

CHAPTER-III

CHAPTER : III BRIEF HISTORY OF LEPROSY

3.1 The Disease : Leprosy, one of the oldest scourages of mankind, is not a disease of modern civilization and industrialization. Its origins date back to antiquity, although exact origin cannot be ascertained. Signs of osteoarthritis, tuberculosis and infections certainly exist in bones, but no bones or representations in stone or pottery bearing unmistakable signs of leprosy have come to light from antiquity. The imprecisions and uncertainties of the term in ancient text that may have been translated as leprosy at some time create some confusion.

Possibly it originated in Africa and spread very early to India, and from there to China. A few sources have also quoted that it might have originated in India and from there to China. All that can be said with certainty in this connection is that in Africa, India and China, the disease has been prevalent for many centuries. During this time it was introduced into various other countries of the world, eastward from India and around the eastern Mediterranean from Egypt to Europe. Later it was introduced into the New World and Pacific islands.

Although, leprosy has been prevalent since ancient times in India, China and Africa, It may be noted that an authentic reference to the disease is found only in the ancient literature of India.

3.2 Leprosy in Ancient Indian literature : Reference to leprosy are found in the ancient medical writings of this country. The most ancient of these writings are those of Charaka, Sushruta and Vagbhata. The present recension of the Sushruta Samhita was probably compiled about 600 BC, but it embodies traditional knowledge from still more ancient times. Charaka's work is considered to have been compiled even earlier, while Vagbhata's compilation is a later work. In these ancient books, reference to leprosy are made in separate places as Vat-Rakta or Vat-Shonita, under diseases of the nervous system, and as Kushtha, under diseases of the skin. Vat-Rakta or Vat-Shonita is characterised by the presence of heperanaesthesia, anaesthesia, formications and deformities. It is also mentioned that the disease starts at the peripheral parts of hands and feet, and then gradually spreads upwards. Thus the terms Vat-Rakta and Vat-Shonita appear to have included neuritic or polyneuritic leprosy. The term Kustha had been used for skin disease in general including leprosy. In these writings two kinds of Kushthas have been envisaged, viz., Kshudra (Minor), Kushtha and Maha (Major) Kushtha. The former variety comprises some of the obstinate forms of the other skin diseases. The latter (Maha Kushtha) appears to include conditions corresponding closely with the different forms of leprosy. Mainly two kinds of skin lesions are described-in one, the prominent symptoms are local anaesthesia and deformities,

etc., and in the other, the prominent symptoms are ulceration, falling off of fingers and sinking of the nose, etc.

It is interesting to note that Chaulmoogra oil, which had till recently been our mainstay for the treatment of leprosy, and which was introduced into western medicine later in the 19th century, had been used in the treatment of leprosy in India from ancient days. Sushrata mentions 'tuvarka' as a potent remedy against leprosy. We have reasons to believe (Dharmendra 1940 & 1947) that 'tuvarka' is identical with *Hydnocarpus wightiana*, the plant from which the Chaulmoogra or the *Hydnocarpus* oil was preferably prepared. According to Sushrata, the oil prepared from 'tuvarka' seeds is to be taken by mouth and is to be used externally for rubbing over the affected parts.

Reference to Kushtha is also made in much earlier Indian literature for instance in the Manu Smriti and the Atharva Veda, the term Kushtha had been used in ancient Indian medicine as a general term to indicate various skin disease. The context, however makes it very probable that in Manu Smriti the word Kushtha has actually been used for leprosy as we know it today. A study of the Manu Smriti brings out two things clearly, firstly that Kushtha is a serious disease and secondly that Kushtha is different from leucoderma for which the term Shwitra has been used. Manu forbids marriages into families with certain disease

and defects and Kushtha is one of these. Again Manu says that a person who gives his daughter suffering from Kushtha in marriage after openly declaiming the fact is not liable to punishment implying thereby that if he holds back this information, he is liable to be punished.

In the Atharva Veda, however, the term Kushtha does appear to have been used for leprosy. In book-I Rhymes 23 and 24 of the Atharva Veda, there is a reference to the herb which makes the pale and white patches of Kushtha disappear. It appears that the term Kushtha as used in Atharva Veda refers more to leucoderma than to leprosy.

3.3 Leprosy in Ancient Egyptian literature : Although a few writers have expressed the opinion that leprosy was probably unknown in ancient Egypt, the disease is generally believed to have been common in that country, Vide Scott (1978). However there is no authentic record to that effect. Brugsch (quoted by Anderson 1978) in his *Historie d' Egypte* mentions that "It was prevalent in Egypt in the region of Huspati 2400 BC : that it has been common in Africa, Egypt and India for the past 3000 years and that it was re-introduced into Egypt from Negro slaves brought from the 'Sudan in the times of Ramses II 1350 BC". Anderson has not been able to verify this reference, but the authenticity of this statement has been challenged. It has often been stated that leprosy has been described under the term Uchedu in the

Ebera Papyrus written about 1555 BC. However Ebbel (1939) who made a study of the subject expressed the opinion that the name Uchedu does not correspond with leprosy. Ebbel states that in other parts of the same Papyrus, leprosy is described by the name of "Ghon's swelling". Identification of either Uchedu or "Ghon's swelling" with leprosy appears to be very unsatisfactory. Anderson has expressed the opinion that the description of "Ghon's swelling" may perhaps refer to gas gangrene or weeping eczema.

A report by Yeoli (1962) lends some support to the presence of leprosy in about 1400-1300 BC. Yeoli reported that on a clay jar which has a human head moulded on it, the moulded head has the leontine appearance of the face seen in advanced cases of lepromatous leprosy. The jar was discovered during excavation of four Canaanite temples in Bethshan in Palestine. It was found in a section of Amenophus III temple which dates back to 1411-1314 BC. if this moulding really represents Leontiasis seen in leprosy, It will suggest the presence of leprosy in Palestine in 1400-1300 BC. This evidence is also beyond doubt.

The only definite evidence is provided by the Osteo-archeological studies of Elliot Smith and D.E Derry and those of Moller Christensen. These studies have produced evidence of leprous bony changes caused by leprosy in two mummies dating to about 500 AD.

It can therefore be concluded that although leprosy is generally believed to be prevalent in Egypt in ancient days, definite evidence to this effect has not been found till 500 AD.

3.4 Leprosy in Ancient Chinese literature : In 1930 Wong wrote on "The early history of leprosy in China". Recently, Skinsnes (1964) in his three articles in the Leprosy Review (1964) has surveyed the whole literature on the subject, specially in this respect, of the pattern of concept and reaction to the disease in ancient times in the orient.

It would appear that in the literature of ancient China there is no clear evidence of the existence of leprosy. There is an ancient legend that a disciple of Confucious (Of the name of Pai Niu) died of leprosy about 600 BC, but there can be no certainty about it. A possible reference to leprosy is found in Nei Ching (Canon of Internal Medicine), the oldest Chinese Medical treatise attributed by Wong to 220 BC, but, by tradition, to a much earlier date. In this treatise a reference is found, inter alia, to loss of sensation. Ko Hung's Prescriptions for Emergencies' written in 3rd century AD makes mention of a disease 'Lai ping' (Possibly leprosy), the first symptom of which is numbness of the skin or a sensation of worms creeping under the skin. It is not till the 7th century AD that fairly definite clinical description of leprosy appears in Chao's Pathology published in 2610 AD. Wong (1939) described Sun szu-moh (who died in 682 AD)

as the first known leprologist in China, who treated a large number of cases of leprosy and wrote extensively on this disease (named as Tai Feng) in his "Thousand Golden Remedies". 'The Eastern Medical Treasury' compiled by the physicians of the Ming Dynasty (1368-1643 AD) attributed leprous infection to contact with leprosy patients, and among the circumstances leading to infection they enumerated unclean privies, houses, bedding etc. Since that time, ostracism of leprosy patients has been practised.

Various kinds of treatment for leprosy are mentioned in ancient Chinese writing, but the first mention of Chaulmoogra oil appears in the fourteenth century AD, i.e., long after it was used in India. In China, the Hydnocarpus or Chaulmoogra oil was called Ta Fung Tzu, as it was used for the treatment of Ta Fung (leprosy).

3.5 Leprosy in Biblical Literature : 'Leprosy' is mentioned at several places in the Bible, but it is doubtful whether the words used have a reference to the disease leprosy as we know it today. In the hebrew text there appears a word Zarath (Tsaraath). In the old testament this word has been retained. In the New Testament the word used is 'lepra' taken from the Greek literature. Where it stands for a 'scaly disease' and not leprosy (for which the term elephantiasis graecorum is used). In Arabic literature the

word used for leprosy is 'Juzam' or 'Lepra Arabun'. Constantine of Carthage wrongly translated Juzam into lepra (the Greek word). The word 'lepra' in the new Testament (and the word Zaraath in the old teatament) have therefore come to mean 'leprosy'. This confusion between Zaraath (Hebrew), lepra (Greek, Arab and Biblical) and leprosy (modern) has been propagated and the three terms have been loosely used as if they referred to the same disease. However, the terms Zaraath in Jewish literature and Lepra in Arabic literature, stand for a group of scaly and fungal disease. These terms have been considered by many authors to refer to leprosy and in all Bible translations have been rendered as leprosy. This view has however been challenged by many writers including Lie (1938), Lendrum (1952), Tas (1953) & Cochrane (1961). The characteristic features of Zaraath are the presence of spots 'White as snow' situated slightly below the level of the surrounding skin with the hair in the patch turned white : lesions are not stated to be characterised by the presence of anaesthesia, deformity etc. Zaraath is believed to have been used not for one but for a number of scaly and fungal skin diseases. If the term Zaraath includes leprosy at all, it could have covered only the mild variety with patches in the skin and not the more serious nodular type of leprosy which was mostly prevalent in Europe.

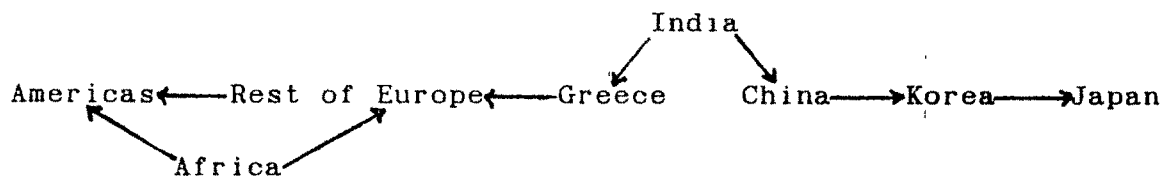
3.6 Leprosy in Recent Period : Modern - day leprosy dates from 1873 when Hansen of Norway discovered *M. leprae*. For long years, there was no effective remedy for leprosy. The introduction of sulphone drugs in the treatment of leprosy in 1943 marked the beginning of a new era - the era of case - finding and domiciliary treatment. Recognizing leprosy as a national health problem, the Govt of India in 1955 launched a campaign against leprosy, known as the National Leprosy Control Programme.

The decades of 1960's and 1970's witnessed the development of experimental models. In 1960, Shepard discovered that *M. leprae* could multiply to a limited extent when injected into foot pads of mice. In 1971, Kirchheimer in U.S.A reported that armadillos (American anteaters) developed disseminated leprosy when injected experimentally with *M. leprae*. Nude mice injected with *M. leprae* also reveal an overwhelming infection resembling lepromatous leprosy in man. These "animal models" have paved the way for vast experimental work in leprosy research.

Recent years (1980's) have witnessed a change in the strategy of leprosy control from DDS monotherapy to multidrug therapy, due to widespread emergence of dapsone - resistant strains of *M. leprae*. But very recently with the beginning of the nineties, new strategies are being adopted with the introduction of the drug "Ofloxacin" which can cure the disease within a month.

3.7 Spread of leprosy : Like other contagious diseases, the spread of leprosy is known through some clues that had been mentioned in earlier literature. It was concluded that the disease was probably brought to the Mediterranean region by the soldiers of Alexander the Great returning from their Indian campaign in 327-326 BC.

With the Roman conquest, the disease spread to Germany, Spain, France and Britain during the second to sixth centuries AD. Later, at the beginning of the 13th century, leprosy had spread to almost all parts of Europe (Norway, Sweden, Holland, Denmark, Russia and the Baltic countries). Even areas in the Arctic such as Iceland and Greenland, were not spared. The disease had spread to practically all parts of Europe long before the soldiers (Crusaders) during the eleventh to thirteenth centuries, but it appears that the return of the soldiers (Crusaders) after stay in infected countries resulted in the disease becoming more wide-spread. From Iceland the disease had spread to Italy. A rough sketch is shown below regarding the possible routes of spread of leprosy and details are shown in Figure 3.1



While leprosy was dying out due to preventive measures,

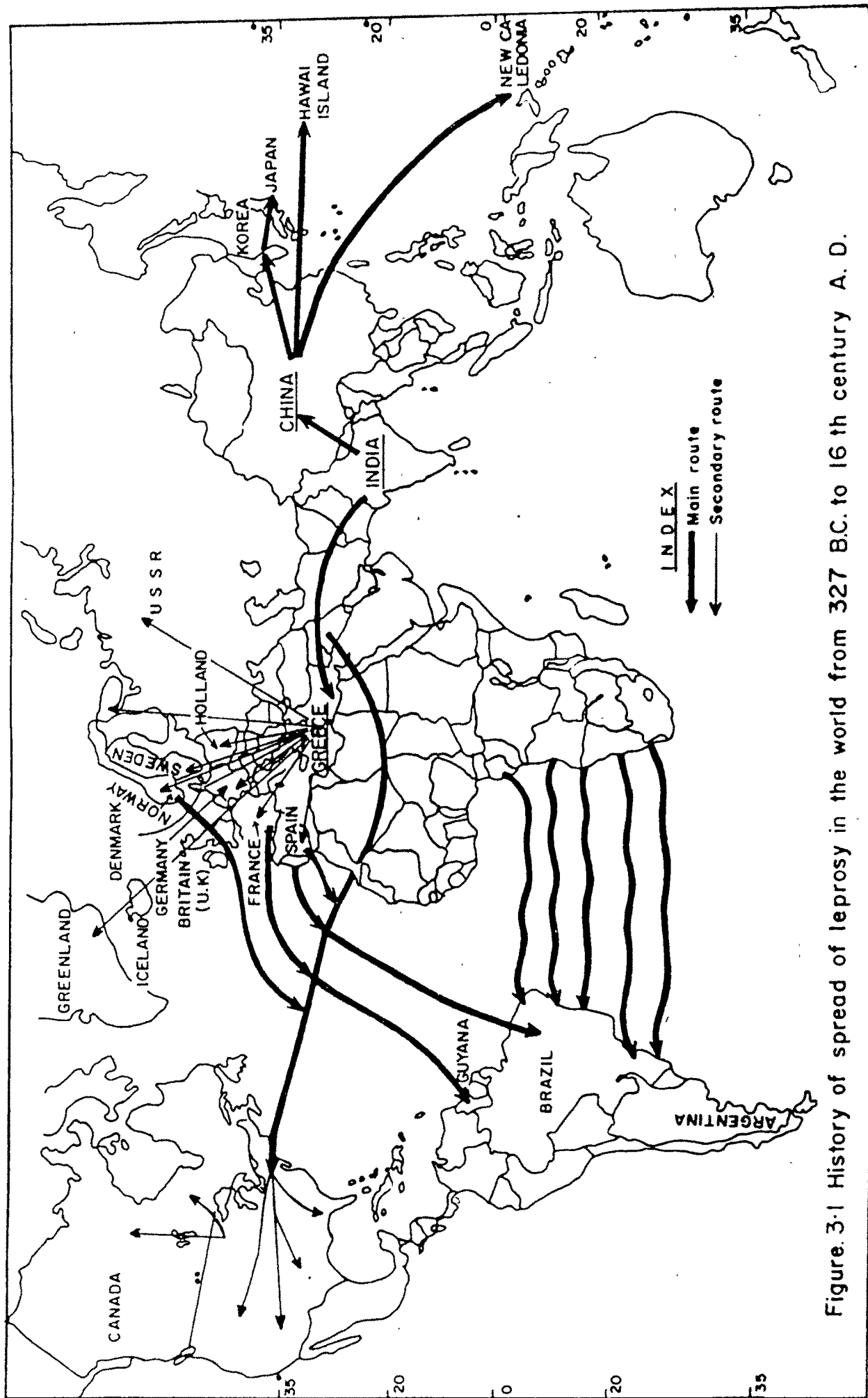


Figure 3-1 History of spread of leprosy in the world from 327 BC. to 16th century A. D.

improvement in living conditions and diet, and incursion of other epidemic diseases in Europe, it was introduced into the new world, where the disease was not found at the time of its discovery. The disease was first introduced into America in the middle of the 16th century by immigrants from Europe (specially the people from Spain, Portugal, France and Norway) later by the imported slaves from Africa and still later by Chinese immigrants who have been responsible for the introduction of the disease in the Pacific coast. Although leprosy was introduced into various parts of America, the subsequent history has been different in the different parts.

In North America the disease has not spread to any extent. Canada has practically no leprosy except for a small number of cases in New Brunswick amongst the poorer French inhabitants, and in British Columbia amongst the Chinese inhabitants.

According to McCoy(1938) leprosy was introduced into different areas of the United states with different results. In the southern states of Louisiana, Florida and Texas the presence of imported cases has resulted in the establishment of foci in which the disease shows a strong tendency to persist. In the western state of California there has also been a tendency for the disease to persist, especially in the southern parts, though occurrence of cases is very rare. In the central and north-western states (excluding California) the disease has shown little tend-

ency to become established. According to Washborn (1950) of the Scandinavian immigrants to the upper Mississippi valley in the 19th century, 170 had developed leprosy and 52 of these had the disease before leaving Norway. The largest number (76) were reported from Minnesota and most others from Wisconsin, Iowa, Illinois and Dakotas.

In central and south America, however, the disease has steadily increased and is now found in every state, being very common in certain areas, particularly the Guianas and Brazil. Souza-Araujo(1937) traced the origin of leprosy in Brazil to the European colonists and African slaves. Amongst the colonists who first came were the Portuguese, then mariners from France and later the Dutch. The African slaves are considered responsible for introduction and dissemination of leprosy in Brazil. The principal port of importation of these slaves were Rio de Janeiro, Batavia and Recife and in these areas the disease progressed rapidly. Fidanza (1932) attributed the origin of leprosy in Argentina to the migration of infected slaves from Brazil down the river parana, disseminating the disease along its banks, and even today this is the district with highest infection. However it appears that the African slaves have come in for an undue share of the blame for responsibility of introduction of leprosy into south America. It might have been carried by colonists who

came mostly from Spain and Portugal, where leprosy was prevalent at that time and where the disease is still found to some extent.

More recently during the last hundred years or so leprosy has been introduced into several of the previously uninfected islands in the Pacific. Chinese immigrants have played an important part in the spread of leprosy in this area like the islands of Hawai, New Caledonia and Nauru.
