CHAPTER: 1-INTRODUCTION

Lips are a visible body part at the mouth of many animals including humans. Lips are soft movable and serve as the opening for food intake and in the articulation of sound and speech. Human lips are a tactile sensory organ and can be an erogenous zone when used in the acts of intimacy.

The structure of lip is defined as the upper and lower lips are referred to as the "Labium superius oris" and "Labium inferius oris" respectively. The juncture where the lips meet the surrounding skin of the mouth area is the vermilion border and the typically reddish area within the borders is called the vermilion zone. The vermilion border of the upper lip is known as the cupid bow. The fleshy protuberance located in the center of the upper lip is a tubercle known by various terms including the procheilon, the "tuberculum labii superioris" and the "labial tubercle". The vertical groove extending from the procheilon to the nasal septum is called the philtrum.

The skin of the lip, with three to five cellular layers is very thin compared to typical face skin which has up to 16 layers. With light skin color the lip skin contains fewer melanocytes (cells which produce melanin pigment which give skin its color). Because of this the blood vessels appear through the skin of the lips which leads to their notable red coloring. With darker skin color this effect is less prominent as in this case the skin of the lips contains more melanin and thus is visually darker. The skin of the lip forms the border between the exterior skin of the face and the interior mucous membrane of the inside of the mouth.

The lip skin is not hairy and does not have sweat glands. Therefore it does not have the usual protection layer of sweat and body oils which keep the skin smooth, inhibit pathogens and regulate warmth. For these reasons the lips dry out faster and become chapped more easily.

The lower lip is formed from the mandibular prominence a branch of the first pharyngeal arch. The lower lip covers the anterior body of the mandible. It is lowered by the depressor labii inferiors muscle and the orbicularis oris borders it inferiorly.

The upper lip covers the anterior surface of the body of the maxilla. Its upper half is of usual skin colour and has a depression at its centre directly under the nasal septum called the philtrum which is Latin for lower nose while its lower half is a markedly different red-

coloured skin tone more similar to the color of the inside of the mouth and the term vermillion refers to the coloured portion of either the upper or lower lip.

It is raised by the levator labii superioris and is connected to the lower lip by the thin lining of the lip itself. Thinning of the vermilion of the upper lip and flattening of the philtrum are two of the facial characteristics of fetal alcohol syndrome a lifelong disability caused by the mother's consumption of alcohol during pregnancy.

Cheiloscopy is the study of the furrows or grooves present on the red part or vermilion border of the human lip. Lip prints are made by the impression of wrinkles present on the lips. Identification of lip print plays a major role in any crime investigation. The pattern of wrinkles on the lips has individual characteristics like fingerprints. Cheiloscopy is a forensic investigation technique that deals with identification of humans based on lips traces. In the past decades lip-print studies attracted the attention of many scientists as a new tool for human identification in both civil and criminal issues. The lip crease pattern is on the vermilion border of the lip which is quite mobile and lip prints may vary in appearance according to the pressure direction and method used in making the print. It concludes by enlightening the readers with the fact that the possibilities to use the red part of lips to identify a human being are wider than it is commonly though.

The challenges faced by man in early days to provide the identity of an individual. Identification of humans is prerequisite for personal social and legal reason. The invention of finger print in the past century is the only reliable means of human identification.

In individuals the finger print patterns are distinctive and permanent and hence considered as a tool for identification. The awareness of the advanced techniques in crime detection has alarmed the criminals for taking sufficient precautions like the use of gloves. In such circumstances the identification of criminal using accurate methods like fingerprint analysis fail to establish a positive identity. Thus investigator can rely on adjuvant technique such as Cheiloscopy as supportive evidence.
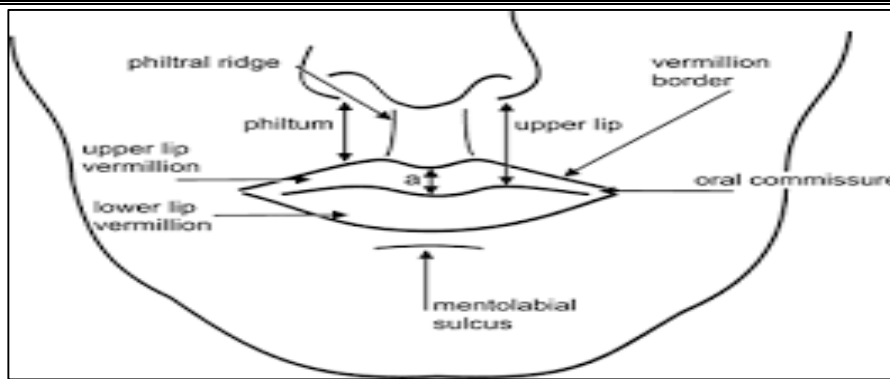
Figure 1: Surface anatomy of the human lips.

The lip prints being uniform throughout the life and characteristics of person can be used to verify the presence or absence of a person from the crime provided there has been consumption of beverages, drinks usage of cloth, tissues or napkin etc. at the crime scene. However, studying in depth and establishing further facts and truth in lip prints will certainly help as useful evidence in forensic dentistry.

Hence lip prints can be used to verify the presence or absence of a person from the crime provided there has been consumption of beverage, drinks, usage of cloth, tissue/napkin etc., at the crime scene. Lip marks can be observed on ordinary drinking glass by an individual even without lipstick being applied. Hence taking lip prints of all the suspected individuals and comparing with any such item found at the scene of crime could give conclusive evidence on the presence/absence of a person and should be admissible in the court.

However, all lip prints are important even the ones that are not visible. In fact this complex process is not restricted to studying visible prints but also the latent ones. The identification of latent print evidence is often considered the key in solving a crime. A group of Spanish investigators has studied these latent lip prints and concluded that they could be studied in a similar way to fingerprints using similar techniques. In fact even when located on "difficult" surfaces (such as porous or multi-coloured ones) latent prints can be easily seen using various dyes such as aluminium powder silver metallic powder, silver nitrate powder, plumb carbonate powder, fat black aniline dye or cobalt oxide.

The present study also aimed to investigate the role of heredity in lip prints. Among lip prints of families studied most of them were seen to have a positive resemblance with their

parents. The resemblance patterns of the offspring with their parents were higher in lower lip when compared to the upper lip.

In 1967 Santos was the first person to classify lip grooves. He divided them in to four types namely:

1. Straight line
2. Curved line
3. Angled line
4. Sine-shaped line

Suzuki and Tsuchihashi, in 1970 devised a classification method of lip prints which follows:

1. Type I: A clear-cut groove running vertically across the lip.
2. Type I: Partial-length groove of Type I.
3. Type II: A Branched groove.
4. Type III: An intersected groove.
5. Type IV: A Reticular pattern
6. Type V: Other patterns.
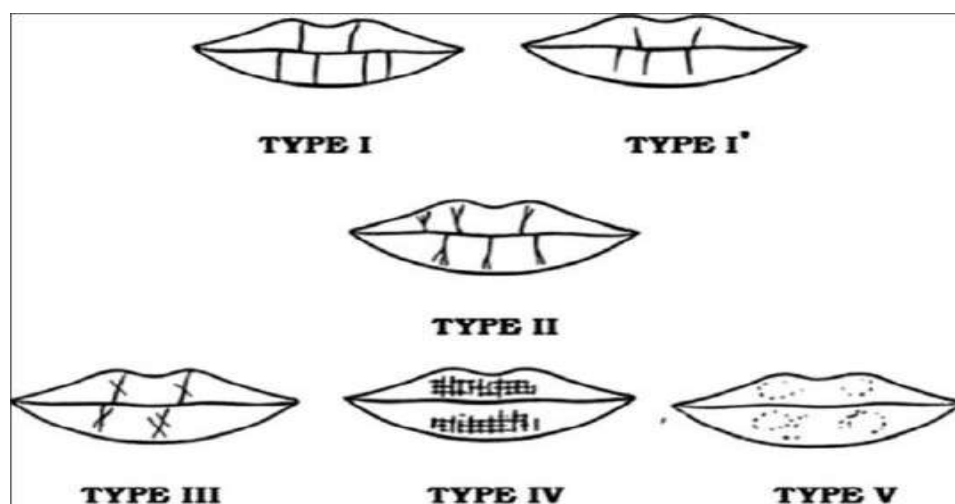
Figure 2:-Types of lip grooves.

LIP PRINT IN CRIME DETECTION:-

In the case of traces, in the shape of strains the identification examination terminates with group identification in their character they are similar to other chemical and biological traces. Along with other traditional method Cheiloscopy can also serve as a very important tool in identification of a person. The uniqueness of lip print needed to be confirmed and accepted.

A standard and uniform procedure has to be developed for the collection, development and recording of lip prints and the ensuring comparison.

LIP PRINTS IN COURT:-

On May 12, 1999, an Illinois appellate court accepted, in people versus Davis, No 2-97-0725, the uncontroverted testimony of two state police expert (a finger print examiner and a questioned document examiner) that:

1. Lip print identification is generally acceptable within the forensic science community as a means of positive identification because it appears in the literature.
2. Lip print identification methodology, although seldom used is very similar to finger print comparison and is known and accepted form of scientific comparison.
3. There is no dissent in the forensic science community with regards to either the methodology used or fact that lip prints provide a positive identification.
4. The Federal Bureau of Investigation (FBI) and the Illinois state police consider that lip prints are unique like finger prints and are positive means of identification.

CHAPTER: 2-LITERATURE REVIEW

Fakir Mohan Debta .et.al (2005) studied Heritability and correlation of lip print, palm print, fingerprint pattern and blood group in twin population. The study group comprised 30 twins and their parents – 15 identical and 15 non identical twins. The age of twins ranged from 15 years to 40 years. Lip print, palm print, fingerprint and blood group were statistically analysed. All the data were subjected to statistical analysis. The identical twins showed more percentage of similarities in comparison to the non identical twins. The inheritance pattern was significant for twins in case of their lip prints while palm prints and finger prints showed no such significance in inheritance pattern whereas there was significant association seen in case of blood groups of identical twins and their parents.

Anju Devi et.al. (2007) studied inheritance analysis and evaluation of lip prints in Individuals. The lip prints of 300 subjects including 25 families were obtained using lipstick. Out of these 300 individuals, 60 were selected for latent lip prints. In order to prevent any intra- and inter-observer variability single observer carried out all the observations. The lip prints were analysed using magnifying lens and were classified using the criteria given by Suzuki and Tsuchihashi. The determination of the pattern in each segment of the lip was based on the numerical superiority of properties of the lines on the fragment. In the present study, most predominant pattern in the entire study population among upper and lower lips considering both males and females was type III lip pattern. Hereditary resemblance was observed between parents and off spring in 37.66%. The latent lip prints were better visualized on microscopic glass slide when compared to stainless steel tumblers.

Yogesh Vats .et.al. (2011) studied Heritability of Lip Print Patterns among North Indian Populations. Various physical and trace evidences allow a range of possibilities to carry out forensic investigations. Fingerprints, DNA profiling, Forensic anthropology are commonly employed in personnel identification, mass disasters, inclusion and exclusion. In spite of existing as a methodology in forensic science Cheiloscopy has not been successfully utilized. The present study deals with the similarity of lip print patterns among parents and children. The total sample size consisted of 1399 individuals in the age group of 8-60 years belonging to Brahmins, Juts and Scheduled castes from Haryana and Delhi. Furthermore 8 monozygotic twin pairs were also taken in the present work. There persists resemblance among parents and Children in their lip print patterns. But no significant association was found in the lip

print patterns among twins. This can be an aid for narrowing down investigations inclusions exclusions and also a basis for genetic and inheritance implications.

Vignesh AV .et.al. (2010) studied Heritability of Lip prints and palmprints among parents and their offspring. The study group comprised of 35 families from India population. Participants belonging to the same family pedigree—Father, mother, children of each family were selected. The predominant lip correlation with right palm pattern, but it is statistically insignificant (p = 0.144). Lip pattern showed neither positive correlation nor significant association with the left palm. This study results revealed significant association between lip print patterns among parents and children (p = 0.04).pattern in the entire study population was Type II. The predominant palm pattern in the entire study population was Category 5 in both right and left palm. Lip pattern shows a positive.

J. Augustine .et.al. (2011) studied Cheiloscopy as an adjunct to forensic identification: a study of 600 individuals .Cheiloscopy deals with examination of system of furrows on the red part of human lips. The present study was undertaken to classify lip prints, study their variations, determine the most common pattern in the study population, evaluate differences in lip prints between males and females and between different age groups, ascertain whether there is any hereditary pattern and thereby investigate their potential role in personal identification. Lip prints of 600 individuals, including 52 families, of ages ranging from 3 to 83 years were obtained using lipstick and two kinds of adhesive tape. The lip prints were analysed using Adobe Photoshop software and classified according to Tsuchihashi classification. Patterns of lip prints occurred in diverse combinations. The patterns were similar between males and females and varied among different age groups. Some hereditary resemblance was observed between parents and offspring. Lip prints have a good potential for use in criminal investigations. They have been used only occasionally despite their frequent occurrence at crime scenes. A place for Cheiloscopy is recommended within the scope of forensic odontology, along with other means of forensic identification.

Renjith George.et.al. (2013) studied inheritance pattern of lip prints among Malay population: a pilot study. Lip prints of 124 individuals from 31 families consisting of father, mother and two childrens were recorded and classified based on Tsuchihashi Classification (1974). 58.06% positive resemblance was found between parents and biological offspring. The highest lip print pattern in the study group was type I (29.84%) and the least was type V (1.61%).

Murnisari Dardjan .et.al.(2015) studied Preliminary Research: Description of Lip Print Patterns in Children and Their Parents among Deutero-Malay Population in Indonesia. The descriptive research used lip samples of 90 individuals including father, mother, and a child who are biologically related and their age ranges from 12 to 60 years old. The samples chosen are from the Deutero-Malay ethnic in Indonesia at least for the past two generation who obeys all the exclusion criteria of this research. Purposive nonrandom sampling method was used to collect samples by photography technique using a digital camera, and the data obtained were then analyses using Adobe Photoshop CS3 software. Grooves and wrinkles of primary quadrants one, three, six, and seven of lips were studied according to Suzuki and Tsuchihashi's classification in 1971. In the present study, it is found that Type I′ (30.28%) is the most dominant lip print pattern and Type II (1.39%) is the least dominant among the Deutero-Malay population. Besides, this study has shown that the similarity of lip print pattern between mother and the child (57.89%) is greater compared to the father and the child (42.22%).

Igor S. Veselinovic .et.al. (2016) studied variation in the population province in Serbia. Lip prints of 211 healthy individuals (107 females and 104 males), residents of Vojvodina Province, Serbia, were analysed and classified using the Suzuki and Tsuchihashi classification. Results. In the studied sample, type II pattern was the most common in both the upper and lower lip, being predominant in 45.85% of the studied samples. It was followed by types III, I, and IV accounting for 31.28%, 15.28% and 4.62%, respectively. The current study are in accordance with the results of previous studies of European populations. The Pearson chi-square test showed a statistically significant difference between the lip print patterns in males and females.

Preeti sharma .et.al. (2018) studied Cheiloscopy the study of lip prints in sex identification. Human identification is a universal process based on scientific principles, mainly involving finger printing. Theory of uniqueness is a strong point used in the analysis of fingerprints to convince the court of law. Likewise, even the lip print is unique of an individual and hence beholds the potential for identification purpose. Thus, lip prints can be used to verify the presence or absence of a person at the scene of crime. The wrinkles and grooves on labial mucosa called as sulci labium form a characteristic pattern called ′lip prints′ and the study of which is referred to as Chieloscopy. The study group comprised of 20 females and 20 males. The materials used were lipstick, bond paper, cellophane tape, a brush for applying the lipstick, and a magnifying lens. This study shows that lip prints are unique to an individual and behold the potential for recognition of the sex of an individual.

S Padmashree .et.al. (2019) studied most and least prevalent lip print pattern. Population can be divided into different ethno-racial groups. In this study, we aimed at finding the most and the least prevalent lip print patterns in these groups and also to observe any similarities or differences that may exist in these groups in terms of lip print patterns. Brown- and pink-coloured lipsticks, cellophane tape, and magnifying lens were used to record and study the lip prints. Among all the three ethno-racial groups, Type I was the most prevalent lip print pattern observed. The least prevalent lip print pattern in all the three groups was Type IV.

CHAPTER: 3-AIM AND OBJECTIVES

AIM:

To determine the similarity of lip prints between parents and their offspring

OBJECTIVE:

- To evaluate the predominant pattern of lips.

CHAPTER: 4-MATERIALS AND METHODOLOGY

METERIALS REQUIRED:-

- Lipstick of baby lip color
- A4 size paper
- Magnifying lens
- Adhesive tape

Figure 3:-lip stick

Figure 4:-adhesive tape

Figure 5:-magnifying lens

METHODS:-

There are two methods were used for collecting the lip print samples. Participants belonging to the same family pedigree - Father, Mother, Children of each family were selected. The study group comprised of 30 families from Kerala population 5 to 70 years of age. The subject was asked to rinse the mouth with water and lips allowed to dry. Dark colour lip stick was applied and the subject was asked to spread it uniformly over the lips. Lip impression was made on a transparent self-adhesive tape by dabbing the glued portion of the tape first in the center and then toward the corner of the lips. Lip prints were traced in the normal rest position of the lips. This lip impression was immediately pasted on a white bond paper. The second method is without the adhesive tape. The subject was asked to rinse the mouth with water and lips allowed to dry. Dark colored lip stick was applied and the subject was asked to spread it uniformly over the lips. Lip impression was made directly on the paper by folding the paper and tabbing the lips on the paper. First in the center and then toward the corner of the lips. Then record the name and age of the individual near to their impression. While studying the lip prints, the subject's lips was analysed with the help of a magnifying lens.

Figure 6:- collection of lip print

CHAPTER 5:- OBSERVATION

Table 1:-sample 1

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	48	I'	I	II	IV	II	IV	III	V
mother	48	IV	V	I	II	I'	I	V	III
Child	12	IV	II	I	II	V	II	III	I'

Table 2:-sample 2

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	60	I'	III	IV	I'	V	III	I	II
mother	53	III	IV	I	II	I'	II	II	IV
Child	22	III	II	IV	I	III	V	II	I

Table 3:- sample 3

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	40	V	IV	I	III	II	I'	II	VI
mother	44	II	I	VI	II	V	IV	III	II
Child	10	III	I'	I	II	III	V	II	III

Table 4:-sample 4

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	42	VI	III	I'	V	I	VI	V	VI
mother	38	V	I	II	VI	II	III	I	V
Child	10	III	IV	I'	VI	II	I	V	III

Table 5:-sample 5

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	59	II	IV	II	I	V	IV	V	III
mother	54	I	II	IV	III	II	I'	I	VI
Child	26	II	III	I'	V	II	V	I	III

Table 6:-sample 6

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	69	I	III	I	II	I'	III	I	V
mother	65	IV	V	II	I	IV	I'	VI	II
Child	30	II	V	IV	II	IV	II	III	I'

Table 7:-sample 7

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	65	III	V	I'	III	IV	V	I'	VI
mother	65	I	II	III	VI	I	II	III	II
Child	25	I	IV	V	II	V	II	I	I

Table 8:-sample 8

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	48	III	II	I	III	V	I	II	V
mother	48	I'	V	II	I'	II	V	I'	IV
Child	12	I'	IV	V	III	II	I	III	II

Table 9:-sample 9

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	44	II	I'	III	V	I'	II	III	V
mother	38	III	V	I	II	III	V	IV	II
Child	15	IV	I'	II	II	V	III	IV	II

Table 10:-sample 10

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	49	II	II	II	I	I'	V	IV	I'
mother	45	III	I'	V	II	III	I	III	V
Child	19	V	IV	III	II	I	I	IV	II

Table 11:-sample 11

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	40	IV	III	II	I'	IV	II	III	IV
mother	39	I'	V	I	IV	III	V	I'	II
Child	12	IV	II	I	V	III	II	IV	V

Table 12:-sample 12

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	39	II	I'	III	V	II	I'	II	III
mother	38	III	I	V	II	IV	III	IV	I
Child	14	V	III	IV	II	V	I'	IV	II

Table 13:- sample 13

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	57	III	V	I	IV	III	V	I'	II
mother	54	I	II	III	I'	IV	II	IV	II
Child	20	V	III	IV	II	IV	V	III	II

Table 14:-sample 14

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	48	V	II	III	II	I'	V	I	V
mother	44	I'	IV	I	V	III	II	III	II
Child	11	III	II	V	IV	III	I	I	II

Table 15:- sample 15

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	66	II	III	V	IV	III	I	III	IV
mother	62	V	IV	I'	II	V	I'	II	I'
Child	28	II	I	I'	III	II	IV	II	V

Table 16:- sample 16

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	70	IV	II	IV	III	I	II	III	V
mother	65	II	I	III	IV	V	III	I	II
Child	29	II	II	V	I'	I	III	II	I'

Table 17:-sample 17

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	36	I	II	III	IV	II	I'	V	II
mother	34	III	V	II	I	IV	II	IV	I'
Child	17	IV	V	I'	IV	I'	II	III	V

Table 18:- sample 18

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	32	I	II	V	II	I'	V	IV	III
mother	32	III	IV	I'	III	IV	II	I	II
Child	9	V	II	III	I	IV	III	I	II

Table 19:- sample 19

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	40	IV	III	I	V	I'	III	II	IV
mother	40	I'	V	II	IV	II	I'	V	I
Child	15	III	I	II	V	III	III	IV	I

Table 20:-sample 20

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	50	II	III	IV	I'	III	III	V	II
mother	49	IV	I	II	III	I	IV	II	V
Child	18	I	I	V	I'	II	I'	II	IV

Table 21:- sample 21

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	48	IV	III	II	IV	V	III	IV	V
mother	44	I'	II	V	I'	II	I	V	II
Child	16	II	V	III	I'	IV	III	I'	II

Table 22:-sample 22

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	66	II	V	I	IV	III	I'	IV	II
mother	65	V	III	IV	II	I'	II	III	IV
Child	30	II	IV	I	V	I'	III	I	IV

Table 23:-sample 23

Relation	Age	URL	UR M	ULM	ULL	LRL	LRM	LLM	LLL
Father	37	III	IV	II	IV	V	II	IV	I'
mother	36	II	I'	I	III	II	I	V	II
Child	9	V	IV	V	III	IV	I	III	V

Table 24:-sample 24

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	43	I	I'	V	I	III	V	I	II
mother	42	IV	III	IV	II	II	I'	II	III
Child	20	I	V	II	I'	II	III	V	III

Table 25:- sample 25

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	IV	I	IV	II	IV	II	IV	V	V
mother	V	I'	III	V	I'	III	I'	II	II
Child	III	II	V	IV	III	II	I'	II	V

Table 26:-sample 26

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	58	II	I'	V	III	I	III	I'	III
mother	56	V	IV	II	IV	II	I'	II	V
Child	22	I	I'	III	IV	V	III	II	IV

Table 27:-sample 27

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	65	II	V	I	II	III	V	IV	II
mother	63	IV	II	V	I'	IV	I	I'	I
Child	25	III	II	I	I'	II	I'	V	III

Table 28:-sample 28

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	48	III	V	II	I	III	IV	II	V
mother	48	I'	III	IV	I'	I	II	I'	II
Child	12	IV	III	V	II	I	IV	III	II

Table 29:-sample 29

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	48	I'	V	III	V	I	I'	III	V
Mother	48	IV	II	I'	II	III	IV	II	I
Child	12	III	I	V	II	I	IV	I'	III

Table 30:-sample 30

Relation	Age	URL	URM	ULM	ULL	LRL	LRM	LLM	LLL
Father	48	V	I	III	IV	III	II	IV	V
Mother	48	II	V	II	I'	II	V	I'	III
Child	12	IV	I'	II	V	III	IV	I'	II

Table 31:-No of similar lip print patterns

No of Family	No of similar pattern in father and child	No of similar pattern in mother and child	Total no of similar pattern in parents and child
1	1	3	4
2	1	2	3
3	2	1	3
4	2	2	4
5	2	2	4
6	2	2	4
7	1	2	3
8	2	2	4
9	1	2	3
10	1	2	3
11	2	2	4
12	1	2	3
13	1	2	3
14	2	2	4
15	1	2	3
16	2	2	4
17	1	2	3
18	1	2	3
19	2	2	4
20	1	2	3
21	1	2	3
22	2	2	4

23	2	2	4
24	1	2	3
25	2	2	4
26	2	2	4
27	1	2	3
28	1	3	4
29	1	2	3
30	1	2	3

Table 32:-Percentage of resemblance of lip print among family members

Relationship		Frequency	Percentage %
Father to child	Resemblance	17	56.66
	Non resemblance	13	43.33
Mother to child	Resemblance	1	3.33
	Non resemblance	2	6.66
Parents to child	Resemblance	16	53.33
	Non resemblance	14	46.67

CHAPTER: 6- RESULT AND CONCLUSION

RESULT:-

Lip print of father and child show positive resemblance of 88.2% while that of mother and child show positive resemblance of 6.6%.And the non resemblance of father and child is 86.6 % while that of mother and child the non resemblance of 13.3%.Lip print of parent and child show positive resemblance of 53.33% and it shown non resemblance of 46.47%

CONCLUSION:-

The predominant lip pattern in the entire study population is Type II and Type V is the least. The significant association between lip print patterns among parents and children are noticed. The lip grooves of offspring is more similar with mother than father. By comparing upper and lower lips more resemblance of lip grooves are shown in lower lips. Further studies with large samples involving more study parameters may lead to the findings of the study.

In the recent years Cheiloscopy has emerged as a pivotal tool for forensic investigations. The present study depicted that there persists similarity of lip print patterns among parents and their offspring. A detailed analysis of different aspects of lip prints should be done. Complete utilization of this evidence can be achieved by standardizing the methods and opining the minimum matching points required, Extensive chemical methods and sophisticated software tools should be developed. Besides all this, the anthropological aspects of lip print patterns should be practiced, which can enable narrowing down of the investigation process.

SAMPLE COLLECTED

1. Father

   Age- 45

Figure 7-lip print of father 1

Mother

Age-40

Figure 8- lip print of mother 1

Child

Age-20

Figure 9- lip print of child 1

2. Father

   Age-50

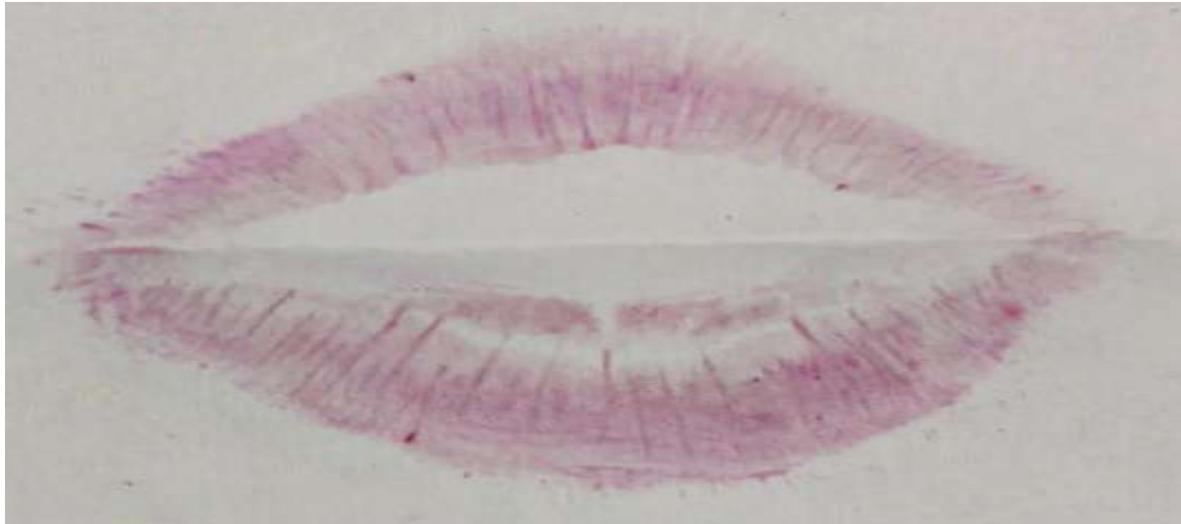Figure 10-lip print of father 2

Mother
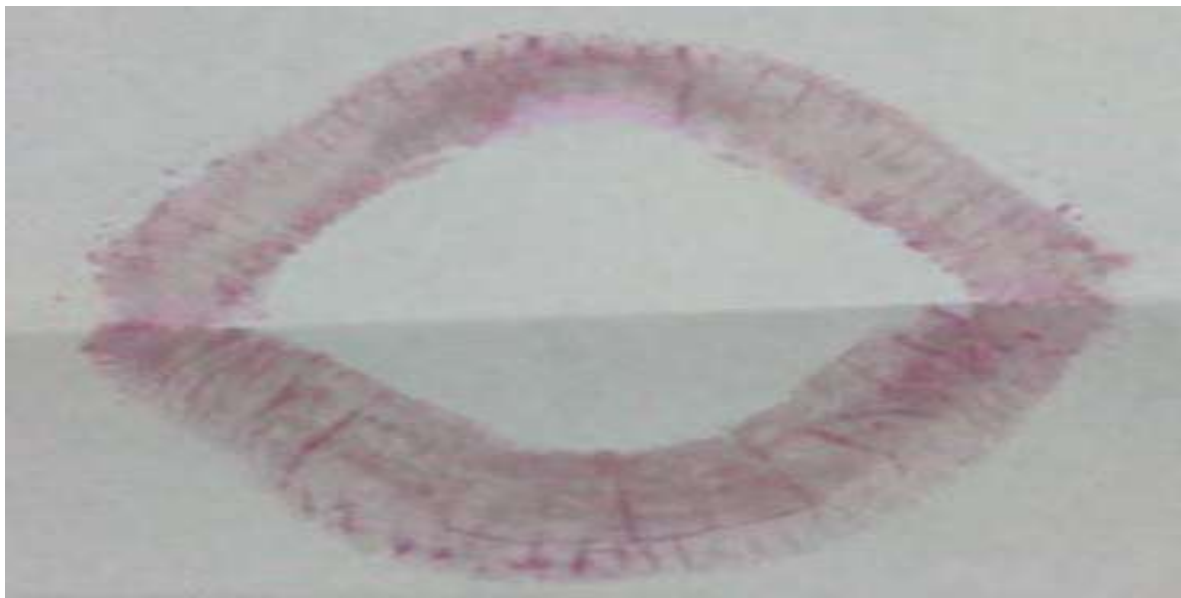
Age- 48

Figure 11-lip print of mother 2

Chid

Age-22

Figure 12-lip print of child 2

CHAPTER7:-REFERENCES

- Fakir Mohan Debta .et.al (2005) studied Heritability and correlation of lip print, palm print, fingerprint pattern and blood group in twin population.
- Anju Devi .et.al. (2006) studied inheritance analysis and evaluation of lip prints in Individuals.
3. Yogesh Vats .et.al. (2008) studied Heritability of Lip Print Patterns among North Indian Population.
4. Vignesh AV .et.al. (2009) studied Heritability of Lip prints and palmprints among parents and their offsprings.
5. J. Augustine .et.al. (2011) studied Cheiloscopy as an adjunct to forensic identification: a study of 600 individuals.
6. Renjith George.et.al. (2012) studied inheritance pattern of lip prints among Malay population: a pilot study.
7. Murnisari Dardjan .et.al. (2014) studied Preliminary Research: Description of Lip Print Patterns in Children and Their Parents among Deutero-Malay Population in Indonesia.
8. Igor S. Veselinovic .et.al. (2015) studied variation in the population province in Serbia.
9. Preeti sharma .et.al. (2017) studied Cheiloscopy the study of lip prints in sex identification.
10. S Padmashree .et.al. (2019) studied most and least prevalent lip print pattern.