are tempted to believe that facial expressions may be an inner characteristic of man, cutting across cultures. There are several layers that we should consider. First of all we must identify the underlying neurophysical processes. Emotions are believed to be the work of three inter-related components, namely, neural activity, striate muscle or facial-postural activity and subjective experience. The feedback provided by the facial muscle contractions reveals the immediate experience of emotion. The subjective experience leads on to complex proprioceptive patterns in the neural mechanisms which arouse the diffuse hypothalamic -- cortical system while the sensorimotor area in the cortex is excited through specific tactile and proprioceptive facial receptors. Neural activity and subsequent processes in human brain are yet poorly understood. But one fact remains clear -- whatever may be the neural activities, there is modulation of these activities at the social level.

In modern psychologically-oriented empirical researches of emotions and consequent nonverbal communication, generally speaking, a three-tier organization is presumed: feelings, emotions and physical manifestations of emotions. In traditional description and analysis of nonverbal expressions, for example, in traditional Tamil grammars, a two-tier organization is generally assumed: emotions which lend themselves or lead on to their manifest physical expression as opposed to emotions which do not. The grammar, however, includes both in its purview. The latter (the emotions that do not manifest themselves in physical expressions) are generally classified and brought under the former. A pride of place in the former goes

to the set which covers the manifest facial expressions. The ancient Tamil grammar *Tolkāppiyam* of pre-Christian era gives eight bodily expressions and takes them either as the basis or as mnemonic tags for other nonverbal expressions. The emotions that are generally revealed through facial expressions are laughter (smile, cheerfulness, delight; contemptuous laughter, grin, etc.), astonishment and wonder, pride and arrogance, (and joy out of pride and arrogance, as well as consciousness of one's own greatness), pathetic sentiments (crying, weeping, agony look, etc.), fear, tread and terror, emotion of disgust, disgrace and ridicule, anger, and joy, gladness, delight, and sentiment of love and fondness. Also there are other manifest physical expressions on face identified as relating to man and woman relationships. These include perspiration, dreamy helplessness, shivering and blushing. There is an implicit recognition that the emotions are countless in number and likewise their manifest physical expressions can also be numerous. The same manifest physical expression may be employed for more than one emotion.

In the Sanskritic tradition as well face finds a place of pride in the list of emotions that have a manifest physical expression. For example, Bharata (500 B.C.?) lists the following eight *rasas* which are expressed mainly through facial expressions: erotic, heroic, pathetic, comic, ferocious, fearful, repulsive and wonderful emotions.

Unlike in the traditional Tamil grammar, the system of classification of parts of the face and assignation of differential emotions to different parts of the face, in the Sanskritic tradition, is rather elaborate. Bharata Muni recognizes that the emotions are conveyed mainly via face. He classifies the gestures into three kinds, namely, gestures of the limbs, gestures of the face and

gestures related to different movements of the entire body (**Nāṭyaśāstra** Chapter VIII, verse 9, translation by Ghosh, 1967). The facial gestures are dealt with under the gestures exhibited by minor limbs, namely, eyes, eyeballs, eyelids, eyebrows, nose, lower lip, chin, cheeks, mouth, and colour of the face. Each one of these parts is further classified into various kinds and each one of these kinds is assumed to be a means to express one or more emotions. For example, Bharata Muni suggests that there are six kinds of cheeks: depressed cheeks (cheeks are fallen), blown cheeks (cheeks are raised), full cheeks (cheeks are expanded), trembling cheeks (cheeks are throbbing), contracted cheeks (cheeks are narrowed down) and natural cheeks. Each of these has its own use in expressing emotions. The depressed cheek is used in sorrow, the blown cheek is used in joy, the full cheek in energy and arrogance, trembling cheek in anger and joy, contracted cheek in sensitive touch, cold, fear and fever and natural cheek in the remaining conditions (**Nāṭyaśāstra** Chapter VIII and verses 132 and 137, translation by Ghosh, 1967). While in the Tamil tradition, the approach seems to have been to identify the basic emotions and their physical manifestations but not the specification of sites, (since it is assumed that the same site could be used for several emotions and that an emotion could be expressed via several sites), in the Sanskrit tradition, the approach is to link individual emotions to particular sites in the face. Note that this assignation of site is one of overlapping nature. For, in the same site, different emotions may be shown. Also the same emotion may be expressed in different sites.

Modern research on facial expressions revolves around certain questions: Definition of what we mean by emotion; the validity of categories or dimensions of emotions, such as pleasantness, anger,

pride and so on; the question of correctly identifying the emotions on the face so categorized; the question as to whether we could identify specific parts of the face for emotions distinctly categorized; the influence and role of contextual cues in the correct characterization of an emotion observed, and how the "spontaneous" emotions are controlled, regulated and transferred to other media. The research focuses also on as to how one could reach an agreement with the other about the nature and site of emotion observed. If there is no agreement as to what the particular emotion under observation is, comparison across individuals and emotions cannot be carried out. There should be some agreement as regards the meaning of a particular exhibition of an emotion. In this connection, several techniques have been adopted to establish the validity of one's judgement. Photographs of the face are presented to some, and to some photographs of the whole picture along with the social context are presented. The individuals are then asked to identify and mark emotions involved. Another way is to seek expert judgement from individuals engaged in the exploitation of facial expressions. One could also present enacted sequences in still photographs, movie films and video cassettes. These methods are generally resorted to as preliminaries to research. These have resulted in significant but varied information. Often one notices that although there is a wide agreement between individuals in judging the character of emotions exhibited, there is also wide ranging disagreement. The disagreement is traced to the sociocultural milieu of the individuals as well as their personality factors and cognitive abilities. The kind of exposure and the role of emotions in their professional contexts also appear to influence their judgement of what an emotional exhibition signifies. These also influence their ability to recognize and distinguish emotional

states. It appears, however, that positive emotions, emotions such as happiness and surprise, are easier to recognize and distinguish when compared with negative emotions of fear, sadness, anger and disgust.

Modern researches have also led to several classifications of emotions. Osgood (1966) suggests the following as primary referents: Pleasantness (joy and glee versus dread and anxiety), control (annoyance, disgust, contempt, scorn and loathing versus dismay, bewilderment, surprise, amazement and excitement), and activation (sullen anger, rage, disgust, scorn and loathing versus despair, pity, dreamy sadness, boredom, quiet pleasure, complacency and adoration). Ekman, Friesen and Ellsworth (1972) offer a three dimensional framework, namely, pleasant-unpleasant, attention-rejection and sleep-tension (intensity control). They also suggest a set of basic emotions which could not be profitably reduced further. These are happiness, surprise, fear, sadness, anger, disgust-contempt and interest, the seven major primary affect categories. Note that the traditional grammars in Tamil and Sanskrit also adopted the strategy of identifying and listing basic emotions.

There are two schools of thought as regards the notion of universal facial expression. Birdwhistell (1970) argues against the notion of universal facial expression and maintains that all body movement is learned and communicated. Ekman (1972) identifies both universals and culture-bound aspects. Darwin was the first to propose universal facial behaviours for each emotion. Allport (1924), Asch (1952), Tomkins (1962), Izard (1971) and Ekman (1972) wrote in support of this view. Birdwhistell (1970) and LaBarre (1962) argued that facial expressions are culture-bound. Of great interest for us is the theory of Ekman,

since his theory accounts for the intuitively felt universal aspects of facial expression on the one hand and the obvious culture-bound facial expressions on the other. For him different facial behaviours are both universal and culture-bound. Universals occur as a result of the relationship between distinctive movements of the facial muscles and particular emotions, such as happiness, sadness, anger, fear, etc. The cultural differences in facial expressions are due to the fact that the elicitors of particular emotions vary across cultures. Such cultural differences are also due to the fact that there are differences in the rules of socialization which control facial expression in particular social settings. Differences are also due to the fact that the consequences of emotion arousal vary with culture.

Ekman's theory of facial expressions consists of elicitors that evoke the innate facial affect programme which is in turn modified by cultural display rules, resulting in certain behavioural consequences. Elicitors can, in some cases, be unlearned, such as a disgust expression in respect to a bad smell or taste, or surprise expressions to a sudden loud sound or unexpected event. Most elicitors of emotional reactions are learned and a majority are interpersonal in nature and tied to the culture. Though the facial expressions may have the same meaning across cultures, the stimulus that elicits it may differ from culture to culture. 'What is universal in facial expressions of emotion is the particular set of facial muscular movements when a given emotion is elicited'. Ekman posits, as already pointed out, seven primary emotions, namely, happiness, anger, surprise, fear, disgust, sadness, and interest. Each of these is associated with distinct neural effect which are universals. Compare the seven primary emotions with those suggested by the eight primary ones

in both the Tamil and Sanskrit traditions. Ekman also provides for secondary emotions. These secondary emotions are called blends. The blends occur in four ways.

1) They may occur because of a rapid sequence of two primary emotions which to an observer may be perceptually fused into a blend.

2) One area of the face may show one emotion and another part of a second emotion.

3) The right and left sides of the face may show different emotions.

4) A blend can be the muscular movement resulting from activation of primary emotions. The blends help us account for the numerous and countless complex facial expressions of emotions and of emotion words which far exceed the small list of primary emotions.

3.12. Facial Expressions and Context

In real life we always observe others' facial expressions in some situation or other. Hence, the interpretation of facial expressions depends also on the situational contexts. Likewise the situational context is inferred by an observer who is not fully acquainted with the situational contexts he is in, by an interpretation of the facial expressions. Thus, one may investigate as to how much information facial expression provides when the situation is known as well as when the situation is not known. One should also note that the situational context dictates what emotion is judged rather than the person's facial expression. Generally we tend to interpret the judgement as synonymous with the facial expression observed.

Researches focus upon the relationship between emotional expressions on the face and the

accompanying/corresponding verbal texts. If a sad story is presented with a happy face, it is the verbal context that takes over. When a sad face presents a happy story, the sad face influences the appreciation of the happy story. In most conditions, the facial cues are a key to an understanding and interpretation of actually prevalent interpersonal social contexts. Social norms have prescribed facial expressions for various contexts. Failure to adhere either wilfully or unknowingly, leads to confusion on the one hand and penal courses on the other. That is, while in the initial stages the social norms prescribe facial expressions, in the long run the facial expressions come to signify and stand for the social meaning. Ultimately the facial expressions themselves become the social meaning. There is yet another constraint/facility as well. This relates to the kinds and extent of emotions that should be displayed on face. A facial or contextual cue supplies information about emotion to observers as conditioned by the sociocultural milieu and the personality factors of the individuals. Also some emotions are to be accentuated while some may be played down. Thus, face becomes a deliberate mode of nonverbal communication, regulated by context of various sorts.

3.13. Concealment and Transformation of Facial Expression

That facial expression is natural and not cultivated is one of the generally held views. Such naturalness is also sought to be related to the sincerity of heart. It is further assumed that whatever be the force of controlling and restraining circumstances, the true feelings will certainly be revealed by the face. There is a strong belief in all societies that ultimately the face communicates the emotion in an accurate manner when

compared to other modes of communication. Yet it has been found difficult by researchers and observers to identify accurately the emotions expressed. At another level it is also clearly recognized (and the existence and flourishing of dramatic arts is a sure indication of this recognition) that facial expressions can be imitated, and since these can be imitated one could choose facial expressions to meet various ends. In other words, one could conceal one's own emotions and put on some other emotions. Concealment also includes transformation of one emotion to another either deliberately, or warranted and/or instigated by the progress of situations. The facility to conceal and transform emotions indicates to us that there are, indeed, two categories of emotion -- one category consisting of emotions natural in some sense including both the universal and culture-bound aspects of emotions, and another category consisting of emotions deliberated, based on individual motives.

Also note that the purpose of concealment is manifold. Concealment may be due to demands made on individuals by the socialization processes. This comes under the first category of emotions. There could be concealment for purposes of prevarication caused by individual's motives, and the conditions of predicament, etc., in which the individuals are placed. There could be concealment for the sake of self preservation. These and similar types of concealment belong to the second category of emotions listed above. There could also be concealment in both the categories of emotions, the major purpose of which could be accentuated revelation of the intensity of emotions attempted to be concealed.

Revelation through concealment is an area that has been greatly explored in literary arts

including painting and sculpture. But this area has been practically left out in empirical investigations of nonverbal communication. Empirical research tends to look for sites where the concealed information may find an outlet. This is based on the assumption that concealed information is bound to find out an outlet, revelation of what is concealed through certain physical sites. Ekman and Friesen (1969) utilizes the concept of channel capacity to explore the sites of revelation. Channel capacity is defined as the amount of information a communication medium can transmit per unit time. In this regard facial cues are rated highest, then hand, and finally the feet/legs. Ekman and Friesen's hypothesis is that the areas of the body with lower channel capacity are more informative about deception. Specifically then, when a person is deceitful his feet/legs should be the most informative about the affect he conceals, then his hands, and finally his face (Mehrabian, 1972). One is tempted to use these results for finding out "real truth" applying third degree methods, in addition to verbal cross-examination. Some times the so-called "real truth" is identified in this manner; but many a time such applications are misplaced, since cultural factors may intervene and lead on to a misreading of the behaviour of the accused. At another level, one should realize that prevarication and concealment of truth are made possible because of the inherent characteristics of the communicative media, both verbal and nonverbal, on the one hand, and by the determination of individuals to conceal "truth" based on intense motivation. So, a complete dependence, a sole dependence, on the indicators of "truth" should be avoided.

3.14. Social Factors and Facial Expressions

Innocence, cunning, cleverness, foolishness

are all related to facial expressions in most societies. Humility, arrogance, pride, and hatred are also related to facial expressions. Expressions such as "milky face" indicate innocence coupled with tender age. A child's face is viewed as full of innocence and a villain's face is viewed as full of cunning. One distinguishes between a "rural" face from an "urban" one, an "educated" from an "uneducated" face, a "kind" face from a "cruel" one, a merciful and/or blissful face from a plain face, and so on. Matters such as these have not been investigated empirically. They have not been related to structure of the face in objective terms. It will be interesting to list the features of face one considers relevant to characterise the face as one of cunning or innocence or of loving nature, etc., in arriving at values attached to the faces and facial expressions. There appears to be some study of facial muscles, their concentration and movement in addition to the overall organization. Faces and facial expressions also reveal socioeconomic status of individuals involved in face to face communication. These elements are also not empirically identified. We give below certain variables that one considers in judging whether a face is a face of innocence or a face of cunning or hatred, within the context of communication using Tamil.

- 1) Absence of a moustache,
- 2) Age below 20 and above 50,
- 3) Fair complexion,
- 4) The structure of nose,
- 5) The structure of eye,
- 6) Non-deformity, blemishless face,
- 7) Wrinkles on forehead,
- 8) Lustre/glow in the facial skin,
- 9) Smile on lips and eyes,
- 10) Lack of idiosyncratic movements of eye/nose/lips and tongue, and

11) The arrangement of teeth.

These and other features cannot be ordered into a hierarchy. They operate in an interlinking manner simultaneously. The assumed social and economic status as well as the antecedents of the individual whose face is being judged will also influence the assessment.

To conclude, one may point out that the study of face in communication, just as the study of eye in communication, could be looked at from three levels. In the first level we have the study of the structure of face as an anatomical feature. In the second level we can study face from the point of view of the constraints and facilities offered by face as an anatomical unit. At the third level we may investigate the use of face in communication from the social and interpersonal points of view as opposed to its study purely at the individual level. The use of face is constrained and facilitated by socialization processes in every society. In addition the individuals also bring to bear upon the processes of communication their own personal characteristics and styles. Also facial expressions for specified contents could form part of the overall influences in fashions. In addition, facial expressions for a specific content could vary not only from age to age of an individual's life but also across different historical periods. These matters have not yet been investigated in any depth.

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