PART - II
ANALYSIS
A study of the interaction between culture and health is specially important in a country like ours, which is lagging far behind in solving the cultural equation of medicine, health illness and treatment. The socio-cultural environment comprises a complex interplay of factors, and conditions such as cultural values, customs, habits, beliefs, economic status, occupation, religion, standard of living, diet, housing, etc.

In a country like India where a great majority of the people live in rural areas, we have to admit that Indian culture is essentially a rural culture, where urban population is relatively small. Moreover, the majority of the urban dwellers are those who migrated to the town only recently hence they continue to be ruralites in values, mores, habits and rituals. For many of them, slums are the ultimate refuge, and if there is anything that sustains them in those inhuman conditions, it is the rural way of life. While dealing with each of the above mentioned factors we shall be able to get a clearer picture of the

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1 R.P. Misra, Medical Geography of India, National Book Trust, India, 1970, p. 35.
relationship between health and environment.

Population and Density

Assam's population, according to 1971\(^2\) census was 14,625,152. The general density of population was 186 persons per km\(^2\) as against 167 in India as a whole. The Brahmaputra Valley is the most populous region of the State with a total population of 12,456,477 or 85 per cent of the State's total. The density of population in the valley was 221 per km\(^2\) as against 186 for the State as a whole.

The distribution of population in the districts of the State varies widely due to various physical, economic and demographic factors. The district of Kamrup has the largest population of 2.8 million (Fig. 3.1) followed by Goalpara (2.2 million), Sibsagar (1.8 million), Darrang (1.7 million), Nowgong (1.6 million), Dibrugarh (1.4 million), and Lakhimpur (0.7 million). So far as the density is concerned, all the districts except Lakhimpur rank above the State's average (Fig. 3.2). Nowgong has the highest density in the Brahmaputra Valley followed by Kamrup, Goalpara, Sibsagar, Dibrugarh and Darrang.

It should however be noted that the figures

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\(^2\) Census of India, 1971, Series 3, Assam, General Population Tables.
People in fact huddle together in limited spots with higher density than is normally imagined.

Poor sanitation in densely populated areas.
stated above relate only to arithmetic density. In reality wherever people live, they live more densely because large tracts of the valley are under forests and extensive swamps where settlement is not possible. Moreover, vast areas where settlement would have otherwise been possible, are normally used for agricultural purposes. Thus people in fact huddle together in limited spots with higher density than is normally imagined.

Thus a study of the actual density of population in the habitats gives a clue to the understanding of the state of health of the people. More densely populated areas usually have an adverse man-land ratio and hence poorer standard of living, which in turn leads to poor health. Densely populated areas also have poorer sanitation and people living there, are more susceptible to epidemics and other diseases than others.

Influx of immigrants is the most important factor contributing to the phenomenal increase in the State's population during the last few decades. Improvement in public health and medical services is the other contributing factor which has lowered the annual death rate and infant mortality rate. While the death rate has been brought down from 3.3 per thousand (1967) to 1.5 per
thousand (1971) through improved medical services, the birth rate which was 5.1 per thousand in 1967 has remained stationary (5.9 per thousand in 1971) mainly because of the low standard of living of the people.

Diseases diminish not only the quality but also the length of life. Thus, although the expectancy of life has increased in the country, it has not been uniform everywhere. Kerala, Punjab, Rajasthan, and Maharashtra have life expectancy of over 45 years, whereas Assam, Andhra Pradesh, Bihar and Uttar Pradesh have less than 39 years. The rest of the States have almost the average Indian expectancy. When compared to the other countries of the world the differences between conditions in the developed and the developing countries are most sharply defined by the map (Fig. 3.3) of life expectancy at birth. The figures however do not mean, that everyone in those countries lives to that age. The figure is an average that takes account of the children who die young and the people who survive well beyond that level. Thus the dramatically low figures for the underdeveloped countries reflect primarily the high rate of infant mortality. A person who has survived beyond the childhood years

is likely to do so well beyond the recorded expectancy. Those low figures for the hungry countries remind us again how hard hit are the children in the underdeveloped world. 4

**Sex-Ratio**

The population of Assam in 1971 was constituted by 7,714,240 males and 6,910,912 females, the sex-ratio in the Brahmaputra Valley being 890 as against 930 in the Country. The sex-ratios in the rural and urban areas of the State are 916 and 665 respectively. The low sex-ratio in the urban areas is due to the presence of a considerable number of working and institutional male population, a large part of which is unmarried and a part leave their families back at home in the villages. Goalpara district has the highest sex-ratio 927, followed by Nowgong 899, Kamrup 890, Lakhimpur 888, Sibsagar 886, Darrang 880, and Dibrugarh 859.

When considering the scheduled castes and scheduled tribes separately for the State, we find that Goalpara has the highest sex ratio (938) among the scheduled castes, followed by Darrang 935, Sibsagar 914, Kamrup 910, Nowgong 900, Dibrugarh 883 and Lakhimpur 854. Again for the scheduled tribes, Goalpara still ranks highest with 973, followed


* Sex-ratio means the proportion of female to 1000 males.
The sex ratio has some relationship with the general health of the people. Women in general are better equipped than men to get over diseases. They are, moreover, less exposed to the hazards of life than men. Yet in India as a whole, we see a steady decrease in the ratio of women. It could be because women still suffer from far too many social and economic disabilities which ultimately tell upon their health, and also because a heavy toll of female lives is taken in the earlier period of their reproductive age, especially between the ages of 15 and 34. Furthermore, the prevalent desire to have male offspring, is a powerful factor in sustained high birth rates and general weakness of the females. When a couple has produced two daughters, the father is likely to want to continue enlarging the family until two or more sons have been born. Moreover, the male predominates in these traditional societies to such a degree that he demands and takes a disproportionate share of the family's food supply. Therefore, the male is again in a better position than the female, healthwise. All these contribute to the fact that the toll of female lives is so heavy that the differences between the male and female populations grow remarkably wide. This gap existed even in
the post and was never made up.

Age Composition

The structure or composition of a population involves the number of people in various age groups, and it can be best represented by an age-sex pyramid. The age-sex pyramid for India in 1970\(^5\) (Fig. 3.4) shows how great was the number of children in the three lowest age categories (0-4, 5-9, 10-14) compared to the persons in the older age groups. Similar is the case in the Brahmaputra Valley. The table 3.1 gives the age-wise breakdown of population at district level.

The structure of a population has important implications for the spread of diseases and the seriousness of their effect on people in the various age categories. Certain diseases affect some age groups more severely than others. When a child gets the measles, for example, it is usually much less severe than when it attacks an adult. On the other hand, an adult can normally cope better with diarrhoea than a child. Thus it is obvious, when the age structure is such that a large proportion are children, that

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Districtwise population by broad-age group has been taken from the Director, Census Operation, Assam. Percentage figure have been worked out by the author.
AGE-SEX PYRAMID FOR INDIA, 1970


Fig. 3.4
Table 3.1

Age-wise Breakdown of Population

(Figures within brackets represent percentage)

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>0 - 14</th>
<th>15 - 24</th>
<th>25 - 39</th>
<th>40 - 59</th>
<th>&gt; 60</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Goalpara</td>
<td>10,93,212</td>
<td>3,29,439</td>
<td>4,20,645</td>
<td>2,70,274</td>
<td>1,11,430</td>
<td>2,225,103</td>
</tr>
<tr>
<td>2. Kamrup</td>
<td>13,65,663</td>
<td>4,51,693</td>
<td>5,38,673</td>
<td>3,63,589</td>
<td>1,34,112</td>
<td>2,854,183</td>
</tr>
<tr>
<td>3. Darrang</td>
<td>8,23,805</td>
<td>2,73,389</td>
<td>3,39,810</td>
<td>2,24,248</td>
<td>74,849</td>
<td>1,736,188</td>
</tr>
<tr>
<td>4. Nowgong</td>
<td>8,00,937</td>
<td>2,61,655</td>
<td>3,16,921</td>
<td>2,13,977</td>
<td>87,125</td>
<td>1,680,895</td>
</tr>
<tr>
<td>5. Sibsagar</td>
<td>8,39,346</td>
<td>3,25,438</td>
<td>3,58,434</td>
<td>2,39,651</td>
<td>74,313</td>
<td>1,837,389</td>
</tr>
<tr>
<td>6. Dibrugarh</td>
<td>9,81,701</td>
<td>3,60,412</td>
<td>4,26,376</td>
<td>2,68,554</td>
<td>84,649</td>
<td>2,122,719</td>
</tr>
<tr>
<td>7. Lakhimpur</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brahmaputra Valley</td>
<td>5,904,664</td>
<td>2,002,026</td>
<td>2,400,859</td>
<td>1,580,293</td>
<td>5,66,478</td>
<td>12,454,320</td>
</tr>
</tbody>
</table>

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population has many more susceptible individuals than a relatively older population. This is because people tend to develop immunities within a particular ecology to various diseases as they grow older, although children are yet to attain such immunities. In addition, huge numbers of children in Asam remain unvaccinated for a long time, since medical systems do not reach them. This means that, despite all the efforts of various organizations attempting to improve the health of populations in the rural areas, the reservoir of susceptibilities to disease out breaks in epidemic-scale is growing with the population explosion.

Rural and Urban Composition

The population of Assam is mostly rural. About 91 percent of the people live in rural areas as against 80 percent of the country as a whole. Percentage of urban population in Assam (9 percent) compares very unfavourably with that of Maharashtra (31.17 percent), Tamil Nadu (30.26 percent), Gujarat (28.08 percent), West Bengal (24.75 percent), Punjab (23.75 percent), Karnataka (24.31 percent) and Rajasthan (17.63 percent). The towns in Assam are small and the civic amenities are underdeveloped. At present there is only one city i.e. Gauhati with a population of 146,000 (1971) which alone constitutes 11.3
percent of the total urban population of the State.

The very fact that majority of our people live in rural areas, has an impact on the health of the inhabitants. The number of doctors per 1,000 population is low all over our country, but it is disastrously low in the rural areas. Moreover, basic health and sanitation facilities like purified water, sanitary latrines, proper disposal of garbage, etc., are almost absent. The wells, tanks, streams from which water is drawn for drinking, are also used for washing and irrigation. The peculiarities of occupation and surroundings make common housing of human beings and animals necessary. It is therefore common to see farmers keeping their cattle in the courtyard or veranda or even in the front room.

In the towns again, there is huddling of persons who come from the villages in search of livelihood. Males often leave their families in the rural area and go to the city and live precariously while looking for a job or engaged in lowly paid ones. This migration to the urban areas usually involves younger people – young adults and children. Older people have a greater tendency to stay in their homes. The young adults and their youngsters bring with them a greater susceptibility to various diseases and so the cities contain
Basic health and sanitation facilities like sanitary latrines, are almost absent.
Unhygienic conditions prevail in the urban areas.

Waste matter from latrines falls on to the river, which is also used for washing.
Unhygienic conditions prevail due to unplanned building of houses rendering drainage impossible.
Filthy surroundings help various insects, flies, and other germs to grow.

Open drains, marshes and unplanned sewage systems become a menace to health.
Where large proportion are children, that population has many more susceptible individuals.

Rubbish is thrown outside indiscriminately.
People drink straight from the tap or wells without realizing the fact that they are liable to pollution from neighbouring sources of contamination such as latrines, urinals, drains.
People bathing, washing their clothes and drinking from the same source of water.
Fig. 35
SHOWING RELIGIOUS COMPOSITION
BRAHMAPUTRA VALLEY

INDEX:
HINDUS
MUSLIMS
CHRISTIANS

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0
€
96
0
26
0

BRAHMAPUTRA VALLEY
SHOWING RELIGIOUS COMPOSITION
(1971)
not only the hungry but also the vulnerable. Environmental sanitation therefore, in our urban areas are far from being solved.

Furthermore, migrants from rural areas are not able to shed all those habits and customs which they followed in their rural homes. We often find children as well as grown ups easing themselves in the street corner, river side, or any place for that matter, making the whole surrounding filthy, and thereby helping various insects, flies and other germs to grow. Spitting is only too common. Unhygienic conditions prevail in the towns and cities due to unplanned building of houses which render drainage impossible. Pools of water used for various purposes, pollute the soil and ground water. Open drains, marshes and unplanned sewage system, become a menace to health.

The civic authorities of the towns have neither the requisite resource to improve and maintain necessary sanitary conditions nor do the inhabitants co-operate in the effort of the former. There is a lack of effective legislation forbidding town dwellers from keeping cattle. Then again, religious taboos prohibit some of the traders who run the warehouses, godowns and provision stores from killing pests and insects. All these factors add to the problems that hamper the development of a healthy environment.
Religious Composition

The population of Assam is composed of several religious communities. The Hindus constitute about three fourth (72 percent) of the total population of the State, out of which 12 percent belong to scheduled tribes and 6 percent scheduled castes, and while the rest belong to upper castes, backward classes and other backward classes. The scheduled castes belong to the lower echelon of the Hindu society. The bulk of the population of the scheduled tribes are Hinduized, although they retain their social customs religious beliefs and food-habits of their ancestors. Next come the Muslims (25 percent), and the Christians who constitute a small proportion (3 percent) of the population. The persons belonging to Buddhism, Jainism and Sikhism are almost negligible. Majority of the Muslims are immigrants from the then East-Bengal who came here after 1901. They are settled mostly on the 'char-lands'* and flood plains, normally away from the settlements of the indigenous population. These people generally remain marooned by flood water during the summer season with practically no roads linking their settlements. Because of the location of

*Char-lands are semi permanent riverine islands river banks within the flood plains of the Brahmaputra and its main tributaries, these areas remain submerged during the floods.
these char-lands among the water bodies and marshes their physical environment has an inherited drawback and because of such isolation what ever meagre health service the State affords can hardly reach them.

Districtwise, Goalpara has the largest proportion of Muslims, 42.25 percent as against 53.92 percent Hindus. Nowgong has 39.40 percent Muslims as against 59.70 percent Hindus. In Kamrup the Muslims constitute 28.93 percent of the district's total. Darrang has only 16.19 percent. Lakhimpur 7.14 percent, Sibsagar 5.20 percent and Dibrugarh 2.90 percent Muslims. (Fig. 3.5). Sibsagar and Dibrugarh have a small Muslim population, and the immigrant element is almost absent in these two districts. In other districts 80 percent of the Muslim population consists of the immigrants.

The percentage of Christians in Darrang district is highest with 5.07 percent, followed by Goalpara 3.59 percent, Lakhimpur and Dibrugarh 3.21 percent, Sibsagar 2.09 percent, Kamrup 0.88 percent and Nowgong 0.71 percent. Majority of the Christians are tea garden labourers, and this is made clearer when we notice that wherever there are tea gardens we normally find more Christians. Besides tea garden labourers, there are some indigenous
tribals also among the Christians.

**Literacy**

The level of education determines, at least to a certain extent, the attitude of the people towards disease and health. The uneducated know very little about scientific progress in the cure of diseases and are often traditionalist, having staunch faith in everything old and correspondingly a contempt for everything new.

The literacy rate of Assam is 28.31 percent as against 29.35 percent in the country as a whole. The percentages of male and female literates being 37.19, and 19.27 respectively. Assam is even behind Mizoram (53.72 percent), Manipur (32.91 percent) and Meghalaya (29.49 percent).

In the Brahmaputra Valley, Sibsagar has the highest literacy with 36.62 percent followed by Dibrugarh (30.46 percent), Nowgong (28.92 percent), Lakhimpur (21.91 percent), Kamrup (28.77 percent), Darrang (22.76 percent), and Goalpara (21.98 percent). This shows that Assam is still far behind in respect of education when compared to the other States of India.

The scheduled tribes have a higher literacy rate than the scheduled castes. The Hmars a scheduled tribe has
the highest percentage of literates among males (56.90) and females (31.66) followed by the Barman in Cachar where 37.77 percent are males and 22.56 percent are females from the total literates. Among the scheduled castes, the Bania and Patni caste has a high literacy rate where 50.46 percent are males and 25.73 percent are females and 41.10 percent males and 22.22 percent females respectively.

Coming to sexwise literacy, data shows that both males and females from Upper Assam are more educated than those from Lower Assam (Table 3.2). Female literacy among the literates is highest in Sibsagar (35.81 percent) followed by Dibrugarh (32.72 percent), Nowgong (32.68 percent), Lakhimpur (31.35 percent), Kamrup (29.75 percent), Darrang (29.56 percent) and Goalpara (28.53 percent).

Table 3.2

Sexwise Literacy in the Brahmaputra Valley.

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>Percentage of Literates to Total Population</th>
<th>Percentage of Male Literates</th>
<th>Percentage of Female Literates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goalpara</td>
<td>21.98</td>
<td>71.47</td>
<td>28.53</td>
</tr>
<tr>
<td>Kamrup</td>
<td>28.77</td>
<td>70.25</td>
<td>29.75</td>
</tr>
<tr>
<td>Darrang</td>
<td>22.76</td>
<td>70.44</td>
<td>29.56</td>
</tr>
<tr>
<td>Nowgong</td>
<td>28.92</td>
<td>67.32</td>
<td>32.68</td>
</tr>
<tr>
<td>Sibsagar</td>
<td>36.62</td>
<td>64.19</td>
<td>35.81</td>
</tr>
<tr>
<td>Dibrugarh</td>
<td>30.46</td>
<td>67.28</td>
<td>32.72</td>
</tr>
<tr>
<td>Lakhimpur</td>
<td>28.91</td>
<td>68.65</td>
<td>31.35</td>
</tr>
</tbody>
</table>
Lack of education among the females is a drawback to the society as a whole. They have no knowledge about diseases or even the basic needs for proper care, sanitation and hygiene. As for example, an educated female will always teach her servant and children to throw sweet wrapper or pieces of paper in a particular place, from where it could be disposed off later, whereas an uneducated, will give no such importance to cleanliness, but will suggest to throw any rubbish just over the fence, not bothering whether it falls on to the road or somebody else’s compound. Such are the differences.

Standard of Living

The standard of living in our country is very low, when we take everything into account, like income, housing, diet, sanitation etc. Individuals in the upper social classes seem to have a better health and nutritional status than those in the lower classes. The mere raising of income does not, however, always ensure an improvement in food quality. Money is sometimes diverted from nutritious foods to things like packed and bottled foods or drinks which have a prestige value. Better knowledge and education of the people, can help to correct this tendency. The lower income group people can spend only a very little amount on food-stuffs. But this is also in respect of very cheap stuffs.
Diseases also have been shown to affect people at various social levels differently. As for example, coronary heart disease hypertension, and diabetes seem to have a high incidence in the higher income group and a gradual decline in incidence in the other economic groups. Diseases of the skin, eye and ears, diarrhoea and dysentery have a higher incidence among the lower classes, which can be ascribed to the poor state of their surrounding e.g. housing, water supply, sub-standard food, unclean air, etc.

'Housing' in the modern concept does not only mean the physical structure providing shelter, but also the immediate surrounding and the related community service and facilities, equipment and devices needed or desired for the physical and mental health and the social well-being of the family and the individual.

Standards of housing vary substantially from country to country or from region to region owing to climate, social traditions and customs, the availability of building materials and the productivity of the economy. Our village houses do not even come up to the minimum required standard. We find that most village-houses have no latrines. They ease themselves in the adjoining fields or near the river side, if there is one. After cleaning the house, they throw the dirt and rubbish outside indiscriminately.
Spitting, a very common habit among the people, is also responsible for making the environment dirty. Moreover, cowdung is disposed off anywhere and everywhere.

The houses are 'Kucha' which become damp during the rains. They are normally over-crowded, with five to six persons living in one room and with just one window or at times with none at all. Living in such unhygienic conditions give rises to certain diseases, like common cold, tuberculosis, diphtheria, bronchitis, ringworm, scabies etc.

Typical Assamese households in Upper Assam are compact, and separated by bamboo fences. In Lower Assam they are built so congested that one small courtyard is often shared by more than four homesteads. However, the compound of a homestead or a group of houses comprises a 'Bari' which is used for kitchen gardening and other domestic purposes. Normally each household has its own bamboo brake, and banana plantation since both has an important place in the domestic use. Houses are mostly thatched with

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**Kucha** a word used when the flooring of the house is of earth filling.

**Pucca** when the floor is cemented.

**Bari** the compound around a homestead with kitchen garden and orchard.
'Kher' (locally available, a kind of superior grass) bamboo or Ekhra (reed) walls or wooden frames. However, the construction of modern type houses with C.I. sheet roofing and cement-plastered Ekhra-bamboo walls and wooden frames are becoming popular in the villages. The kitchen is usually next to a living room or not very far from it with no window or just one, and with a low ceiling. Therefore, there is free movement of smoke from the firewood into the living room. This is a cause for a number of respiratory diseases.

Previously, villagers had to depend on rivers or open community wells for their water supply. But of late most of the villages have shallow tube wells. Water supply for both drinking and domestic purposes have an influence on the health of the people. In the earlier days people were aware of the adverse effects of impure water on health to some extent, and took care in boiling the potable water and than filtering it through charcoal after which it was stored in earthen vessels. But with the passage of time, these progressive practices were given up. Normally now people drink water straight from the tube well or open well without realizing the fact that shallow wells are liable to pollution from neighbouring sources of contamination such as latrines, urinals, drains. Another belief that people subscribe to, is that the sacred rivers, lakes or ponds
cannot be physically contaminated or polluted. So we find people bathing, washing their clothes and drinking from the same source of water. Diseases like cholera, typhoid, gastro-enterites and various types of dysentery result from the use of unsafe water. These diseases are so common in our villages, that since time immemorial the village ladies practise their own medicine chring cholera or dysentery. They usually give the patient tablets made of opium, black pepper and certain herbs. Cold applications are also applied to the head and stomach of the patients by such quakes.

Besides all these, the income of the people is so less, that they can hardly manage a meagre living, and at times have to go without meals. This is because, most of our villagers have to depend on agriculture. They do not have any ready cash to buy clothes, soap etc., not to speak of fruits and other food items. As a result of these, we find that they are ill-clad and dirty. They wash their clothes with 'Kharoli' (locally made vegetable soap) and change their clothes only once or twice a week. They usually possess two pairs of dresses, and if one is a little well off, a third pair is kept aside for special occasions, such as marriages, religious ceremonies and public functions.
Standard of health and hygiene is so low that often people do not have a latrine, they go to any open place and after defecation they do not wash their hands with soap, but instead rubs some mud and wash the hands. They even cook their food without washing their hands properly. The trouble is that the villagers do not even have the basic idea of health and hygiene.

Food Habits

Food is the chief source of nourishment for the body. Food habits of the people vary from country to country and culture to culture. What people are willing to eat is determined by a complex system of attitudes, ideas and assumptions that form the local culture, including religious restrictions, taboos and ideas pertaining to the merits and demerits of foods and past practices. Food habits are, therefore, the product of the people's present environment and past history. These two factors also determine the meal pattern and methods of eating.

Adequate nutrition is not only a matter of eating enough food. The diet must also be balanced, and in large

parts of the world that balance is lacking. The caloric intake of the Indian population who belong to the poor income groups is inadequate according to accepted standards. The deficiencies in the diets are both qualitative and quantitative. Among the poorer sections of the population even the basic caloric requirement is not met. The intake of proteins is also marginal while the intake of vitamins and minerals falls far short of the desirable levels. Moreover, Indian people as a whole do not have a healthy and desirable way of cooking and eating. For majority of our people food is only a means to fill the belly. It is a means to 'exist' and not 'live'. People just cannot pay for a wholesome meal, and in such a circumstance the question of the nutritive value of food does not arise. This is particularly true in the State of Assam, where 91 percent of the population come from rural areas and is made up of marginal and submarginal peasants.

The diet of the inhabitants of an area is determined by three principal factors, viz. the physical environment, the economic conditions and the customs and traditions of the people.

The Assamese Hindus are non-vegetarian, they take both fish and meat. Beef is of course a religious taboo
for all Hindus while pork is abhorred by their upper castes. The high caste Hindus also do not eat chickens although some do so privately. They are selective in respect of certain species of fish. With such selections and taboos they are left with only a limited number of animals as the source of protein. At the same time it is only a small section of the people who can afford to eat either fish or meat which is exhorbitantly costly. The low caste Hindus and tribals do go for a greater variety of animals but very often they are found to eat animals with doubtful health and protein potentiality. A large number of aquatic insects are eaten by the tribals. The virus, germs and bacteria that these insects may bear have been neither questioned nor examined to the peril of those who use them. Some scheduled castes and non-Christian tea garden labourers are also found to be in the habit of eating dead animals including goat and poultry.

The food habit of the Muslims in Assam do not materially differ from the Hindus, except that they eat beef and chicken, but abhor pork, which is a religious taboo. Beef does make a comparatively cheap supply of protein but it is very often that the old and sick cows are slaughtered for this purpose. It is very often that the underfed cows of Assam bear tuberculosis and varieties of worms like tapeworm (Taenia solium), hookworm (Ancylostoma duodenale).
and various other germs. Cows and goats are slaughtered by the illiterate butchers or villagers without making any examination of their health and eat them indiscriminately without proper cooking, very often over cooking. Rice forms the staple food of the people. A usual meal consists of rice, vegetable curry and/or Dal (pulses or indigenous Mati Kalai). Some vegetable preparations are made with 'Khar' (an alkali locally prepared from the ashes of dried banana peels). Some people do use pulses in every meal, but for some people it only substitutes vegetables. This sort of diet is common among the Assamese villagers and poor urban dwellers. The Assamese peasant has generally three meals a day. Early in the morning, before going to the field, he normally does not take anything. His breakfast is made of 'Kamal rice' (Parboiled rice), or cheera (flattened rice; or Korai (roasted rice), or Sandoh (partly broken and partly powered korai), Pitha (pancake), etc. Such items are supplied along with molasses or sugar and a pot of tea, often without milk. After finishing his work in the field he takes a late lunch of rice and vegetables, or pulses and occasionally with fish. The night meal is normally taken around eight p.m., which does not substantially differ from the lunch. The women folk normally take 'Poita Bhat' (stale cooked rice soaked in water overnight) with salt and
green chilli in the morning in lieu of various items of breakfast named above. Such breakfasts as are consumed by the womenfolk are also sometimes dished out to the children when separate breakfast cannot be afforded by the poor families especially during the month of September and November, when the stock of paddy grain exhausts and the rabi rice fails.

For pulses, 'Mati Kalai' (Phaseolus mungo Roxb) and 'Masoor' (Lens esculenta) are chiefly used by the common people, 'Mung' (Phaseolus aureus Roxb), 'Arhar' (Cajanus cajan) and 'Boot' (Cicer arietinum) by the wealthier classes. Vegetables chiefly consists of leaves and shoots, called 'Sag'. In the absence of Dal or fish curry the people take 'Sag' curry. But the quantity and nutritive value of the vegetables taken these days are not sufficient to meet the basic needs of the body. Infact, with the increasing prices of vegetables, people have a tendency to take them occasionally. Rural folks are better off in this respect for they can get green vegetables for at least six months in a year. Most farmers grow leafy vegetables for domestic use, while others get them from ponds or fields where these grow wild. It should be noted that in Assam most of the vegetables and fruits are of leafy type rather than root, as rhizome, tuber, pod, onion, radish, carrot, beet, cabbage,
cauliflower, french bean, tomato, capsicums. Green vegetables are a great source of carotene, vitamin C, calcium and phosphorus. Vitamin C is found in plenty in citrus fruits. But it is sad to note that consumption or rather the habit of eating fruits by the Assamese people is almost absent. The only fruit they have is banana. Meat, fish and eggs are consumed in small quantities by those who can afford to buy them. Moreover, most people have religious objection to the consumption of meat and egg of one kind or another.

According to the Food and Agricultural Organization (FAO) of the United States, India's average daily calorie consumption is very low (1940)\(^7\) compared to the FAO minimum for adequate nutrition of 2360 calories. Assam falls even far below the Indian standard, where the daily intake of a peasant family is only 1019\(^8\) calories.

The calories available for ingestion per square kilometer in the Brahmaputra Valley is highest in Sibsagar, Nowgong, Dibrugarh, Darrang, Lakhimpur, Goalpara, and Kamrup in that order. This is made clear from Appendix B, table 1-7.


\(^8\) Estimated by the Author.
The food of the people of Assam is definitely short of animal proteins and fats. The inhabitants take more of carbohydrates. As a result of the poor intake of food, people, particularly those in the low-income group, are weak, lethargic and less productive. They are unable to bear the strains of physical exertion for a long time. Due to inadequacy of certain nutrients in the diet, most of them suffer from malnutrition.

The situation would not be so bad if the people who must survive on too little food could at least have a balanced diet. But they are not so fortunate. Furthermore, the housewife takes care to see that the breadwinner has as much as possible, even if it means depriving herself and the children in the house, who usually eat after the manfolk has finished. Such inequitable distribution even of the food available to the family plays its part in the undernourishment of vulnerable groups who, as we know, actually have special needs of certain nutrients for their full growth and development. Diets deficient in nutrients give rise to a number of deficiency diseases. As for example, lack of iodine is the commonest cause of endemic goitre, if vitamin D intake is not satisfactory, the results are rickets and osteomalacia. Deficiency of vitamin A leads to nightblindness. Vitamin of B group deficiency leads to Beriberi which is due to lack of
thiamine. This occurs essentially where white rice is the main staple food. Pellagra occurs as a result of deficiency of niacin and tryptophan. It is associated with maize and jowar. Other diseases that occur due to the deficiency of B complex vitamins are glossitis, cheilosis and angular stomatitis. Lack of vitamin C leads to scurvy which is characterised by spongy bleeding gums, nose bleeding and haemorrhages in the skin.

A well balanced diet must be taken for one to be free from deficiency diseases. It includes carbohydrates (derived from staples such as rice, corn, wheat and potatoes), proteins (from meat, poultry, fish, egg and dairy products), vitamins (from fruits and vegetables as well as other sources), fats, and minerals. Proteins, a critical element in the diet, also are derived from plant sources, including soyabean, pea, peanut, and wheat. The amount of food intake is measured in terms of calories, which are units of energy production in the body. People in desk jobs need fewer calories than those engaged in manual labour. Young adults need more calories than old persons or children. Men need more calories, on an average, than women.

There is no food equal to breast milk for a new-born baby. Mother's milk has a good level of nutrients no doubt, but as the child grows slightly older, it requires a
greater quantity of nutrients, which is given partially through other foods. Nutritionally it is a fairly crucial step. In Assam, when the changeover to solid food is made, either through animal milk or direct from the mother's breast, the child is quite often given boiled rice or wheat with a little dal. This may kill the child's hunger, but since the food is insufficient in proteins, vitamins and minerals, there will be a sharp drop in the quantity of nutrients which the child is getting at a time when it is growing and needs more of it.

It is especially tragic that undernutrition and malnutrition affect so many of the children in Assam. Recent studies indicate that inadequate protein intake during the first six months of life can damage both brain and body. A child's brain grows to about 60 percent of its adult size in the first three years of life, and an adequate supply of protein is crucial in this development. If there is not enough protein, brain growth is checked and mental capacities are permanently impaired. There can be no subsequent recovery of the loss. Both mental capacity and physical growth are adversely affected by inadequate nutrition.

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so the unfortunate baby born into an environment of deprivation faces a life long handicap.

Religious Customs and Superstitions

This is an important attribute of the individual which may have tremendous bearing on the health of the people. Intake of meat, fish and eggs are prohibited by certain religions or castes in India. Some do not even eat vegetables and condiments like onion, garlic, etc. on religious grounds.

The day-to-day life of our people is governed by age old traditions, customs, superstitions and so-called religious beliefs. Among the various religious cults or faiths that have been in existence among the Hindus of Assam, mention can be made of the Saivism, Tantrism, and Vaishnavism apart from small local cults. Among the Buddhists, Mahayana faith is predominant. Namkrittan, or singing songs and reciting verses from the religious books in the praise of God are done in the Namghar, a village community house. Every well-off and religious Hindu household has a prayer room which is known as 'Gosaighar'. All community functions are held in the Namghar.

The women, for the appeasement of the goddess 'Sitala, at whose wrath, it is believed, the epidemic of
small-pox spreads among the people, chant songs, known as 'Ai-nam' or 'Sitala-nam', in the houses or in the village Namghars collectively. The Asokastami or the bathing ceremony, in the holy waters of the river Brahmaputra, on the Sukla-Astami day in the month of Chaitra (March - April) is observed in Assam. The most important, religious festival of the Saktas and Shaivaites is the 'Ambuvashi' festival held at Kamakhya, in the month of Asadha (June).

People from all over India come to the temple of Goddess Kamakhya during this festival.

The rites and rituals are usually connected with religion and some are observed in course of a festival, such as 'Puja' festival of goddess Durga or Durgotsava, Phalgutsava, Rashotsava, etc. The month of Bhadra (August to September) is associated with the birth of Lord Krishna and the death of Sankardeva. The Vaisnavas in the village Namghars and in the Satras* observe Namkirttana daily at regular intervals throughout the whole month, and at night they have 'Bhona' (folk theatre) performance.

Apart from these there are a large number of festivals and fairs held in different days of the year which are

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* Satra - A religious organization formed during the days of Sankardeva for spreading of religious ideas and cultural reforms.
of regional and local importance. It should be noted that in all these festivals, fairs and holy days people congregate in large numbers, sometimes even for a week, with little adequate health precautions. During the "Ambuvashi" festival there is a large congregation of people on the small hill top of Kamakhya. Thousands of people coming from all over India stay here for about a week without adequate sanitary and water supply arrangement. The area thus turns into a potential danger spot of all sorts of epidemics and contagious diseases.

The Muslims are attached to a Mosque or Masjid where the old menfolk meet for their daily prayers. The Muslims do not have many taboos and religious rites. They fast during the month of "Ramzan". During the day they fast and take sumptuous dishes during night. Such prolonged fasting decreases the resistant power of the people to combat any disease, especially because of the low secretion of hydrochloric acid in the stomach during the day and gastric irritation at night. This creates an ideal condition for the propagation of cholera.

The Bodos of Assam have two major festivals, "Kherai" and "Baisagu". It is interesting to note that the Bodo conception of Gods and Goddesses is the same as the Hindu
cult of belief. For them Lord Siva (locally known as Bathou Baroi) is represented by the Slju (Euphoria -neripholia) plant and is the centre of all powers. Kherai is the festival solemnised with sanctity, sombreness and inspiring awe, in honour of Bathou Baroi. 'Baishagu' is another festival of the Bodo people, similar to the Bahag Bihu of the Assamese.

The Rangker is a compulsory annual function of the Karbi people. It is held at the time of cultivation (June), and in certain villages during the cold season. Several deities are worshipped and goats and fowls are sacrificed in their name. Women are not allowed to visit the site of worship or sacrifice. There is no music or dancing at their festival. Husking is a taboo on that day of the festival. They feast on rice beer, dried fish and meat, saved up during the last months for their celebration.

It is not only that customs, traditions, fairs and festivals as related above affect the health of the masses but also lack of proper treatment and care at the initial stage of an ailment often results in sustained and fatal diseases. For example, in the rural areas, many of the patients are first treated by people who are believed to have supernatural powers. A doctor is called in or the patient
is taken to a hospital only when his condition becomes very critical. Small-pox and cholera was attributed in the past to the wrath of various Goddesses. For these diseases, worship was regarded as the only remedy, and no medicines were administered to the patient. This practice is still to be found among some of the villagers.

Apart from these festivals, there are the Bihus the national festival of the Assamese which are observed all over the Brahmaputra Valley. There are three Bihus, one at the beginning of the season of cultivation, that is early Baisaga (Mid April), known as Bohag Bihu or Rongali Bihu. This is essentially a festival of song and dance and merry making associated with preparation and eating of some amount of palatable dishes, as also offering these to guests, invitees, and other kith and kin who visit the family during 'Bihu'. After this festival and peasants join the agricultural works.

In Mangaldai subdivision, during this Bihu, people observe a festival called 'Baisakhi-Daul-Utsav' by installing an image of Lord 'Vishnu'. Along with it a great 'mela' (fair) is held, where large number of people assemble to take part in the 'Vishnupuja' and to witness the 'mela'. At the temple of 'Hayagriva-Madhava' at Hajo in Kamrup, and at
'Bhairavthan' in Goalpara such fairs are held at the time of 'Bohag Bihu'.

The second Bihu is held on the Sankranti of Aswin and Kartik (Mid October). This festival is also connected with agriculture. During this Bihu certain rites are performed for luxuriant growth of crops in the field. Every Hindu family worships the holy plant 'Tulasi' (Ocimum sanctum) by offering a lamp and 'Mahprasad' (sacred offering of dishes consisting of pulses, uncooked rice and fruits including banana) and reciting 'Nam-kirtan' (songs and recitation in the praise of God). Eating of sweet potato, yam, the fruit of the water lily and its root called 'Seluk' in Assamese, are some of the customs observed in certain regions during the Kati Bihu or Kangali Bihu. Lamps are lit in all the granaries and paddy fields.

The third as well as the last is the 'Magh Bihu', which can be called a post harvest festival commences on the 'Sankranti' day of the months of 'Pausha' (December - January) and 'Magha' (January - February). During this festival huge bone-fires of piled-up wood and straw are laid early in the morning following a community feast in the previous night.
Drugs and Alcoholic Addictions

The non-medical use of alcohol and other psychoactive drugs has become a matter of serious concern in many countries.

Preparation of alcohol, especially rice beer, is very common among the tribal and semi-Hinduised, and other communities of Mongolian stock. It is in fact a common drink among certain groups of people so much so that when a baby is born a crop of it is given in his mouth as the first feed. There is no social taboo among these groups of people in preparing rice beer or 'Lao-pani'. It is found that quite a large number of poor tribal people run out of their stock of rice by consuming the same in the preparation of rice beer. The normal food of these people is so poor that they become easily intoxicated with even a small quantity of rice beer. Continuous use of it in a half starved condition completely exhausts their vitality and resistance to any disease. It is often found that when they cannot prepare alcohol at home, the menfolk even sell out whatever little belonging they have, for buying their daily quota of alcohol and thus push the family to an abyssmal poverty. In recent years alcohol addiction has spread to all strata of the society. Boot-legging has become rampant and large number of young men are found to be indulging in it in ever larger
numbers. Alcoholism not only leads to health hazard and poverty but also domestic and intra-community troubles.

Alcohol has a marker effect on the central nervous system. It is not a 'stimulant' as long believed, but a primary and continuous depressant. Alcohol produces psychic dependence of varying degrees from mild to strong and subsequently physical dependence develops.

According to current concepts, alcoholism is considered a disease and alcohol a 'disease agent' which carries acute and chronic intoxication, cirrhosis of the liver, gastritis and peripheral neuropathy. Also evidence is mounting that it is related to cancer of the mouth, pharynx, larynx and oesophagus. Further, alcohol is an important etiologic factor in suicide, automobile and other accidents, and injuries. Death problems for which alcohol is responsible are only part of the total social malady which includes family disorganization, crime and loss of productivity.

The incidence of drug abuse varies from place to place of the student community smoke marijuana, and has made it an accepted part of their life. LSD* is another drug.

*LSD Lysergic acid diethylamide was synthesized in 1938 by Hoffman in Switzerland. Its psychic properties were noticed only in 1943, when he accidentally sniffed a few micrograms of it.
common among the boys within the age group of 14-25 years. Cigarette smoking is only too common. Of the above mentioned addictions the people of Assam use the former less but the latter more. In addition to these the intoxicating drugs used by our people is tobacco, opium and a grass called 'Bhang' (Cannabis sativa). According to Gunabhiram Barua, the people of this State began to use opium from the year 1796. Both male and female folk became addicted to it. This notorious practice of smoking opium began to exercise its baneful influence in such a way that the Assamese people began to consider it a pious work to offer opium to invited guests. This was another reason, why the Assamese people, who were once so arduous, strong and active became weak and lethargic within a very short time'.

Betel nut and tobacco chewing is a common habit of the valley people. Betel nut is normally offered to any visitor even if tea is not served.

The above account of custom, tradition, fairs, festivals, food habits and addiction to alcohol and drugs shows that the Assamese community is exposed to various health hazards from these, apart from their substandard shelter and

unclean surrounding. The account also shows that the clothes that they wear, the diet, and customs related to feeding, all can be dictated by general tribal or religious beliefs and customs.