CHAPTER IV

DISEASES AND EPIDEMICS

Several diseases prevailed in Goa throughout the Portuguese regime. The city of Goa in particular was a very unhealthy place. Poor hygienic conditions, malnutrition, impure water supply, bad drainage and absence of preventive measures favoured diseases. During later period emigration contributed to diseases such as tuberculosis, hepatitis and meningitis. Cholera, smallpox, dysentery and fevers were the main killers throughout the period.

Linschoten writes that common diseases in Goa made their appearance according to seasons.\(^1\) Another traveller, the Italian Manucci was of the opinion that the climate of Goa was not suitable to man below forty years.\(^2\)

Diseases erupted many times in epidemic form. They occurred at regular intervals, even after inoculation was introduced. Probably, the improved means of communication with
British India and emigration were responsible for the frequency. Epidemics often followed famines and this is particularly true of epidemics which appeared after 1870 in Goa and rest of India. Majority of epidemics that broke out in Goa originated in British India, where many diseases existed in epidemic form.

Until the mid-nineteenth century no preventive measures were implemented to avoid epidemics. During colonial period health services were dominated mainly by curative measures, and preventive aspects were confined to providing environmental sanitation, water supply and immunization coverage to particular areas, usually urban, inhabited by the ruling class. For the rest of the population, anti-epidemic measures were adopted only when there were epidemic outbreaks of serious proportions.

Preventive measures when finally introduced, were not easy to enforce. The natives refused inoculation on various grounds. There were other problems besides the attitude of the people, such as scarcity of personnel, funds, equipments, clinics, poor remuneration to the workers and low level of environmental sanitation.

The chapter has four sections. Section I is largely concerned with diseases and epidemics in the sixteenth and
seventeenth centuries. Section II of the chapter deals with the same in the eighteenth and nineteenth centuries. The third section considers major epidemics in the twentieth century including new diseases and epidemics that made their appearance as a result of greater contact with the outside world. Finally, the fourth section of this chapter, deals with the preventive and curative measures introduced to control diseases and epidemics.

I. DISEASES AND EPIDEMICS IN THE 16TH AND 17TH CENTURIES

Cholera

Cholera was widely prevalent during the period. It was known by several names, Mort-de-chien, xirxirem, xirxiry, modxi, nermuly or xirly. This infectious disease was characterized by profuse stools, griping, vomiting and muscular cramps. The disease sometimes killed the victim within few hours. The incidence of cholera increased from the third quarter of the nineteenth century due to greater contacts with British India.

It was believed that cholera was transmitted through air and was caused by consumption of certain vegetables that grew wild in the rainy season such as allum (Arum), terem (Colocasia), and taiquillo (Cassia). In addition new rice,
over-ripe jackfruit, pineapple and melon were believed to cause cholera. However, in the nineteenth century, it was discovered that cholera virus was the cause of cholera. This virus was found in the stools of cholera victims. The disease was transmitted by flies, contaminated foodstuff, water and articles belonging to cholera patients.

Some people considered cholera a curse of goddess Durga when she was not given due recognition and reverence. To pacify this goddess they offered a red flag, iron, fire sacrifices, flowers, coconuts and performed rituals. After these rituals they believed the victim was free from the curse. When the health of the victim deteriorated, the victim was carried in a beautifully decorated boat with flowers and flags to the accompaniment of music and was left in the middle of the sea to die.³

Merchants, fishermen, labourers and pilgrims were responsible for carrying cholera from rest of India to Goa. Fishermen who visited the Malabar coast brought the disease to Salcete and Canacona in the south and Tiracol in the north. Hindu pilgrims often visited sacred places in Pandarpur, Gokarna, Kasi, Tirupati, Kanpur and elsewhere outside Goa. These places of pilgrimages were always overcrowded and lacked proper hygiene. Furthermore, many of these places were situated on the banks of important but highly polluted rivers
of India. The pilgrims had their bath, consumed water and carried *Tirtha* (holy water) from these rivers. The *Tirtha* was distributed to their relatives and friends in Goa. This way they, also carried cholera to Goa.

Cholera was endemic in British India. The disease originated in Bengal, and particularly in Calcutta. Dry season seems to have prevented the spread of cholera and the wet season promoted the outbreak of the disease. In Goa, the disease usually appeared in places situated along the railway line and rivers originating in the Ghats (British India). Cholera was eradicated from Goa in the last 30 years of colonial regime.

Native practitioners prescribed canjee with pepper and cummin seeds. During the attack of cholera, it was a custom to burn the middle of the heel with hot iron until vomiting stopped. Yet another treatment prescribed by native practitioners was to tie the body with ligaments, probably to prevent cramps.

The first well-known outbreak of cholera was in 1543. Garcia d'Orta, the famous Portuguese physician living in Goa at that time gives a vivid description of this epidemic in the city of Goa.⁴ People of all ages fell victim to the disease. The death toll was high, even animals and birds were not
spared. The disease caused panic among the inhabitants, leading the Governor Martim Afonso to ban tolling of bells at the time of burial. Everyday bells tolled for fourteen to sixteen Christians. Bells were not tolled for non-Christians, who were in a majority.\textsuperscript{5} The Christian population being one fifth of the total population an average of eighty persons died daily. It caused considerable havoc, reducing the population to some degree. The exact number of the dead is not known. Patients treated by the Portuguese physicians lived for a day or two, whereas those treated by the natives practitioners seem to have done better.

In 1570 several epidemics broke out simultaneously, possibly due to a famine. This was the result of a siege imposed by Ali Adil Shah to expel the Portuguese from Goa.\textsuperscript{6} Cholera of virulent nature appeared in the ward of the potters in the city of Goa. People in this ward lived under dreadful conditions. The disease affected nine hundred persons, killing one third.\textsuperscript{7} It was alleged that the disease was caused by a dead elephant in the lake of Carambolim. There is no evidence of any measures adopted by the Government to control the epidemic. However, the Jesuit missionaries were prompt to provide care to the victims. The area was divided into three zones and a list of the sick was prepared. Food and medicine were distributed to the victims. The ward was fumigated with smelling herbs. Inspite of these measures,
many died within a short time. In one instance a missionary during his routine visit to the area found a mother and her child without sufficient clothes. The missionary went around to collect some clothes. By the time he returned both the mother and the child had died.⁸

Between 1618 - 1619 two epidemics broke out in the city of Goa. The first was cholera epidemic of 1618. The Hindu inhabitants of the city of Goa were considerably reduced due to this cholera attack.⁹

Cholera did not disappear from the city of Goa but there seems to be a respite from great epidemics between the end of the seventeenth century and the one that raged all over Goa at the end of the eighteenth century. Probably, cholera cases in small scale appeared during this period. Manucci writes that cholera was one of the diseases prevailing in Goa during the period. The epidemic of 1630 killed many Portuguese in Goa. In Gujarat and Cambay three thousand people were reported dead.¹⁰

Smallpox

Next to cholera, smallpox was most feared in Goa. It was the greatest killer, causing misery and suffering by way of mortality, disfigurement and blindness. Children below
ten years of age were the worst sufferers of smallpox. Goddess Devi was said to produce pustular diseases, including smallpox. She was worshiped with cloves, betelnuts, coconuts and fire sacrifices to prevent smallpox.

In 1545 smallpox erupted in epidemic form. In just three months more than eight thousand children died of the disease including children of the King of Ceylon.¹¹

Fevers

In the sixteenth century, when the Portuguese arrived in Goa, they found wide prevalence and different kinds of fevers, much more than they occurred in Portugal and far more fatal. Fevers were endemic in Goa even before the Portuguese occupation of the place. Therefore, the Muslim rulers left their residence in the city of Goa during the hot months of the years. The disease attacked large number of Portuguese including several viceroys, noblemen and inquisitors. Linschoten recorded that the Portuguese were victims of fever because of scarcity of meat, nourishing drinks and much company of women.¹²

The Portuguese had no idea of the exact cause of the disease. They classified fevers as remittent and intermittent. These fevers were often ascribed to "mal-air". Fevers took
epidemic form in 1570 and again in 1619. During this latter epidemic many Portuguese left the city for more healthy places. Jesuit accounts refer to many Jesuits affected by these fevers. 13

The famine of 1631, the locust invasion in Bardez 14 and other socio-economic vicissitudes seem to have contributed to many epidemics in 1635. Epidemic fever started with unprecedented violence and contributed to complete the ruin of "Golden Goa". The struggle between the Dutch and the Portuguese had drained the public exchequer, and as a result the state was unable to introduce measures to control the disease.

In April 1648 Goa suffered from an earthquake. Soon after there was a cyclonic storm that brought down palm trees, took away roofs and destroyed fields. The following year during the monsoon there was a terrible famine in which at least four people died daily in the city of Goa. 15 It is probable that, as usual, epidemics followed.

**Bubonic plague**

Apart from cholera, fevers and smallpox, other epidemics such as dysentery and plague were widespread. Bubonic plague was a great fear in those days. The disease was
two-fold, pulmonary plague and older Bubonic plague known as black death. In Goa plague killed several people around 1570. However, Linschoten who lived in Goa between 1583-1588 says that "the plague has never been in India neither it is known unto Indians." 16 There was a respite from plague for sixty five years until it reappeared in 1635.

Dysentery

Dysentery, another water borne disease, was common in early days. It was known as Doengas das Camaras or Bloody Flux. The disease afflicted the people in Goa during the rise and fall of the Portuguese influence. Several viceroys suffered from the disease. Dysentery was many times confused with colitis and enteritis.

Dysentery is a painful diarrhoea, in which there is blood and slime in the stool. There is inflammation of the inner lining of the large bowel accompanied by fever.

There were constant epidemics of dysentery. Dysentery, particularly amoebic dysentery, was endemic in the city of Goa. The Vaidyas had a remedy for dysentery. It consisted of roasted Rhubarb and cumminseeds. These two ingredients were mixed either with lime or rose water. A strict diet was followed consisting of canjee mixed with sour milk. Western
medicine was ineffective in early days. In fact the Italian doctor Careri says that the Portuguese physicians learnt to cure dysentery from their native counterparts.  

Deficiency Diseases

Nutritional disorder and deficiency disease due to malnutrition were estimated to be common. Scurvy was first known as caused by malnutrition. Scurvy was known in Goa as Escorbuto or Mal de Luanda. The disease prevailed among the newly arrived Portuguese soldiers and native children. About 1,000 men died annually of scurvy during their journey to Goa. Much mortality during the journey was caused by beef and pork diet and absence of fresh vegetables and citric fruits. The Portuguese unlike other European rulers did not acquire meat, sour lime and vegetables on the way. Unlike the ships of other colonial powers, the Portuguese ships did not carry necessary medicine to tackle scurvy. Therefore, it was considered a miracle to reach India safely.

Another disease provoked by malnutrition was beriberi. First reference to beriberi appears in 1571. Three hundred passengers died on the fleet of D. Antonio Barretto Moniz. Majority of these passengers were victims of beriberi.
Venereal Diseases

Venereal diseases such as syphilis and gonorrhoea are said to have entered Goa with the Portuguese. In Goa venereal diseases were known as firinghi rog (European disease) and baili pidda (foreign disease). The disease affected people of all classes, including high Government officials and physicians. The morals of the society was lax. Young men of upper strata spent time with women of low moral character, which included slaves as well as ladies of high society. 

Information available refers to amorous activities of the Portuguese men and native women. Afonso de Albuquerque disapproved of casual alliances which he termed "living in sin". He preferred men to marry their women. Albuquerque encouraged unions between Portuguese men and native women by giving them incentives. Each couple was granted 18,000 reis and a piece of land to settle. There is a rather odd incident, where Albuquerque got several couples married in a private home. The place was poorly lit and overcrowded. In the confusion Portuguese men took the wrong wives home and tried to exchange them for the right ones next morning. In one of his letters, Albuquerque complains that Portuguese men carried native women along with them out of Goa without his approval. Many times, Portuguese men took women to the ships for casual sex, termed by Albuquerque as "infernal
play. Apparently, all hell broke loose in such occasions. However, there is an order dated 3rd December 1513, from Albuquerque to the Factor of Goa, stating that he was sending eight women for the use of Portuguese men and that they should be looked after well and paid. He further mentioned that in four months time, these women would be replaced by new ones from Cananor. There appears to be some double standards in these matters.

Albuquerque was not above caste and colour prejudices. He did not encourage his men to marry Malabari women, because they were "dark in complexion and corrupt". The Portuguese appeared to show a special preference for Muslim women as they were "white and chaste". These women in turn preferred the Portuguese, because of better treatment given to them and the general belief among these women that conversion to Christianity would absolve them of their sins. There is evidence that Canarin women readily accepted alliances with Portuguese men, unlike high class Nair women.

Prostitutes were found all over the city of Goa, and specially in area known as Ilha de Fogo. Prostitution helped the spread of venereal diseases. About 5% of total deaths among the soldiers occurred due to the disease. In those days it was not a disease to be ashamed of.
Several legislative measures were taken to curb or control prostitution and prevent the spread of venereal diseases. The Church Provincial Council in 1567 asked the Municipality to fix certain areas for prostitutes beyond the Hospital of St. Lazarus. Those disobeying the order were to be exiled for 5 years to Ceylon and fined 50 pardaos. But just like other regulations this one was not strictly followed. The nautch girls from the main land were found in the island of Kumbarjua. The Jesuits who collected a tax from the prostitutes in this area, were accused of encouraging the trade.

D. Phillip the ruler of Portugal issued a decree in 1593 forbidding women from soliciting all over the city. As a result of the above regulation prostitutes began to move about in palanquins from house to house. To end such practice another legislation was issued in 1597. By this legislation individuals under 60 years of age were forbidden to move in palanquins. Anyone disobeying the order was to be fined 200 crusados.

II. DISEASES AND EPIDEMICS IN THE 18TH AND 19TH CENTURIES

Smallpox

Apart from cholera the other major killer specially of the young ones was smallpox. The first outbreak of smallpox
in the eighteenth century was in 1705. The disease struck many villages of Bardez. In Anjuna (Bardez) several people died due to lack of medical assistance. During this epidemic the ecclesiastical authorities sent to Anjuna four native priests belonging to St. Phillip Nery (Oratorians) to render medical assistance to the victims. 31

In the second half of the nineteenth century several epidemics of smallpox broke out in different parts of Goa in 1870, 1872, 1882, 1884, 1889, 1891, 1892 and 1897.

Deficiency Diseases

Scurvy was still responsible for high mortality rate during the journey from Portugal to Goa. In 1716 a small ship S. Francisco Xavier arrived with only 4 passengers. The remaining 46 had died of scurvy. 32 In a letter dated 14th January 1749 Viceroy Marques de Alorna states that majority of the passengers suffered from scurvy during the journey and many succumbed to it in the Royal Hospital. 33 Out of 513 passengers on board the ship St°. Antonio e Justiça only 21 passengers were free from scurvy. 34 Again in 1769 about 27 persons died of scurvy during their journey. 35
Cholera

In 1777 there was an epidemic of cholera. Soon after this epidemic the Portuguese Government made a feeble attempt to investigate the causes of cholera and the means to control the same. Suggestions made by Dr. Costa Portugal were not implemented on the grounds that they were not practical. 36

Two important epidemics of cholera raged in Goa at the end of the eighteenth century. The disease was carried by pilgrims and traders from British India. It appeared first at Loutolim (Salcete) and subsequently it spread to the neighbouring villages and Mormugão. During 10 months at least 911 people suffered from the disease in Mormugão. 37

The second epidemic of virulent nature was Epidemia de Rachol which raged from 1789 to 1792. Rachol (Salcete) was an important military station. Six hundred soldiers suffered from cholera. Nearly 470 succumbed to the disease. One third of the soldiers were Portuguese. The Government adopted an unusual method to control the disease. Large number of cattle were brought to the village to clean the place. 38 Gun shots were fired to kill the germs and purify the air. This measure was very popular in Daman and Diu in times of epidemics. A ward was set up at Rachol to treat the victims. The Portuguese soldiers were moved from Rachol to Ponda.
The State for the first time distributed medicine to the cholera victims in 1818. It was supplied through Parish Priests and military officials. The most common medicine was calomel (a mercury compound) and laudanum (opium compound). A total of 1,371 xerafins, 3 tangas and 25 reis were spent on these medicines. These medicines failed to cure the victims, who finally resorted to indigenous medicine. In Ilhas taluka, Francisco de Paula Fernandes, a diploma holder from the Military Hospital, was appointed to render help to the victims.

From the meager information available, we know of cholera epidemics in Goa during two consecutive years, 1831 and 1832. The mortality rate fluctuated, depending on the season. It was high during the monsoons. These epidemics gave rise to a clear beginning of public health policies. A proper regulation to control epidemics was under preparation. In the meantime the local Government issued a Regulamento Provisorio de Saúde Publica (Provisional Regulation of Public Health).

The regulation was introduced soon after the cholera attack of 1845. During this period, a virulent epidemic raged in India. In Goa the disease started in January 1845 at Sanquelim and Calapur and later in S. Braz including Kumbarjua. Cholera appeared in Panjim at the end of the month.
By June the disease had spread to Mapuça, Penha da França, Reis Magos, Taleigão, Goa Velha, Mandur, Quepem, Ponda and Salcete. Cholera was widespread in areas situated along the rivers.

In 1845 the Government published a list of medicines for the treatment of cholera victims. The medicine consisted of a mixture prepared with or without opium. They were also prescribed some kind of tablets. Physicians were advised to bleed the patient, only if the pulse was normal and there were strong cramps. Hot bricks and hot sand was prescribed for fomentation of the spine and legs followed by the friction of the arms and legs. Patients were advised to drink water sparingly, to prevent vomiting. A total of 77 cholera patients were admitted at the Military Hospital and 25 died of the disease. Cholera in 1845 spread from India to other parts of Asia, Europe and America.

In spite of control efforts cholera appeared again in Goa during 1854. When cholera made its appearance in Panjim, the Health Board appointed a doctor to handle the situation. The sale of fruits, shell fish and vegetables were banned. The affected areas were cleaned. The following table indicates cholera spread taluka-wise from 13th May to 31st July 1854.
<table>
<thead>
<tr>
<th>Talukas</th>
<th>Cases</th>
<th>Cured</th>
<th>Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ilhas</td>
<td>421</td>
<td>351</td>
<td>70</td>
</tr>
<tr>
<td>Bardez</td>
<td>27</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>Pernem</td>
<td>36</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>484</td>
<td>391</td>
<td>93</td>
</tr>
</tbody>
</table>

In 1857, 553 cases of cholera occurred with 151 deaths. This information was published at the end of December 1857 and it is presumed to cover whole year. It is reported that in Loliem 20 persons died daily. The attack was mild in Pernem and Canacona but virulent in Bardez and Salcete. The rains were normal during the year. No more details are available.

The poor inhabitants of Ilhas were struck by cholera in 1865. The table in the appendix 4-C gives cholera cases in a single month of September 1865. The death toll was high in the epidemic of 1870. Many inhabitants fled Panjim for their ancestral village homes in Bardez and Salcete. At times there was no one to carry the sick or bury the dead as even grave diggers had disappeared. A report from the Health Services
mentions that in a single house seven died of cholera. The healthy members of the family moved away leaving behind the sick and the dead. Yet in another house a mother and a child were left helpless. At least 18 persons died daily in Santa Barbara (Ilhas). Cleaning of streets, markets and compounds, fumigation with gunpowder and tar was carried out to control cholera in Panjim. Out of 289 reported cases, 46 died of the disease in Salcete. In this taluka cholera repeatedly appeared in S. Jose Areal. This village was far away from a river or sea. The only possible explanations for the repeated attacks in the area could be the poor hygiene and food habits of the inhabitants. A remarkable feature of this epidemic was the immunity enjoyed by the Portuguese from the disease, probably because of better hygiene and food habits.

The first victim of cholera epidemic (1869) in Panjim was a bola (machila bearer). In Panjim 50 persons died out of 122 cases. The total reported cases in Goa were 823 with 306 deaths due to the disease. Besides Ilhas cholera raged in Ponda, Salcete, Mapuça and Assonora.

Cholera in epidemic form appeared every year in Goa during the last 20 years of the nineteenth century. The introduction of railway at this time ensured easy and fast travelling, between Goa and rest of India, and at the same
time making it difficult to checkmate the spread of contagious diseases.

On account of repeated cholera epidemics in Jua, Velim, Curtorim, S. Lourenço de Agaçaim, Kumbarjua, S. Bras and S. Pedro, the local Government sanctioned a sum of Rs. 4,000. These funds were used to improve hygiene of the above mentioned areas.

A family from Ponda was responsible for cholera epidemic at Sanvordem in 1896. This family had gone on a pilgrimage to Kanpur where one of its member died of cholera. Two other members fell ill during their journey back home. They stayed approximately 10 hours in Sanvordem before returning to Ponda. In Ponda three members of the family died due to the disease.52

The following year labourers working in the Ghats carried cholera to their homes in Salcete and New Conquests. The disease appeared at Loutolim and Raia in the wards of fishermen and sailors. From Loutolim the disease spread to Velçao, Cansaulim, Cortalim, Nagoa, Verna and Margão. This epidemic of 1897 was accompanied by a famine caused by excessive rains and floods. Quarantine was introduced at Colem to prevent the spread of cholera from British India.53
Fevers continued to prevail in the eighteenth century. Several viceroys were victims of the disease including Conde de Ega, Marques de Alorna, Jose Pedro de Camara and his family.54

In 1778 all village Communidades were required to send certain number of people to work on the reconstruction of the city of Goa. Workers who were reluctant to go on account of prevailing diseases, were dragged by soldiers. Out of one thousand six hundred workers from Salcete, nearly six hundred and sixty five fell sick. The city had only 35 permanent inhabitants and majority of these inhabitants were Taverna owners and their families. Most of the workers and their families retired at right to their villages.55 It was noticed that those who spent even a single night in the city were victims of fevers. Dense trees, rotting leaves, polluted wells, decaying buildings and stagnant drains contributed to the disease.

From June to December 1849 a total of 300 patients were treated for fevers at the Hospital Regimental. Five hundred and twenty six patients suffered from recurring fevers between June to December 1850 in the same Hospital. The following year another 400 patients were treated at Hospital Regimental for
recurring fevers. In 1869 around 1,199 patients were treated for recurring fevers at the Military Hospital. A total of 573 patients died in the same hospital of fevers in 1876.

The Portuguese resorted to bleeding even for slight fever. They bled several times and took away 18 to 20 ounces of blood. Conde de Linhares, the Viceroy of India has recorded in his diary that he was bled many times as a cure for fevers.

The most common fevers were caused by malaria. Malaria is believed to be one of the factors responsible for the decay of Golden Goa. Besides the City of Goa, the disease was widespread in Quepem, Sanguem and Canacona. Dense and humid forests in the area, combined with poor hygiene were the cause of malaria. Malaria was spread by mosquitoes. Nearly 14,261 persons suffered from malaria in 1878.

Epidemics occurred at regular intervals throughout the nineteenth century, even after inoculations against some of them were introduced. This was probably due to greater contacts with rest of India, where many diseases existed in endemic and epidemic form. The Governor of Goa in a report sent to Home Government states that in 1820 intermittent fevers were common in Goa.
Venereal Diseases

Venereal diseases were widespread in the nineteenth century. Large numbers of soldiers were treated in the Military Hospital for venereal diseases. It appears that the Government was concerned about the problem. In 1858, the Government repeated its order to Health Board making it compulsory for all prostitutes to undergo weekly medical examination. The following year the same Board was asked by the Government to advise soldiers and others to refrain from frequenting prostitutes and to calculate funds necessary for the treatment of V.D. patients. A total of 127 patients with V.D. were provided treatment in 1868 at Hospital Military. The number of patients treated for V.D. between 1869-1880 in the Military Hospital is given in the appendix. There are references too to homosexuality.

Water Borne Diseases

The incidence of water borne diseases, such as typhoid, dysentery, diarrhoea and diseases caused by intestinal parasites was high in Goa. Typhoid and paratyphoid fevers were frequent in Old Conquests among the Hindus. Typhoid was fatal in hot months of April and May, when there was scarcity of
water. The disease was mainly caused by polluted water. For instance in 1862 the high incidence of typhoid in Taleigão was due to a polluted lake in the area. Orders were issued by the Government during the same year forbidding the people from using the polluted lake.

**Bubonic plague**

A terrible bubonic plague raged Bombay between 1896-1897. There are references of plague in Goa as well but it did not take epidemic form. Large number of persons affected with plague entered Goa in their incubation period from 1896-1914.

### III. DISEASES AND EPIDEMICS IN THE 20TH CENTURY

There were recurrent epidemics of cholera, smallpox, plague, fevers and dysentery in the first thirty years of this century.

**Cholera**

A virulent epidemic of cholera raged in 1990 throughout *India Portuguesa* killing 400 persons in Salcete. Altogether 5000 persons suffered from cholera in *India Portuguesa* (including Daman and Diu) and 2000 died of disease.
In 1907 the death toll on account of cholera in Salcete and Quepem were 135 out of 285 cases. The following year in the month of January alone another 95 persons died of cholera in Salcete, Quepem and Sanguem. During cholera epidemic of 1909 which started in Benaulim about 193 persons fell victim to the disease and 121 died. Deaths due to cholera were high. In a single month of July 1913 around 82 cases of cholera occurred at Margão and Curtorim killing 40 persons. In 1914 in Bardez and Salcete 64% of the victims succumbed to the disease. Between November and December 1917 a total of 163 persons were struck with cholera and nearly 129 died.

Cholera which broke out in epidemic form in 1906, 1907, 1908, 1909 and 1912 originated in British India. Fishermen who returned from South of India carried cholera to Cavelossim, Varca, Benaulim, Colva, Majorda, Velção and Mormugão. The disease was also brought by labourers from Ghats to their homes at Paroda, Molem, Guirdolim, Macazana and Curtorim. During these epidemics Ilhas, Salcete, Sanguem and Canacona were most affected, perhaps due to closer proximity to the sea or railways. Between 1900 to 1927 at least 500 persons were affected by cholera. Cholera that broke out in epidemic form in 1922 was carried by fishermen and pilgrims from Pandarpur. The death rate from cholera began to show a remarkable decline.
after 1941. This was due to the fact that more stress was laid on sanitation and there were less famines in India. Besides cholera inoculation was proving its efficacy.

**Bubonic plague**

The first detailed account of the bubonic plague in Goa is available from a report submitted in 1901 by Dr. Wolfango da Silva to the Health Services. The plague started in 1901 at Ribandar and struck the poor who slept on humid floors. 69

Rats propagated the disease to other parts of Ilhas. A tobacco merchant who visited Belgaum in connection with his trade carried the disease to Ribandar and from there the sick person was transported to his ancestral home in Piligão (Bicholim). In Bicholim he infected those around him. Initially the doctors failed to diagnose the disease. Vigorous measures were adopted at Ribandar by Health Services. Patients were isolated in a special ward. Their belongings and houses were disinfected. 70

Twelve plagues occurred in Goa from 1901-1920. 71 The bubonic plague in Margão appeared in 1916. Margão a small town with 8,000 inhabitants, lacked proper hygiene. It was the commercial centre of Salcete and neighbouring talukas. This
How did the plague start in Margão? The disease appeared in the first week of February 1916. Two members of Alvo family died of fevers. This family lived close to the godown of one Vasu Borodo, a merchant who imported contaminated foodstuff from Dharwar. Doctors failed to diagnose the cause of deaths. It was only few days later, when there was another death nearby, that they realised they were only cases of bubonic plague.

Immediately after the plague was confirmed, several measures were implemented to contain the disease. Nevertheless, plague spread to Raia, Varca, Chinchinim, Loutolim, Benaulim, Colva and Navelim. The attitude and behaviour of the people was responsible for the spread. Many times they denied the occurrence of the disease and were very secretive. For instance at Varca only after the death of five members of a family, the head of the family informed the authorities about the disease. The plague of 1916 ended in the year 1919. It was noticed that bubonic broke out usually in Goa during the cold season from November to March. Just like
cholera the death rate from plague declined in the third and fourth decade of the twentieth century.

**Smallpox**

Smallpox appeared in Goa in epidemic form in 1900, 1904, 1906, 1909, 1911, 1915 and 1924-1926. The epidemic of 1900 was severe in Goa. Hundred and forty people died of smallpox in 1922. The disease affected mainly the Deuli community, which refused vaccination on religious grounds. Smallpox continued to rage over Goa during the third and fourth decade of the twentieth century. At least 23 people died in 1941. A total of 257 cases of smallpox occurred in Goa in the year 1945. The incidence must have been higher as many cases were not registered. The attitude of the people played important role in the delayed smallpox eradication.

**Deficiency Diseases**

Many cases of beriberi occurred in 1908 among soldiers of a Portuguese ship "Rio Sado" anchored at Panjim. Beriberi appeared again in epidemic form in the year 1913 among the African soldiers stationed at Valpoi.
Fevers

Between 1910 - 1914 about 35% of total deaths in Sanguem were caused by malaria. Since persons stricken with malaria were prone to other diseases the full toll must have been higher. Malaria fevers were widespread during and after the rains.

In the second decade of the twentieth century in a population of over 4,00,000 inhabitants on average there were 2,000 deaths due to remittent fevers. These fevers were popularly known as "febres nervosas" (fevers caused by mental problems) because they were accompanied by convulsions. These fevers prevailed among age group of 20-30 years. They were contagious and appeared in July-August and September-October. Dr. Froilano de Mello discovered that these fevers were paratyphoid and they were endemic in Goa. There were also cases of "Malta fever" in Goa during the second decade of the twentieth century.

Epidemic fever prevailed in Goa among these fevers, malaria was epidemic in the city of Goa, Canacona, Sanguem and Quepem. The disease was widespread because of dense forest and poor hygiene.
Tuberculosis

Tuberculosis was rare in Goa until the end of the nineteenth century. The rapid spread of the disease, after the beginning of the present century was because of emigration of Goans to British India, and the introduction of railways. Pulmonary tuberculosis was common among the adults. In children the disease was found in the glands and intestine. It accounted around 1914 for 18.4% of deaths. These were registered cases. The rate must have been higher. In rural areas very few resorted to western medicine and tried to conceal the disease because of stigma attached to the same.

T.B. incidence was low in New Conquests, probably because the majority of its inhabitants were non-Christians who did not migrate from Goa. Furthermore, New Conquests were thinly populated. Among the non-Christians the disease attacked soldiers and artisans who lived in poor unhygienic conditions.

Tuberculosis prevailed in Bardez and Salcete talukas with large emigrant population. About 75% of deaths among the emigrants and their families was caused by tuberculosis. This figure may be an exaggerated one, probably the figure was not so high. For instance, at Tembim, a ward of Raia (Salcete)
out of 24 houses, about 20 houses had at least 1 person suffering from T. B. in 1914. 80

The emigrants in large cities of Bombay and Calcutta lived in congested places, very often in one single room known as "Kud" shared by several persons in most unhygienic conditions. Their nutrition was also poor. These conditions contributed to diseases such as T.B. Emigrants suffering from T.B. contaminated their families when they came down to Goa on holidays.

From 1916 - 1927 deaths due to T.B. amounted to 6,120 in Goa. The incidence was high among the poor, mestigos and newly married women. Four hundred and fifty one patients died of T.B. between 1929 to 1933. In 1934 nearly 39 deaths occurred in Ilhas on account of T.B. 81

In 1942 a total of 40 cases were treated at Enfermaria Anibal Mendes attached to Hospital de Misericordia. 82 The admission of T.B. patients in Sanatorio S. Jose amounted to 145 during the year. 83

Tuberculosis was feared because of high mortality rate. As the disease was communicable, persons suffering from T.B. were isolated in a room, away from the family quarters or in an outhouse. Members of the family disinfected themselves with
vinegar on slight contact with a T.B. patient. When the patient died all his belongings were destroyed. Tiles from the roof of the house were removed to allow sunlight. Walls of the house were white-washed. In case the room occupied by the sick was in an outhouse, this room was demolished. Tuberculosis was considered a hereditary disease. Therefore, people refused to marry in families with history of T.B. cases.

Venereal Diseases

The incidence of venereal disease continued to be high in the beginning of the present century. Participants of the first Sanitary Conference (1914) made several suggestions to control the disease. Mass education about venereal diseases, establishment of special wards for U.D. patients and a compulsory medical checkup for all those desiring to get married.

In the early years of this century a number of children died of hereditary transmitted syphilis. In some families with 10 to 12 children, about half died on account of the disease and the remaining suffered from some kind of physical or mental deformities.

There are references to open flesh trade in the capital town around 1925. In 1934 there were about 1,000 known prostitutes in Goa. High incidence of V.D. among the soldiers
and prostitutes forced the Government to start a clinic in the Hospital Central (old Hospital Regimental) in Panjim. In 1927 14 military men, 3 prostitutes and eight others were admitted in the clinic. In addition 200 persons received treatment at the outpatient department of the hospital. During the same years 125 servicemen, 23 prostitutes and five children suffered from the disease at Valpoi (Satari). Two clinics, one in Panjim and other in Valpoi, provided treatment for V.D. patients. Because of lack of medical facilities in other parts of Goa, poor transport and stigma attached to the disease the majority of V.D. patient resorted to quacks. This played havoc with health and life of the patients. A table in the appendix provides information regarding the deaths due to syphilis between 1916-1935.\textsuperscript{85}

\textbf{Water borne Diseases}

Typhoid alone accounted for some 3\% of all deaths in Goa around 1914. Between 1916-1927 at least 3,701 were reported dead due to typhoid.\textsuperscript{86} In 1928 there were 212 cases of typhoid. This rate must have been higher, as many cases were not reported. Typhoid was endemic throughout 1930s in Ponda taluka. In 1933 out of 89 reported cases in Salcette, 52 succumbed to the disease. A total of 230 persons died of the disease during the year.\textsuperscript{87}
Influenza

The growth and movement of the population in Goa was greatly affected by influenza of 1918. This epidemic had spread worldwide. The first case of influenza in Goa was reported in 1917 in Bardez taluka. The outbreak did not attract any particular attention of the Government as cases in the early period were not fatal. Able-bodied workers suffered the most on account of influenza. The attack rate was high among the young, old and expectant mothers. Pregnant mothers who suffered of influenza either died, miscarried or delivered premature babies. The highest number of women who are reported to have miscarried due to influenza were in Quepem (80%), followed by Bardez (73%), Bicholim (25%) and Pernem 13%.

Influenza was little known in Goa until 1918. There were few cases in the late nineteenth century. The disease, just like some other contagious diseases, was carried from British India. Three hundred Goans fled from Bombay to Goa, during this epidemic. It coincided with acute shortage of provisions. In Siolim (Bardez) eight to ten persons died daily. The inhabitants of this territory were panicky. They would run away at the mere sight of a dead body being carried away. The Government did not implement immediate measures to control or prevent the spread of the disease. In October 1918 a notification was issued advising the sick to refrain from
sneezing in public and to make use of handkerchief to cover their mouth. However, the military commander at Sanguem opened a ward to treat the sick suffering from influenza. During this influenza free medicine was supplied to the poor at the Hospital Regimental. In Taleigão the Administrator of Ilhas ordered the local pharmacy to supply free medicine to the poor. All funerals were to be held privately. Free machilas were provided to the two physicians in charge of epidemics. Influenza in epidemic form appeared again in 1959 all over Goa and rest of the continent. A list of important epidemics in the sixteenth to twentieth centuries in Goa is given in the appendix 4-H.

Meningitis

Meningitis has been ravaging several developing countries of Africa and South America in present times. Meningitis is transmitted in its bacterial form by one of the three main group of meningoeocus. The disease usually causes inflammation of meninges, the membrane covering the brain. The bacteria is normally transported in the nasal cavity of the patient, and can be spread by sneezing. The disease attacks small children, who often died within 24 hours.

The first case of meningitis appeared in Goa in the beginning of this century. The disease was brought from
Portugal by the Portuguese sailors, where a powerful epidemic broke out in 1902-1903. Meningitis took epidemic proportions in the second decade of this century. This time the disease was transmitted by emigrants of Africa. The disease attacked children, between the age group from 2 to 18 years in Velim and Assolna (Salcete). From Salcete the disease spread to Quepem. In 1919 a total of 151 children suffered from meningitis and about 38 died of the disease. Around 859 children succumbed to the disease from 1921 to 1927. Forty seven children succumbed to the disease in 1928 at Salcete. In 1930, 29 cases were registered and 16 died of the disease.

Dobo

Dobó, a disease of liver was common in Goa around 1930s. The disease was unknown outside India. It was called Dobo (box) because the liver turned hard. Infants in their teething period fell victim to the disease. The disease prevailed among children of Bhat (priestly) class, probably because of deficiency in their diet. Dobó was rare among Christians and Muslims in Goa. Cow's urine mixed with equal parts of sugar and salt, concoction of wild egg plant mixed with papar khar, egg plant or papod khar boiled in a copper vessel and ground with cow's urine and jaggery, were some of the medicine presented by the native practitioners for Dobó.
The symptoms of the disease were fever, depression, lack of sleep and enlargement of liver.

**Pempigus**

High fever, delirium, convulsions followed by transparent irregular boils were symptoms of *Pempigus*. The boils left ash grey scars. *Pempigus* erupted in epidemic form in 1937 at Chicalim (Bardez). The disease was carried by a young boy from Bombay. The incubation period was from 10 to 15 days. Out of 34 registered cases ten died of the disease. *Pempigus* let to other complications such as pneumonia.

**Poliomyelitis**

Poliomyelitis existed in Goa for a long time. It took epidemic proportions between 1937-1941. After this period there was decline in polio cases. The victims belonged to the age group of 0-4 years. The highest incidence was in Bardez probably due to emigration, better means of transport and high density of population.

**Other diseases**

In 1922 disease such as dysentery, whooping cough and chickenpox took epidemic form.
Uterine problems were prevalent among women. In rural areas snake bites were common. Many people died of snake bites and rabies. A large numbers of people were reported to be suffering from leprosy.

Alcoholism and intoxication were other health problems throughout the period. Alcoholism prevailed among people of all classes. Tavernas (liquor shops) were found in every nook or corner. The Church tried to curb this vice by imposing certain checks but the vice continued with the vice. Liga Economico-Social da India Portuguesa established in 1930s also fought against excessive drinking and smoking. Drugs like opium and bhang were openly sold in Goa until 1927. These drugs were consumed by people of all classes. In the seventeenth century opium was supplied by employers to increase the working capacity of their labourers. For example, in the gunpowder factory and in the galleys. There is a interesting description of the Portuguese ladies using Dutro to inebriate their husband to allow them freedom with their lovers. This consumption of drugs led to acute and chronic intoxication.

The inhabitants suffered also from problems of stress and strain, possibly connected with emigration that was highest in Bardez. Rois de Christandade gives us some statis-
tics about the mentally ill among the Catholics of Goa. In 1915 the highest number of mentally ill were found in Bardez. This taluka had 156 mentally ill people among the Catholics. Two villages in Bardez that is Aldona and Ucassaim had the highest number. Salcete had 104 persons with mental problems. Old Conquests had a total of 341 mental cases and New Conquests just 36. These figures are not very reliable. Many times the statistics included the deaf and the dumb together with mentally ill people besides Goa during this period had no trained psychologist who could diagnose such cases.

Several other diseases existed in Goa. Dyphteria, whooping cough, liver diseases and pneumonia were common health risks. Some school health studies have cited that majority of school children had health defects of some sort. Most commonly they suffered from hookworms, malnutrition, anemia and caries. Tetanus known among the natives as Sotvi was responsible for high mortality rate among infants, followed by diarrhoea.

IV. PREVENTION AND CONTROL OF COMMUNICABLE DISEASES

Malaria

Before preventive measures were instituted malaria was one of the biggest public health problem. The disease was
endemic in some parts of Goa, and accounted for 60,000 deaths a year before 1950.

Quinine tablets were for the first time in 1869 distributed in urban areas to prevent malaria. Regulations to prevent and control recurrent epidemics, including malaria epidemics, were issued on 14th March 1913. It required that every house in the capital city and in Margão, Mapuça and Vasco should clean stagnant pools of water around them. Inspection of these houses was to be carried by personnel of Heath Services every week. All wells were to be covered and a pump attached to them. These regulations were evolved without considering the financial aspect. Large sums were required to implement these measures. Margão alone had 1,000 wells, a minimum of Rs. 215 was required to cover and provide pump for each well. However, no funds were provided by the Government. In 1920s Dr. Froilano de Mello and Luis Bras de Sa from the Health Services discovered 18,000 unused wells in Old Goa and they were successful in closing these wells which were sources of malaria.

In the late 1940s the first anti-malaria campaign was launched on war footing in Old Goa. Several unused wells were closed down, marshy areas were filled up. D.D.T. was sprayed and quinine tablets were distributed to the inhabi
tants. Large sums were spent to improve the sanitary conditions of the old city.

In early 1950s large scale malaria control programme was started in Goa. Two doctors from Goa Dr. Pandorinath A. Borcar and Dr. Francisco T. da Silva were sponsored by World Health Organisation to Malaria Institute in New Delhi to receive training in Malaria control. Later they were sent to Bombay for further training. On their return they were posted in Sanguem and Canacona. Extensive surveys were carried out in these places to investigate the incidence of malaria. From October to June every house was sprayed three times with D.D.T and paludin tablets were distributed among the inhabitants. The eradication programme was then extended to Quepem. As result of these measures malaria almost disappeared from these areas. Recently malaria has come back in the capital town of Goa.

Smallpox

Until the mid nineteenth century no preventive measures to prevent smallpox were implemented. If any measures were introduced at all it was done after the outbreak. Repeated attack of smallpox during the second half of the nineteenth century forced the State to make vaccination compulsory in
1883. Similar orders were repeated in 1893, making vaccination compulsory among primary school children.\textsuperscript{107}

The vaccination campaign does not seem to have succeeded. A number of factors worked against it. Chief among these was the difficulty of keeping the lymph potent for long enough period to dispatch to remote areas and use it in time. There were also faulty techniques of the vaccinators. The officials were reluctant to assert their authority in a field where people's attitudes were closely entwined with religion and tradition. The vaccinators were poorly paid.

Smallpox vaccine was not well received by Goans. In fact, in the middle of the nineteenth century several individuals from Bicholim sent a petition to the Government requesting to allow them to follow their own practices, as they found the vaccine not efficacious. A certain section of the population also believed that smallpox was cause by goddess Devi and vaccination would annoy her. The goddess in turn would maim or kill people.

In 1891 the Government opened a ward in Mormugão to isolate victims of smallpox.\textsuperscript{108} Similar isolation wards were started at Colem and Reis Magos in the later period.
Vaccination was normally ordered after an outbreak of the disease, as for instance at Ponda in 1889 and Pernem in 1892. Since several cases of smallpox were detected in 1906, the Government asked physicians and heads of the family to inform about the occurrence of smallpox in their locality. Vaccine was ordered from the Belgaum. Doctors entrusted with vaccination work received a salary of Rs.40 and a remuneration of Re.1 when they moved out of the headquarters. The Government fixed vaccination timings in various talukas. The response of the people was poor. In 1908 the Government, repeated its order to taluka administration to fix a day for vaccination preferably on a Monday. The place of vaccination had to be away from the church.

Smallpox vaccine was made again compulsory in 1914 to all children seeking admission in Government primary schools and two years later to all ship crew leaving Mormugao harbour. Earlier vaccination was made compulsory to all those who wished to migrate to British India. Incentives were provided to vaccinators. Their remuneration was increased in 1916 to Rs.3 per every ten vaccinated persons. A fine of Rs.50 was imposed on those who refused the vaccine. A total of 46,300 persons were vaccinated in 1928. In 1933 about 11,064 persons received vaccine in Bardez. In 1941 altogether 60,343 persons received vaccine in Goa.
Smallpox did not disappear till quite after sometime, because people often concealed cases of smallpox from the authorities fearing they would be sent to isolation hospitals in Colem, Reis Magos, Mormugão and Margão. The concealment was never complete because uneducated people believed that neem leaves hung at the entrance of the room prevented the spread of the disease and the leaves had beneficial effect on the patient.

Cholera

From mid-nineteenth century the Government began to introduce measures to prevent and control cholera. Earlier various measures such as firing in the air with gun, fumigation with gunpowder and tar as well as cleaning the affected areas with cattle were resorted to. These measures were ineffective. At the end of the nineteenth century the Health Services were granted permission to appoint doctors to care for cholera victims. For instance in 1893 a doctor was appointed to take care of cholera patients in Taleigão and to provide medicine from Hospital Regimental to the poor victims.

Soon after a ban was imposed on people entering Goa on the northern side from British India to prevent the spread of cholera. 114
Recurrent cholera attacks in the late nineteenth and early twentieth century led the Government to adopt several measures. It instructed the State Health Board (Junta de Saude) to introduce therapeutic and prophylactic measures. The inhabitants were banned from washing their clothes around the wells and from consuming water from the wells used by cholera patients. In some talukas the doctors were provided with free transport facilities during epidemics. Quarantine regulations were enforced.

Many physicians were reluctant to help the victims of cholera. In 1908, the Administrator of Ilhas was asked to report the names of those physicians who refused to work during epidemics. Such doctors would not be considered for Government services. Jobs in the Health Services were in great demand in those days. During this period vigilance committees were appointed in the villages to introduce preventive measures and to render help to the cholera victims.

Cholera inoculation was introduced in Goa very late in the year 1927. It was made compulsory for passengers entering Goa from British India.
Plague

Several plagues occurred in Goa from 1900 to 1918. The following measures were adopted during the plague of 1908 in Panjim.119

(i) A team of health workers were appointed to undertake the task of cleaning areas inhabited by merchants who lived in ill ventilated places.

(ii) Houses and compounds were regularly inspected by physician appointed by Health Services.

(iii) Streets and houses were fumigated with petrol and chemicals. In some houses tiles were removed.

(iv) Dead rats and cases of fevers were to be reported to the authorities.

(v) Windows were opened in houses lacking ventilation.

It is interesting to note that blacks were generally employed by the Government to take care of those suffering from bubonic plague in isolation wards. As already mentioned a plague broke up in Margão in the year 1916. During this period houses and shops were inspected daily to search for
dead rats. These houses were disinfected and new windows were opened for proper ventilation. Inhabitants of Margão were not allowed to change their residence, without prior notice to the Health authorities. Several roads and lanes were opened and cleaned. Finally cowsheds were shifted away from the town.

Meningitis

Inoculation against meningitis was introduced soon after the disease took epidemic proportions in Velim and Assolna. About 60 children were vaccinated in 1927. The following year 399 children received vaccine in Salcete. In Velim the number of children who underwent vaccination was about 200.

The second Sanitary Conference held in 1934 decided to start a full-fledged Government aided association to tackle problems related to T.B. "Assistencia aos Tuberculosis da India Portuguesa" was founded in 1941. A clinical and radiological survey of the population was carried out.

The sudden spurt in mining industries caused overcrowding and pollution of mining areas. The labor population was affected by diseases including T.B. In early 1950's two health officers were sent for training in T.B. at the National Institute at Bangalore. The B.C.G. programme was
started at the end of 1950's. T.B. and B.C.G. vaccines were brought from Portugal every fortnight. Vaccination was carried out, after the person underwent Montroue Test. This scheme was looked after by the Health Services.

Epidemic diseases began to disappear during the fourth decade of the present century probably due to introduction of inoculations and greater awareness among the people regarding hygiene. Cholera ceased to be common by 1945 due to regular inoculations. Plague disappeared from Goa. Preventive measures helped to eradicate malaria in Canacona, Sanguem and Quepem. However, in recent years a more virulent variety has made its appearance in Goa and specially in the capital city.
REFERENCES


(3) *Archivo de Pharmacia e Sciencias Accessorias da India Portuguesa*, Nova Goa, 1870, p. 19.


(5) Gaspar Correia, *Lendas da India*, Tomo IV, Lisboa, 1864, p. 289; Coutinho, Fortunato, *Le régime paroissial des diocèses de rite latin de l'Inde des origines (XVI siècle) nous jours*, Louvain, 1958, p. 36: Says that during the epidemic of 1543, the Diocese of the city of Goa was divided into four parishes. This was necessary to bury 15 to 20 persons who died daily due to cholera.


(8) *DI*, VIII, p. 318. During this cholera attack two to three persons were often buried in the grave because there were instances when the entire family were victims of the disease.

(9) *ARSJ*: Goa 33, II, fls. 500, 718.

(10) *HAGi* Ms.1498 -- *Ordens Regias* no. 2, fls. 11-12.
(11) Gaspar Correia, op. cit., p. 447. The children of the king of Ceylon were studying in Goa with the missionaries.


(13) Archives du Royaume Belgique, Bruxelles -- Archives Jesuitiques, no 1427, fl. 131. Many Portuguese left the city during this epidemic for more healthy places.

(14) Agostinho de Santa Maria, Historia da Fundação do Real Convento da Santa Monica da cidade de Goa, Lisboa, 1699, p. 289.

(15) ARSJ: Goa 34, II - Goana Historia 1648-1649, fls. 290 and 409v.


(18) HAG: MR. 121 B fls. 692 V-194. Lack of medical facilities also were responsible for mortality on board the ships. Barbers often did the work of surgeons. Many times the ships appeared to be floating hospitals.

(19) Luis de Pina, Subsidio para a Historia da Medicina Portuguesa Indiana no seculo XVII, Porto, 1931, p. 9. He says that enema, bleeding and purgative were the main medicine used by the Portuguese to cure diseases.

(20) Diogo Couto, Asia, decada 9a., Lisboa, 1786, pp. 50-51.
Conde de Ficalho, op. cit., p. 181. Travellers Linschoten, Pyrard, Petro de Valle, Mandesio also mention about widespread prostitution and free life style of many women in Goa.

João de Barros, *Asia*, (segunda década), Lisboa, 1945, pp. 242-243. In the beginning non-Christians were shocked when they saw their daughters being taken away by the Portuguese as their wives but later were contented when the girls were well married. The Portuguese husbands treated them well.


*A.P.O.*, Fasc. IV, p. 52.


HAG: *MR.*, 81, fl. 220; HAG: *MR* 114, fl. 77v: In Novem-
ber 1742 about 60 soldiers died in the Royal hospital, at times seven people would die in a day.

(33) HAG : MR. 121 B, fl. 691.

(34) HAG : MR. 131 B, fl. 379v.

(35) HAG: MR. 143 A, ffs. 333 and 337.

(36) Dr. Costa Portugal was the Chief Physician in Goa, details about him are given in chapter VII.

(37) Germano Correia, Colera-morbo na India Portuguesa, desde a sua conquista ate a actualidade -- Estudo nasografico, epidemiologico e climato-sanitario, Nova Goa, 1919, p. 13.

(38) HAG : MR. 173, fl. 150.

(39) HAG : MR. 196, fl. 131.

(40) HAG: MR. 196, fl. 131; Miguel Vicente d'Abreu, O Governo do Vice-rei Conde de Rio Pardo no Estado da India Portugueza desde 1816-1821, Nova Goa, 1869, p. 140.

(41) Arquivo de Pharmacia e Sciencias Medicas da India Portuguesa, 15th March 1863, pp. 105-111.

(42) Appendix 4-A.

(43) Boletim do Governo de Estado da India, (Henceforth BG., no. 26, 28th June 1845, p. 3.

(44) B.G. n° 32, 4th August 1854.
Appendix 4-B.

Filipe Nery Xavier, *Colleção de Bandos e outras diferentes Providencias que servem de Leis Regulamentares*, II, Nova Goa, 1850, p. 205; HAG: Ms. 966 -- *Cartas Ordens e Portarias*: contains orders appointing two doctors to handle the cholera epidemic at Dongrim (Ilhas). These two doctors were jointly paid by the Health Board and village *Communidade*.

Appendix 4-C.

"Relatorio do Administrador do Concelho de Nova Goa 1870", *Archivo de Pharmacia e Sciencias Accessorias* Nova Goa, Imprensa Nacional, 1870, p. 16.

Germano Correia., *op. cit.*, p. 64.

*ibid.*, p. 90.

Appendix 4-E.

*ibid.*, p. 178.

HAG: *C.D* 11670, fl. 124.

HAG: *MR.* 161 C, fl. 858.

HAG: *MR.* 190 C, fls. 747-748.

*B.G.*, N° 44, 31 de Outubro 1851.

Estatistica Medica dos Hospitais das Provincias Ultramarinas referida ao ano 1869, Lisboa, 1883, p. 31.
Estatisca Medica dos Hospitais das Provincias Ultramarinas referida ao ano 1876, Lisboa, 1883, p. 201.

Diario do 3º Conde de Linhares, Vice Rei da India, II, Lisboa, 1943, p. 261. The British in India also resorted to bleeding to cure fevers.

"Relatorio do Servico de Saude do Estado da India Portuguesa -- 1879" (primeira parte), Nova Goa, 1880, p. 20.

HAG: MR 197, fl. 280.

HAG: Ms. 966 - Cartas, Ordens e Portarias, fl. 135.

HAG:CD 11688, fl. 138. Prostitutes and others resorted many times to abortion carried out with the help of various types of native medicine. One of the common methods used for abortion was to give a purgative to the pregnant woman.

Appendix 4-D.


Germano Correia, Nosografia da India Portuguesa, Nova Goa, 1919, p. 245.

Ibid., p. 257. The annual report of Health Services from June 1919 to June 1920 reports that many times fishermen on their way back from British India would throw their crew members infected with cholera in the sea.
Information about Dr. Wolfango da Silva is given in chapter VII.


Appendix 4-F.


Loc., cit.

Arquivos da Escola Medico Cirurgica de Nova Goa, Bastora, 1942, p. 177.


Details about Dr. de Mello are given in chapter VII.


Ibid., p. 818.
(81) "Relatorio de Servicos de Saude. 1933", Boletim Geral de Medicina e Farmacia, Bastora, 1934, p. 18.


(84) A.C. Germano S. Correia, *India Portuguesa -- Prostituicao e Profilaxia Anti-venerea -- Historia Demografia Etnografia Higiene e Profilaxia*, Bastora, 1938, p. 74. In 1938 the highest of Prostitutes were found in Ponda followed by Bardez and Sanquelim. There were about 144 known prostitutes in the age group of 15 years.

(85) Appendix 4-D.

(86) Arquivos de Escola Medico-Cirurgica de Nova Goa, 1929, p. 487.

(87) "Relatorio de Servicos de Saude", Boletim Geral de Medicina e Farmacia, 1934.

(88) Pedro Correia Afonso, "O Problema da Mao d'Obra Agricola na India Portuguesa", 7° Congresso Provincial, Nova Goa, 1927, p. 32.


(91) Report by Taluka Health Officers of Goa 1930, Boletim Geral de Medicina e Farmacia, April - June 1931, p. 93.

(93) L.J. Bras de Sa, "A epidemia de Pempigus numa aldeia de Bardez", Arquivos de Escola Medico-Cirúrgica de Nova Goa, Bastora, 1938.


(95) PP: Visita Pastoral, vol. 7-8, fl. 13. (Henceforth VP).

(96) PP: VP, vol. XII, fl. 186.

(97) HAG: MR. 85, fl. 59v.

(98) Pyrard, op. cit., p. 87.

(99) The bibliographical essay in this work gives detailed information concerning these Rois.

(100) RC. 1906-1917.

(101) PP: RG. 1773-1941.


(103) B.O, nº 21, 14th March 1913.

(105) Victor Dias, *Velha-Goa e o seu saneamento*, Fasc. 1, Cidade de Goa, 1940.


(107) HAG: CD. 11668, fl. 110.

(108) Ibid., fl. 10.

(109) HAG: CD., 10471, fl. 39.

(110) Ibid., fl. 43.

(111) Ibid., fl. 86.

(112) Ibid., fl. 109.


(114) HAG: CD., 11668, fl. 116.

(115) HAG: CD., 11668, fl. 131.

(116) HAG: CD., 10471, fl. 79.

(117) HAG: CD., fl. 79.

(118) Ibid., fl. 80.
(119) *B.O.*, no. 65, 21st August 1908.

(120) Antonio Augusto do Rego, "Relatorio da Campanha Antipestosa em Margão e em varias aldeias de Salcete", Nova Goa, 1918. A ward to isolate patients suffering or suspected of plague was opened in Margão during this period much against the wishes of the inhabitants.