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## A CONCISE ATLAS GEOGRAPHY OF CEYLON.

## **FOREWORD**

by

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Students, teachers, administrators and the public at large will be grateful to Atlas & Maps Industries, Colombo for bringing out this handy Atlas. Being a pioneer attempt to fill a long felt need, it cannot be expected to be perfect. It is therefore hoped that whatever shortcomings there may be, having due regard to the cost and size, they will be rectified in the light of informed criticism when the occasion arises for a new edition

The maps have been carefully selected to bring home the significant features of the environment of Ceylon and its impact on the people. While they are in most cases self-explanatory, textual material based on various governmental and other publications, enhances the value of the Atlas.

A survey of national resources and the existing stage of their development is necessary before any estimates of potential future development can be made. May one hope that this Atlas will point the way for the preparation of a National Atlas—a multipurpose document, on a geographical basis, of the Island's resources physical, biological, human and economic. Such an Atlas is basic to development planning, education for intelligent citizenship, better understanding of our country both at home and abroad, as well as in the promotion of tourism.

Prof. K. Kularatnam.

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## **CEYLON**

#### 1. Location, Shape, Size and Relief.

Ceylon is a mango-shaped Island lying off the Southeast coast of peninsular India. It stretches from about 6 to 10 degrees North latitude and 80 to 82 degrees East longitude.

It covers about 25,000 square miles in area. Like peninsular India, it is a fragment of an ancient southern continent, called Gondwanaland by geologists, and so Ceylon is, in many respects, a mere continuation of southern India.

Both peninsular India and Ceylon stand on the same continental shelf, the edge of which does not extend beyond about twelve miles from the coastline. The shelf is shallow and attains a miximum depth of only 36 fathoms. But beyond its edge, there is an almost abrupt drop to more than 500 fathoms in two miles-

With a maximum length of about 270 miles and width of 140 miles, the area of Ceylon is about 1/70 that of India.

In surface configuration, Ceylon comprises firstly a highland massif, situated in the south-centre. This is surrounded more or less by an intermediate zone of upland ridges and valleys, at a generally lower elevation from that of the highland massif. These two features are in many places separated by well-marked scarps. The intermediate zone is in turn surrounded by an outer or lower zone of coastal lowlands, perhaps, with the exception of the south-west where the land abuts directly into the sea in the form of cliffs. Elsewhere, there is a coastal fringe consisting of a series of lagoons, sand bars, peninsulas, dunes, marshes and other associated coastal features.

From sea - level, the relief ascends in steps to a maximum elevation of about 8300 feet at Pidurutalagala, nearly a thousand feet higher than the world - renowned Adam's Peak, 7360 feet high.

For convenience. Ceylon could be divided into the following relief regions: 1. The Central Highlands, 2. Southwest country, 3. East Country, 4. Northern lowlands, Jaffna peninsula and Islands, and 5. The coastal fringe.

#### 1. Central Highlands (Fault Complex).

One could subdivide the Central Highlands in turn into the following units:

I. The Central Massif proper, consisting of (a) the central backbone of high plains and Peaks running from the Horton Plains to Katugastota, past Pidurutalagala, (b) The Hatton Plateau and (c) The Uva Basin.

The Central massif is a fairly compact unit bounded on the south by the Southern Mountain wall and on the north by the transverse valley of the Mahaveli Ganga from Kandy to Minipe. Incidentally, the longest river in the Island, the Mahaveli Ganga is only 207 miles long, all other rivers, of which there are over a hundred, are shorter than one hundred miles.

Among the high plains of the Central Backbone are Horton Plains, Moon Plains, Elk, Kandapola and Ambawela plains; the peaks in the central backbone area are Pidurutalagala (8281 ft), Totupola (7741 ft) and Kirigalpota (7857 ft).

- II. The Knuckles region.
- III. The Rakwana or Bulutota block,

The Knuckles and Rakwana areas can be considered merely as detached parts of the Central massif.

2. Southwest Country (Appalachian type).

This is well-watered and has a characteristic topography of elongated parallel ridges alternating with valleys. The slopes of the ridges are gentle towards the east and steep facing the sea (west). The pattern of streams is similar to that of a trellis, and so the system of drainage is called rectangular.

3. East and Southeast country (Inselberg type).

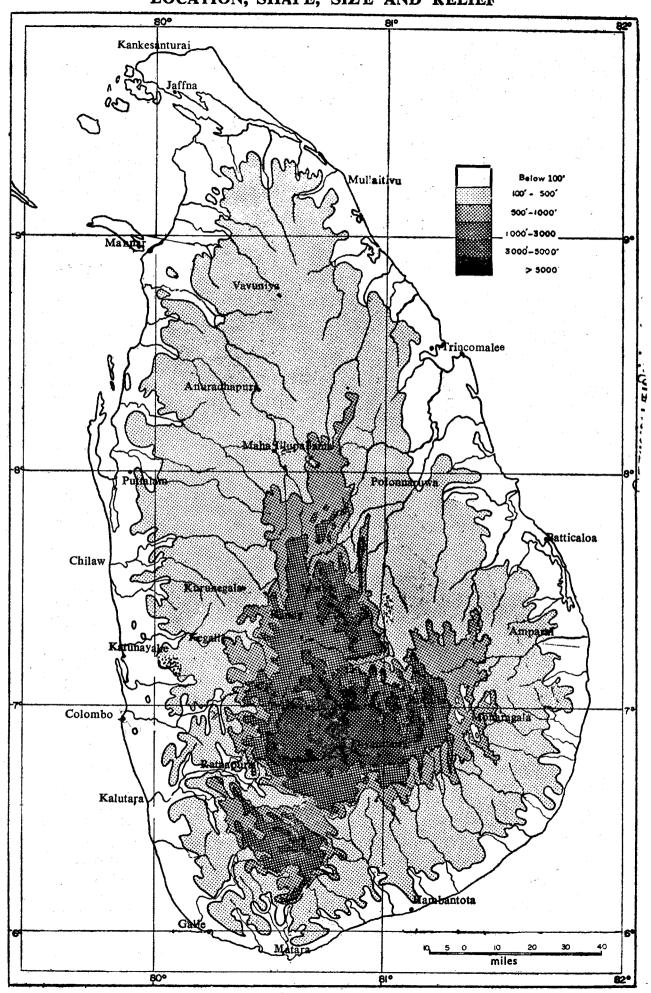
This is a rolling or undulating plain dotted with isolated hills, like Moneragala, Westminster Abbey and Kataragama.

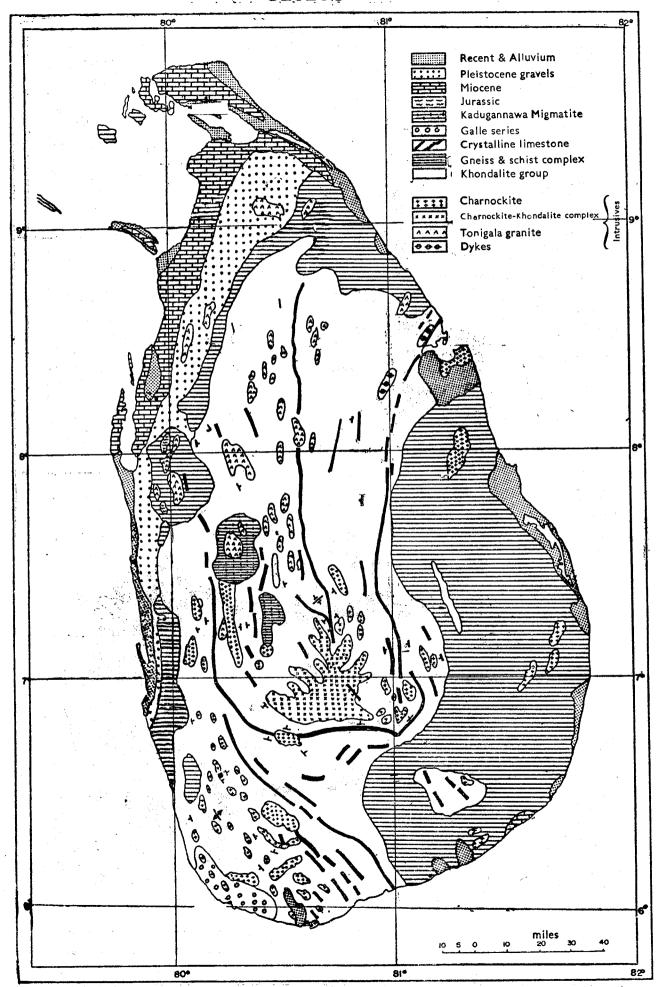
Thus we can see that though small in size, the Island exhibits great physical diversity. This in turn will be seen to affect her climate, vegetation and human geography.

#### DRIANAGE

The rivers of Ceylon are noted more for their number than for their size. They radiate from the Central Highlands like the spokes of a wheel, except in the case of the upper Mahaveli Ganga where abnormal characteristics are developed.

Make and Mak		Principal	Rivers.	en e
River	2	Length (miles)	River	Length (miles)
Mahaveli Ganga Aruvi Aru (Malwatte Oy Kala Oya Yan Oya Kelani Ganga Deduru Oya Maduru Oya Walawe Ganga Menik Ganga Maha Oya	/a) ^	207 104 97 94 90 87 86 83 81	Kirindi Oya Kalu Ganga Gin Ganga Kumbukan Oya Mi Oya Gal Oya Mundeni Aru Kanakarayan Aru Nilwala Ganga Ma Oya	76 70 70 70 67 62 50 48 40





#### 2. GEOLOGY

Being part of a very old land mass, Ceylon has passed through a long series of geological activities, involving vertical movements resulting in the fracturing and faulting of the rocks. To a large extent these account for the scarps separating the different physical regions of the Island. In addition to these internal factors, one must also recognise the effect of climate in scolpturing the surface. Together with these, we have also to consider the differences in the rock types as these are in turn reflected in the eventual landforms.

Nearly nine-tenths of the Island is floored by rocks of Pre-Cambrian age. They comprise a group of gneisses and schists, overlain by rocks of the Khondalite system. They are both made up of metamorphic rocks. The Khondalites seem to be relatively younger and made up of ancient sediments which have since been rendered crystalline through metamorphism. The gneiss-schist complex and the khondalites are intruded into by various types of granites and pegmatites, the chief among which are pink Tonigala grante, bluish grey hypersthene granite (known sometimes as charnockite) and Balangoda type zircon granite. The rocks of the Khondalite group comprise: quartzites, leptvnite gneisses, crystalling limestone, ferruginous quartzite, granulite, type khondalite rock (garnet sillimanite rock), etc.

With regard to the sedimentary rocks, only two small outcrops of shale and sandstone of Jurassic age are so far known in Ceylon, at Tabbova and Andigama. They contain fern (glossopteris flora) and fish (acanthoid) fossils. Some coal has been found in them.

The north and northwest of Ceylon is floored by sedimentary limestone of Miocene age.

The gravel deposits adjoining the sedimentary limestones are perhaps derived from a post-Pliocene shallow marine transgression.

The Jurassic beds referred to above are found preserved in small down faulted basins. The faulting is believed to be Tertiary in age.

Extensive faulting seems to have riddled the crust of the earth in the Central Highlands area. It is as a result of this that we have a fault complex of high plains, bounded by still sharp scarps at diverse elevations down which streams tumble down, in zones of waterfalls and cascades, more than fifty in number and many of them with a high potential for electricity.

The zones of hot springs on the eastern side of the khondalite outcrops and the dolerite dykes associated with them may have some connection with tectonic activity of Tertiary age.

Sand dunes and alluviam are the common deposits of the coastal areas.

Coral deposits occur along the coasts as at Mathagal in the north and Madampe-Ambalangoda in the southwest.

Structurally, Ceylon is part of a great synclinorium. The ancient rocks are folded down with the keel of the downfold running NNW-SSE and pitching northwards. The present topography has been developed on this through both vertical uplifts and erosional processes.

(Geological Time: Pre-Cambrian rocks are more than 600 million years old. Jurassic rocks are about 155 million years old and the Miocene about 35 million years old.)

#### 3. CLIMATE

Being an island lying close to the equator (6-10 degrees N) Ceylon should experience an equatorial type of climate with heat and moisture throughout the year. However, her position in regard to the subcontinent of India and the neighbouring seas has resulted in a modification of this. The result is that a monsoonal climate is superimposed on the equatorial. Further modifications are caused by relief.

What are the principal elements to be considered in connection with Ceylon's weather and climate? They are temperature, atmospheric humidity, rainfall and to some extent, wind.

#### RAINFALL

Water is life. In Ceylon, water is derived from rainfall; in some places like Jaffna, people depend for a good deal of their water from the ground, which they tap by means of wells. This source too is dependent on rainfall. Rainfall is the most important element of weather and climate in Ceylon.

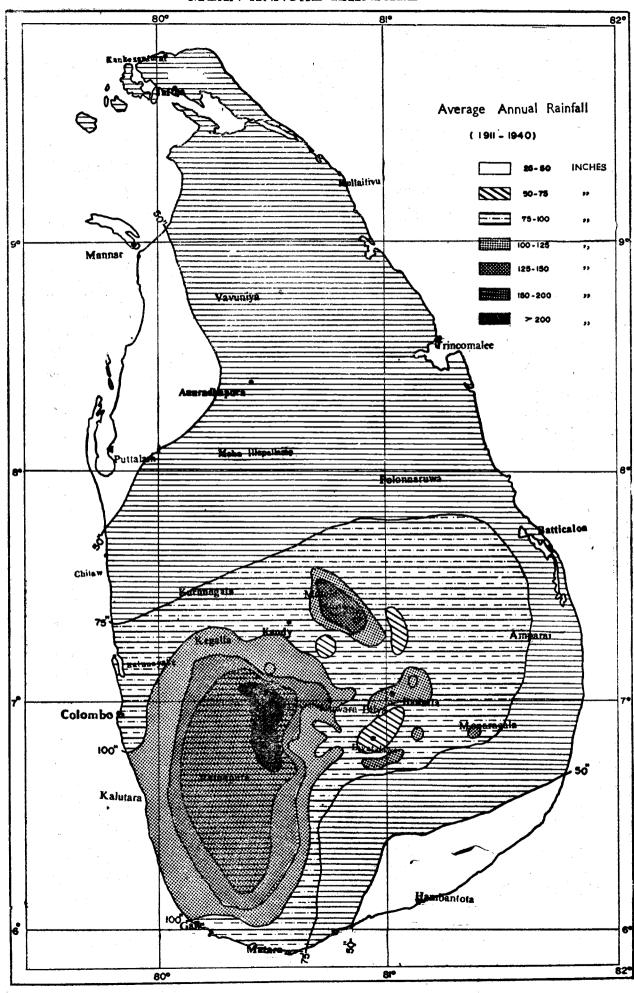
Rainfall has to be considered from two points of view: I. Regional. distribution, that is how much falls in each part of the country, during an average year and II. Seasonal incidence or, in other words, how much of the rain falls during each season or part of the year in every place Averages do not give a precise picture of the incidence of rainfall, because there can be wide variations from year to year. This is an important factor. Besides, it is more advantageous for an area to receive a well distributed rainfall during several months of the year, though small, than to have a higher quantity unevenly concentrated within a short period of one or two months!

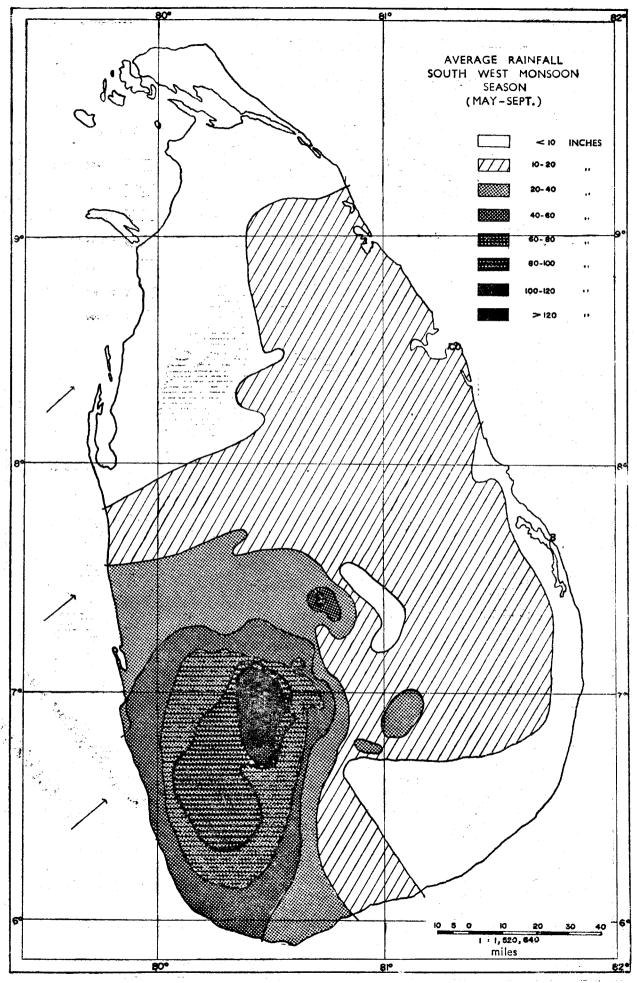
The mean annual rainfall map of Ceylon shows that even though Ceylon is a small island surrounded by the sea, there is no uniform regional distribution of rainfall. There are places getting more than 200 inches per year, while others get less than 40 inches. The central and southwest parts are the most favoured. Elevation and aspect determine this. The heaviest rainfalls are found on the slopes of the hills that face the southwest monsoon. It decreases towards the north and east as the winds have been deprived of moisture before they could reach these parts. The high areas help the condensation of moisture by making the winds to rise to high levels.

Some of the stations with over 150 inches of rain are: Watawala, Gingathena, Adam's Peak, Ratnapura, Ruanwella, Labugama, etc. That is why Colombo gets water from Labugama reservoir. The Adam's Peak-Watawela region actually gets over 200 inches.

The area with over 75 ins. is called the wet-zone and that with 50 to 75 ins. known as the dry zone; these are only relative terms. Some areas along the northwest and southeast coast, with less than 50 ins. are known as the arid zone. Though 50 inches looks large, unfortunately there is much loss of this moisture through evaporation and there are several months with no rain. A good part of this rain is also lost through surface run-off. In the result, very little water is retained in the soil and so cultivation has to be restricted to the rainy season. Hence the need for irrigation.

On the other hand, in the wet zone, there is too much water, and drainage has to be provided to prevent water-logging and the formation of marshes





#### 4. & 5 MONSOONS

The wind that blows from May to October comes from the southwest and is therefore called the southwest monsoon.

Just before it comes and immediately after it is over, the normal equatorial conditions pertaining to the equatorial belt of calms tend to prevail, though modified by other local factors such as relief and distance from the sea. The heating of the land by day causes air to rise to high levels and air from the sea tends to blow towards the land. It brings moisture and when it tends to rise, condensation takes place and rain falls. This happens generally in the afternoons and is accompanied by thunder and lightning. This is typical of the equatorial climate In the early period, this rain is felt inland only, but gradually it extends coastwards too. During November, depressions form in the Bay of Bengal and move westwards giving rain to the north and east. They can result in strong winds and cause damage and floods too.

When the depressions weaken, the normal northeast trade winds assert themselves and they are called the northeast monsoon winds. The word monsoon means seasonal wind. The so-called northeast monsoon blows from about December to March. Coming as it does from the Bay of Bengal, it brings rain to the north and east of the Island and adds to the cyclonic rains caused by the roving depressions. The southwest monsoon brings much rain as it has traversed a great area of the ocean whereas the northeast monsoon has traversed only the Bay of Bengal.

It must be noted that the monsoons are not always punctual; they may arrive or depart earlier or later than expected and may be of longer or shorter duration. This adds to the hazards of agriculture.

Thus we see that there are both regional and seasonal differences in the distribution of rainfall in Ceylon. It will be interesting to compare the maps showing the mean annual rainfall with those showing rainfall during the various seasons, particularly those of the southwest and northeast monsoons.

As rainfall is the dominant factor in the climate of Ceylon, we could divide Ceylon into the following major climatic regions on a simplified basis taking into consideration the relief factor as well.

#### I. WET ZONE

- (a) Lowlands, eg. Colombo 81° F and 90 ins. rain.
- (b) Highlands, eg. Watawala 65° F and 218 ins.

#### II. DRY ZONE

- (a) Lowlands, eg. Trincomalee 82° F and 64 ins.
- (b) Highlands, eg. Badulla 73° F and 72 ins.

#### III. ARID ZONE

eg. Mannar 82°F and 40 ins.

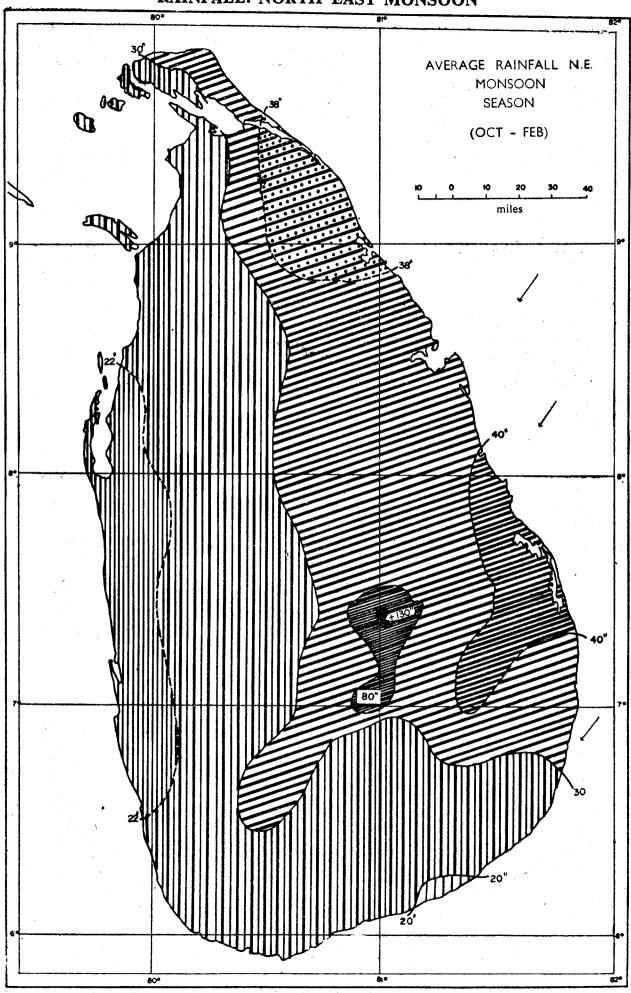
Although Ceylon lies close to the equator, the temperature figures given above are not high. This is due to proximity to the sea, elevation, etc.

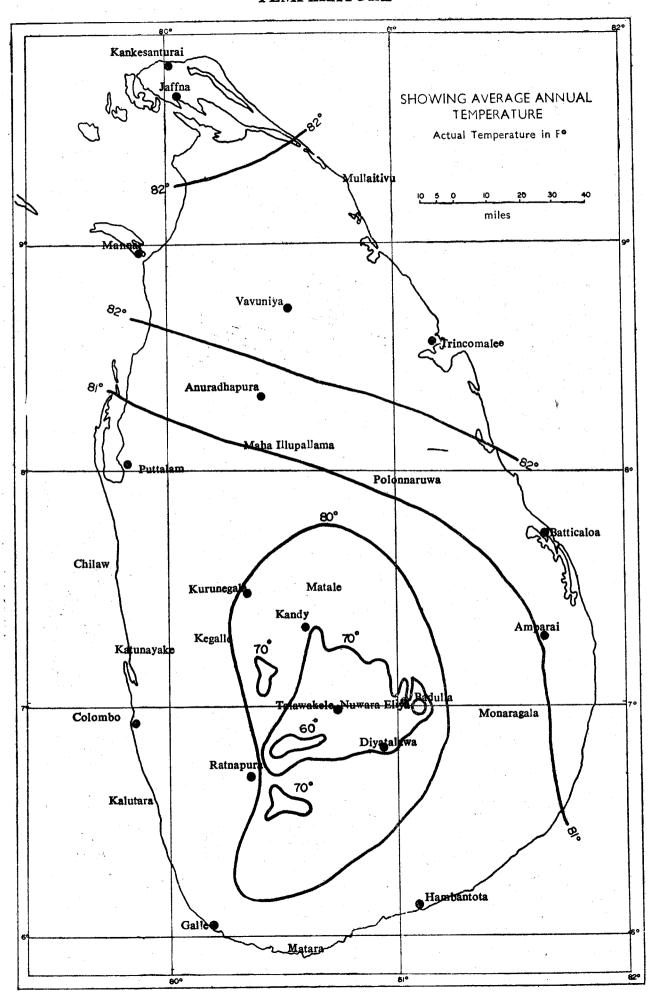
Pattern of Average Monthly Rainfalls at Twelve Selected Stations

STATION	Height Above Mean Sea Level in ft.		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1. Anuradhapura	300	Inches	4.85	2.11	3.89	7.36	3.92	0.53	1.25	1.84	2.74	9.17	9.78	9.54	56.98
		*Rain-days	12	6	7	13	8	4	3	, 5	5	16	19	17	, 115
2. Badulla	2,220	Inches	9.02	4.75	4.33	7.74	4.50	0.95	1.94	3.78	3.65	8.51	10.52	10.82	70.51
		Rain-days	17	10	11	17	11	6	7	9	9	17	20	20	154
3. Batticaloa	20	Inches	10.99	7.02	3.34	2.85	1.23	0.73	1.49	2.43	1.88	7.01	11.23	16.92	67.12
		Rain-days	16	10	8	7	5	3	4	6	5	14	18	20	116
4. Colombo	20	Inches	3.46	3.78	4.63	10.23	13.88	8.33	5.50	4.87	6.04	13.94	12.77	<b>6.8</b> 8	94.31
		Rain-days	8	7	11	18	23	22	15	15	17	21	19	12	188
5. Gaile	70	Inches	4.45	4.56	4.59	9. <b>9</b> 4	11.90	8.67	6.72	7.04	7.06	14.02	12.69	7.31	98. <b>95</b>
		Rain-days	11	9	11	16	21	22	19	19	19	21	19	14	201
6. Hambantota	60	Inches	3.97	2.30	2.61	4.29	4.7ó	2.17	1.70	1.66	1.79	4.95	7.38	4.76	42.34
		Rain-days	9	5	7	10	12	12	7	8	8	13	15	12	118
7. Jaffna	10	Inches	3.80	1.45	1.18	2.76	2.47	0.64	0.65	1.24	1.87	9.59	16.19	10.50	52.34
		Rain-days	8	3	3	7	4	1	2	4	3	13	18	14	80
8. Kandy	1,700	Inches	4.66	3.27	4.73	7.41	7.48	7.27	6.08	5.59	4.81	10.18	<b>9</b> .83	8.29	79. <b>60</b>
•		Rain-days	8	5	8	12	11	18	16	14	12	17	17	13	151
9. Mannar	10	Inches	3.44	1.32	1.75	3.48	1.94	0.19	0.28	0.63	0.93	6.60	9.56	7.97	38.09
		Rain · days	8	3	4	8	4	1	1	2	2	11	17	13	74
10. Nuwara Eliya	6,230	Inches	5.71	2.99	3.80	6.05	9.32	10.48	8.76	7.07	6.50	8.75	8.21	7.51	85.15
•		Rain-days	13	9	11	16	17	24	22	22	20	21	21	17	213
11. Ratnapura	130	Inches	5.96	7.11	<b>9.5</b> 9	13.41	19.46	18.21	12.07	12.90	12.40	19.62	13.92	8.41	153.06
		Rain-days	13	12	18	21	24	26	24	24	22	23	21	16	244
12. Trincomalee	30	Inches	8.29	3.75	1.90	3.02	2.67	0.73	2.13	4.05	3.50	9.24	ł	14.72	67.98
		Rain-days	13	6	5	7	6	2	4	7	6	16	19	18	109

Rain-day is a day for which at least .01 inch of rain is recorded.

## RAINFALL: NORTH EAST MONSOON





#### 6. TEMPERATURE

On what factors does temperature depend in Ceylon? For any single station there are at least four important factors: i. Latitude, ii. Altitude, iii. Distance from the sea and iv. the season of the year. In general, the mean annual temperature for a lowland station could be taken as about 81° F. Also the annual variation in temperature, that is the difference between the warmest and coolest month is very small, namely about 8° F only, in the low country.

In the hill country the temperatures are lowered at the rate of about I degree F for about 300 feet of elevation. For example, the average temperature of Badulla (2200 ft. above sea-leval) is 73°F and of Nuwara Eliya (6150 ft) is about 59°F.

The degree of physical discomfort felt by a person is not a function of temperature alone. Temperature should be considered along with the humidity of the air and its movement in order to arrive at this. A warm damp day is more unbearable than a hot but dry day. Most places in Ceylon have a high relative humidity: Colombo 82%, Nuwara Eliya 83%, etc. Diyatalawa is comparatively dry with 76%. Hence its importance as a holiday resort and health centre.

#### AVERAGE TEMPERATURES IN DEGREES F.

	JANUARY	JULY
Colombo	79.2	80.9
Galle	78.4	79.8
Kandy	75.2	76.7
Nuwara Eliya	57.2	60.0
Badulla	70.0	75.2
Batticaloa	77.5	84.6
Trincomalee	77.8	85.3
Jaffna	77.5	83.0
Mannar	78.7	83.3
Hambantota	78.8	81.8

#### 7. SOILS

The surface of the land is generally covered with a mantle of material derived essentially from rocks formed at site or brought from elsewhere and deposited. This is the medium in which plants grow. In general, this material comprises grains of sand mixed sometimes with gravel also, together with varying proportions of clay and humus in varying stages of decay. In addition there are some small quantities of salts of calcium, potassium, magnesium, etc.

The formation of soil requires long stretches of time. Disintegrated rock will have to undergo processes of chemical change accompanied by accumulation of vegetable mould, other waste products, borrowing activities of organisms and bacterial action. All these require not only much time, but also depend on the amount of soil moisture, the vegetation, relief, soil drainage and other environmental conditions.

In essence, soil is the result of the interplay of the following, and other minor agencies: i. Bed rock, ii. Climate, iii. Relief, and iv. Vegetation. Soil in any one place is all the time changing. The physical and chemical properties of any sample of soil are dependent on the relative importance of the above factors at any one place and time. That is why different types of soil are found in different places. Besides, from the point of view of plant growth, the materials present in the soil alone are not sufficient to consider. The texture of the soil is equally important. Some soils are easy to work while others are more difficult. Some are loose and friable, while others are hard or sticky. Some allow water to percolate while others prevent its movement. Percolation of water and aeration of soil depend on texture. Whilst water logging is detrimental to most plants, extreme porosity tends to deprive a soil of moisture and at the same time the water tends to move down the soluble plant nutrients found in the soil. This is called leaching.

A vertical section of the soil mantle in any place comprises the A horizon or soil, the B horizon called subsoil and the C horizon mainly made up of fragmented or decomposed rock material, etc.

It is possible to classify the soils found in any place depending on the amount of detail desired.

In the wet zone of Ceylon, climate is the dominant soil forming and characterising factor. Lateritic loams of reticulated texture and containing nodules or pellets of iron exide are the common soils. They are generally well drained, friable when dry and poor in bases.

In the dry zone, the same types of rocks give rise to semi-lateritic loams and non-lateritic earths.

In the Miocene sedimentary limestone area of the north, thin mantles of red loams are common. They are rich in bases but poor in organic matter. This is because organic matter is fast destroyed in the dry and hot weather conditions prevalent there. Grey calcareous loams called rendzinas are also found in these limestone areas; they are suitable for rice, if water is available.

Chocolate red loams are found over the crystalline limestone areas of the khondalite terrain. They are imperfectly drained owing to the high content of magnesium. They are not shown on this map, but occupy areas of crystalline limestone on the geology map (No. 2)

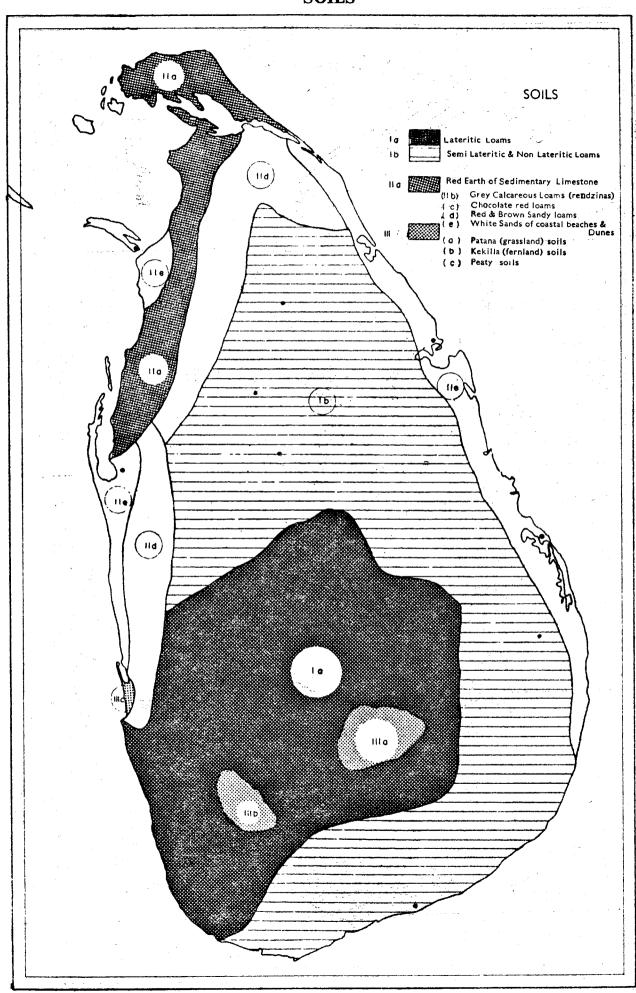
With regard to the soils in the formation of which vegetation is the dominant factor, the following could be cited as examples:

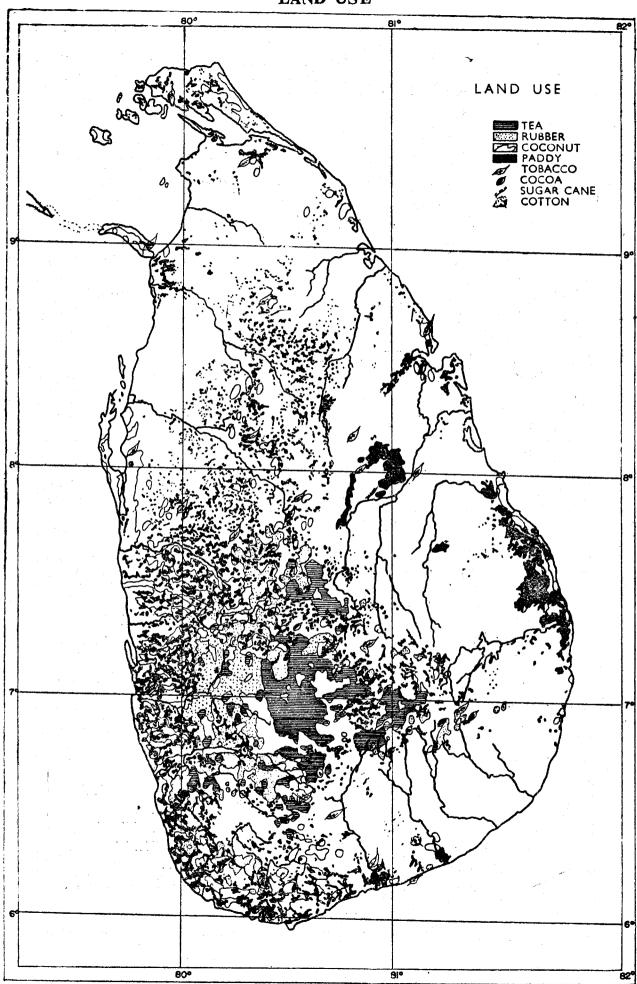
- a. The patana or grassland soils. These soils are acid, poor in bases and rich in humus.
- b. The kekilla or fernland soils. These are also acid, humic soils formed in areas of high rainfall.
- c. Peaty soils of the lagoons and swamps. Organic matter content exceeds 25% and they are not suitable for cultivation.

The rice soils of the low lying paddy fields and the alluvial soils of the flood plains of rivers are rich in both humus and minerals.

There are also sandy soils in the areas of dunes and blown sand as well as the sand bars and spits.

As soil takes ages to form, but can be easily destroyed, it is important to reduce soil erosion, by adopting methods of conservation. We should also maintain its good health. Crops tend to exhaust the soil; hence the need for the application of fertilisers.





#### 8. LAND USE

	Acres	Percent.
Total	16,228,230	100.0
<ol> <li>Settlements and associated non-agricultural lands</li> <li>Horticulture</li> </ol>	48,270 1 <b>,44</b> 8,8 <b>00</b>	0.3 9.0
3. Tree and other perennial crops	.,,	
(a) Tea	636,230	3.9
(b) Rubber	- <b>5</b> 61,85 <b>0</b>	3.5
(c) Coconut	<b>6</b> 18 <b>,910</b>	3.8
(d) Other .	133,510	0.7
4. Cropland		
(a) Rice	1,261 910	7.8
(b) Land under development	107,290	0.7
(c) Other	2,495,030	15.3
5. Improved permanent pasture	6,160	
6 Grassland and scrubland	1,052,010	6.4
7. Woodland	7,164,710	44.2
8. Swamp and marsh	81,020	0.5
9. Waste land	106,620	0.7
10. Inland water including Salterns	505,910	3.2

(The use of colours on this map will be found helpful).

At present only about half the food requirements of the country are produced at home. With the present rate of increase of population of 2.5% per annum, food production needs to be stepped up fast. Land is available for this, but irrigation has to be developed. Methods and techniques of cultivation and agricultural practices have also to be improved, to increase yields per acre. Every effort is being made by Government towards the attainment of self-sufficiency.

The Dry Zone which was the granary of the past will have to come into its own in future. Besides rice, cotton and sugarcane can also be grown here.

The major commercial crops like tea and rubber are confined to the wet zone.

Other cash crops grown in Ceylon comprise cocoa, cinnamon, citronella, cardamoms, arecanut, etc. These are essentially wet zone crops. The area of tobacco is increasing, but mainly as a dry zone crop. So also are millets such as kurakkan and also maize.

The total irrigated area in Cevlon today is about 640,000 acres. The ancient irrigation works are being repaired and new ones constructed. Among the old works may be listed Parakrama Samudra, Minneriya, Kantalai, Nachaduva, Giritale, Kalawewa, Padaviya, Giant's Tank, etc. The rehabilitation of these has been accompanied by colonisation of these areas. Malaria which inhibited this in the past has been eradicated.

Among the major irrigation schemes undertaken recently, Gal Oya ranks first. An artificial lake of about 36 sq. miles water-spread has been created. Walawe Ganga is another scheme. The Mahaveli scheme of great promise is now in progress. These are multipurpose schemes which will give water for irrigation, provide power and reduce floods.

80% of our revenue is obtained by sale abroad of the products of the wet zone plantations, viz: Tea, Rubber and Coconut. There is little room for further expansion in these. Hence the need for crop diversification and the development of the Dry Zone.

#### 9. NATURAL VEGETATION.

Ceylon has been occupied by man for so many centuries that the natural vegetation has been altered by human activity to a large extent. Wet zone forests have been cleared for the cultivation of coffee first and thence tea, rubber and coconuts. In the Dry Zone, rice cultivation has replaced some of the natural forests.

Before man interfered with it, the natural vegetation cover determined by climate, soil and relief would have been as sketched in the map. It comprised:

- 1. The low country wet zone (equatorial type) forest,
- 2. The mountain forest.
- 3. The thorn jungle of the arid zone,
- 4. The low country dry zone forest.
- In addition, the following two types of grassland may also be distinguished:
- 6. The patanas or montane grassland
- 7. The savannah or low country grasslands, comprising the talawas, damanas, etc.

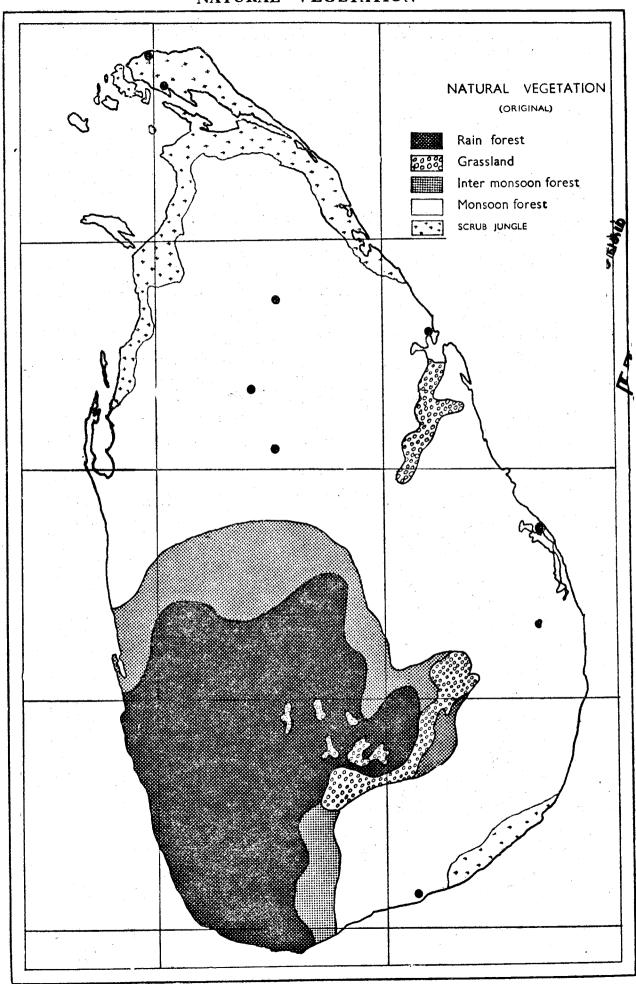
69% of the Island comprises forest, grassland and waste land still. Forests proclaimed as Reserves and Proposed Reserves comprise 17% of the total land area.

The best—developed wet evergreen forests are in the Sinharaja area. They contain very valuable utility timbers such as milla, del, na, Dun, Alubo, etc. They are also the source of the plywood timbers such as Hulanidda, Tinya, Malaboda, Kekuna and Kirihembiliya.

The larger portion of the dry zone forests are of poor composition, partly rendered so by chena cultivation. The individual exploitable trees are scattered, but they comprise luxury timbers such as satin, ebony, hulankik as well as utility species such as milla, ranai and palu.

With a view to meeting the increased demand for timber in the future and cut out imports, reforestation of the jungle and intensive silviculture in the wet zone have been started.

The estimated total mean annual production of 190,000 acres of planted forests and 5,000,000 acres of forest reserves is 30,000,000 cubic feet. Considerable amounts of by-products such as tans and dyes, gums, fibre, etc. are also expected.



Village

#### 10 ADMINISTRATION

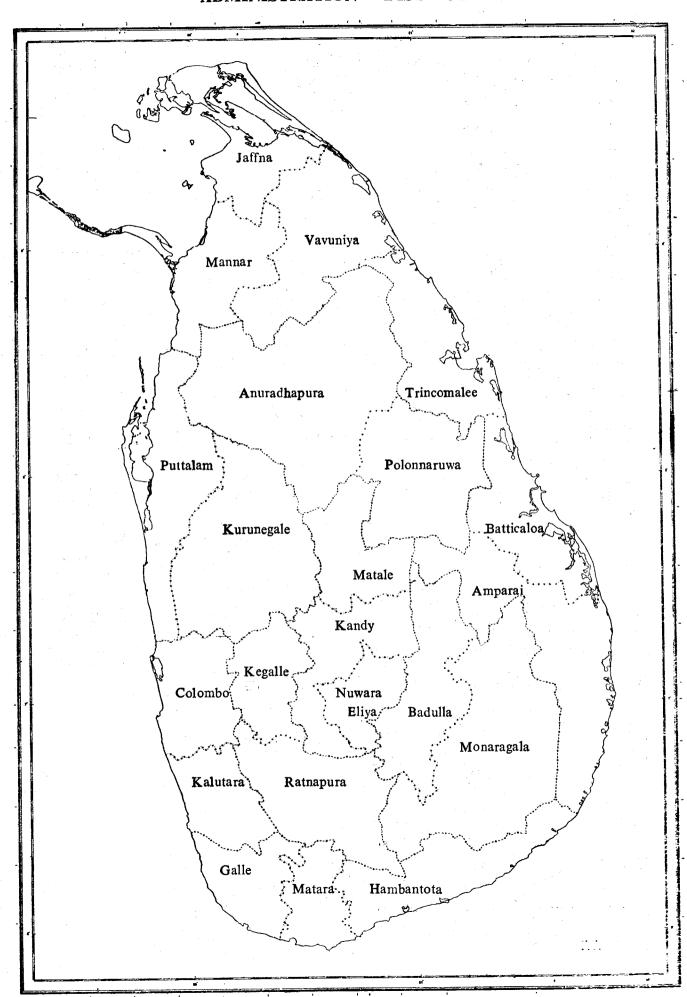
For administrative convenience, the Island is divided into nine Provinces and each of the Provinces is in turn sub-divided into Districts.

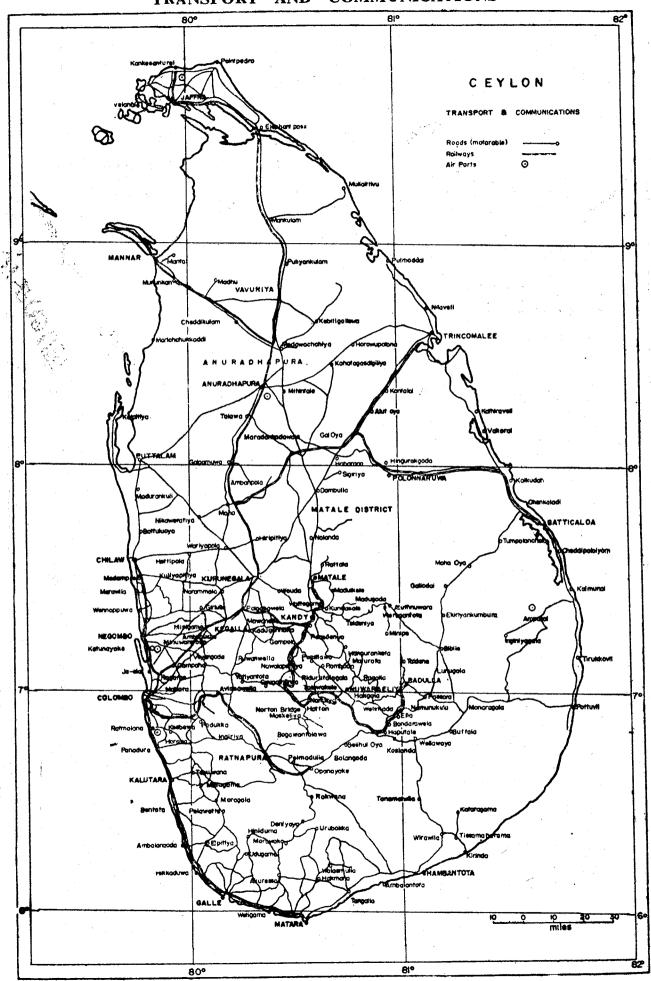
#### Provinces and Districts

I. Northern Province	IV. Eastern Province	VII. Central Province
Jaffna Mannar	Trincomalee Batticaloa	Matale
Vavuniya	Amparai	Kandy Nuwara Eliya
II. North Central Province	V. Southern Province Galle	VIII. Sabaragamuva Province
Anuradhapura Polonnaruwa	Matara	Ratnapura Kegalla
III. Northwestern Province		IX. Uva Province
Puttalam	Colombo	Badulla
Kurunegala	Kalutara	Monaragala.
Each District is administered Revenue Officer's Divisions, as listed	by a Government Agent. Each lelow:	District is subdivided into Divisional
Jaffna District	Matale District	Matara District
JF. 1. Jaffna Division JF. 2. Punakarai	ML. I. Matale ML. 2. Rattota	MR. 1. Wellaboda Pattuva and Four
JF. 3. Tunukkai	ML. 3. Laggala ML. 4. Dambulla	MR. 2. Weligam Korale
JF. 5. Pachilaipali	ML. 5. Galewela	MR. 3. Gangaboda Pattuva MR. 4. Kandaboda Pattuva
JF. 6. Tenmaradchi JF. 7. Vadamaradchi	Kandy District	MR. 5. Moravak Korale East MR. 6. Moravak Korale West
JF. 6. Tenmaradchi JF. 7. Vadamaradchi JF. 8. Valikamam East JF. 9. Valikamam North JF. 10. Valikamam West JF. 11. Islands JF. 12. Delft	KD. I. Kandy and Cravets  KD. 2. Yatinuwara and Udunuwara	Trincomalee District
JF. 10. Valikamam West	KD. 3. Tumpane KD. 4. Haris Pattuva	TM. 1. Town and Gravets
JF. 12. Delft	KD. 5. Pata Dumbara KD. 6. Uda Dumbara	TM. 2. Kattukulam Pattu East TM. 3. Kattukulam Pattu West
Polonnaruwa District	KD. 6. Uda Dumbara KD. 7. Meda Dumbara KD. 8. Pata Hewaheta	TM. 4. Kinniya TM. 5. Kantalai
PN. 1. Meda Pattu and Egoda Pattu PN. 2. Sinhala Pattu.	KD. 9. Uda Palata	TM. 6. Koddiyar Pattu
	KD. 10. Padbage Korale KD. 11. Ambagamuva Korale	Batticaloa District
THE A P. L. P. L. L. C.	Nuwara Flive District	BT. 1. Manmunai Pattu North BT. 2. Manmunai South and Eruvil
PT. 2. Katpitiya PT. 3. Rajayanni Palata	NE. 1. Nuwara Eliya NE. 2. Kotmale	BT. 3. Manmunai West Pattu
PT. 4. Kumaravanni Palata	NE. 3. Uda Hewahete	BT 4. Eravur Patru BT. 5. Koralai Pattu
PT. 1. Puttalam Pattu and Gravets PT. 2. Kalpitiya PT. 3. Rajavanni Palata PT. 4. Kumaravanni Palata PT. 5. Pitigal Korale North PT. 6. Pitigal Korale South	NE. 4. Walapane Colombo District	Amparai District
Mannar District	CL. 1 Colombo	AM. 1. Sammanturai Pattu
MN. 1. Mannar Island MN. 2. Mantai	OD: 2. Daipiti Rolate	AM. 2. Nintavur and Karaivaku AM. 3. Akkarai Pattu
MN. 3. Musali	CL. 3. Hewagam Korale West CL. 4. Hewagam Korale East CL. 5. Siyana Korale East	AM. 4. Panama Pattu AM. 5. Wevgam Pattu
Vavuniya District	CL. 6. Siyana Korale West (Adikari	AM. 6. Bintenna Pattu
VV. 1. Vavuniya South Tamil VV. 2. Vangalacheddikulam	CL. 7. Siyana Korale West (Meda Pattuva)	Regare District
VV. 3. Vavuniya South Sinhala VV, 4. Vavuniya North	CL. 8. Hapitigam Korale CL. 9. Alutkuru Korale North "B"	KE. 1. Beligal Korale KE. 2. Parannkuru Korale
VV. 5. Maritime Pattus	CL. 10. Alutkuru Korale North "A" CL. 11. Alutkuru Korale South.	<ul><li>KE. 3. Galboda Korale</li><li>KE. 4. Dehigampal and Lower</li></ul>
Anuradhapura District AN 1. Nuvaragam Palata East	Kalutara District	Bulatgama Korale
AN. 2. Nuvaragam Palata North	KL. 1. Kalutara Totamune	KE. 5. Alutgam and Panawal Korales.  Ratnapura District
AN. 3. Hurulu Palata North AN. 4. Hurulu Palata Central	KL. 2. Panadura Totamune KL. 3. Rayigam Korale	RT. 1. Kuruviti Korale
AN. 5. Hurulu Palata South AN. 6. Kalagam Palata North	KL. 4. Gangaboda Pattu KL. 5. Maha Pattu	RT. 2. Navadun Korale RT. 3. Kadawatta and Meda Korales
AN. 7. Kalagam Palata South AN. 8. Nuvaragam Palata South	KL. 6 Pasdun Korale West.	RT. 4. Atakalan Korale RT. 5. Kolonna Karale
AN. 9. Nuvaragam Palata West	Hambantota District HM. 1. Magam Pattuva	RT. 6. Kukul Korale
Kurunegala District	HM. 2. Giruva Pattu East HM. 3. Ciruva Pattu North	Monaragala District
KU. 1. Weudawili Hatpattuva KU. 2. Dambadeni Hatpattuva	HM. 4. Girvua Pattu South.	MG. 1. Monaragala MG. 2. Wellassa
KU. 3. Pannala KU. 4 Kuliyapitiya	Galle District	MG. 3. Madulla MG. 4. Wellawaya
KU. 5 Biogiriya KU. 6 Devamedi Hatpattuva	GL. 1. Four Gravets GL. 2. Wellaboda Pattuva	Badulla District
KU. 7. Nikaweratiya	GL. 3. Bentota Wallalawiti Korale West GL. 4. Bentota Wallalawiti Korale East	BD 1, Yatikinda BD. 2. Bintenna
KU. 8. Maho KU. 9. Galgamuva	GL. 5. Hinidum Pattuva GL. 6. Gangaboda Pattuva	BD. 3. Passara BD. 4. Medakinda
	GL. 7. Talpe Pattuva	BD. 5. Udukinda
The state of the s	Local Government	
Type of Council  Municipal	Number of Councils	Estimated Population
Urban	11 35	1.173,000
Town	77	640,00 <b>0</b> 764,000
Village	509	0.000.000

509

9,000,000





#### 11 Transport and Communications

		miles
Public	Roads	13,315
Railw	ays	932
	—1968	
Total	Motor vehicles	<b>16</b> 1,164
	Cars	84,678
	Motor cycles	18,000
	Buses	9,151
-	Lorries and vans	<b>3</b> 3,410
	Tractors	15,872

Total number of passengers carried by bus 1250,000,000

Total number of passengers carried by train 82,000,000

Total shipping entered and cleared in all ports: 6,000,000 tons.

Total number of Post and telegraph offices: 1300

Total number of wireless receivers: 272,000

Civil Aviation:

International Services. Total number of arriving passengers 46,000 International Services. Total number of departing passengers 50,000

Domestic Services. Total number of passengers carried: 34,000

#### 12. NATURAL RESOURCES

The resources of a country comprise the following:

Natural Resources and Human Resources.

Natural Resources in turn can be sub-divided into Physical and Biological.

The Physical Resources consist of:

1. Land, its area, relief and variety,

- 2. Climate, namely temperature, rainfall, humidity, winds and their regional distribution and seasonal variations,
- 3. Soils, their distribution and suitability for crops,

4. Rocks and minerals,

5. Surface and underground water,

The Biological Resources comprise: 1. Natural vegetation, including forests and grasslands.

2. Animals and birds life,

Fish, including prawns, lobsters, crabs, oysters (edible and pearl)

The Human resources consist of the numbers and quality of the population. By quality of the population

we mean the level of education, skills, technical know-how, entrepreneurship, etc.

Of these, land, climate soils, vegetation population, etc. are dealt with seperately in this Atlas. We shall therefore take into consideration some of the other items here.

#### ROCKS and MINERALS.

Almost 90% of the Island is floored by rocks of pre-cambrian age; they are the gneisses, schists, khondalite rocks and granites. They provide suitable building stone, road metal, etc. In addition there are large quantities of clays (for bricks, tiles, pottery, etc. and also kaolin deposits) sand deposits for use in buildings, glass-making, peat deposits (eg Muthurajawela), etc. Dolomite for fertiliser and Miocene limestone for cement manufacture exists in large quantities in the Khondalite country and the North and northwest of the Island, respectively.

As regards minerals, the following deserve attention:

1. Iron Ore. Considerable quantities exist in the Ratnapura - Balangoda area, Kalutara - Baddegama, Matara -Akuressa, Ruwanwella, Matale and Chilaw areas, at Sandalankawa, etc. Ceylon's iron ore is of very high quality, suitable for electr-smelting and the deposits can satisfy local needs for over one hundred years; besides, they are easy to work, being near the surface and not needing mining at depth.

Ilmenite. Large quantities of this black sand exist as beach deposits at Pulmoddai (between Trincomalee and Mullaitivu) containing about 4 million tons, Tirukkovil, Pamunugama, etc. Ilmenite is an ore of titanium and the sand is exported at present mostly to Japan.

Monazite This mineral also exists in the beaches as sand along with ilmenite. Kaikawela beach near Induruva is a good source of monazite. Deposits are found also off Kudremalai Point.

Rutile, zircon and garnet sands also occur in association with these deposits.

Graphite (Plumbago). Ceylon is famous for her almost inexhaustible deposits of high grade graphite. It occurs in many places as veins in the Khondalite rocks, intruded into by granites. (1942 Production 27000 tons)

Mica too occurs in Ceylon, but of inferior quality and only in small quantities.

Clays. Clay is widely distributed in the Island, especially in the flood plains of rivers. Large quantities

of kaolin or china clay exist at Boralesgamuva, Metyagoda, etc.

Quartz for glass making occurs both in crystalline form as well as in the form of white sand. The important sand deposits are along the Point Pedro-Mullaitivu coast, Chavakachery, Maravila-Natandiya area. etc.

Cement raw material - Limestone. The miocene deposits of the Northwest and Jaffna are of high quality

for cement making. They are found in abundance.

10. Precious Minerals. Ceylon is well-known for her variety and quantity of gemstones such as rubies and sapphires, cat's eyes, star stones, alexandrite, moonstone, amethyst, etc., but diamond, emeralds and opal are not found.

Gold has also been found in the rocks. Radio-active minerals such as thorite, thorianite, and uraninite also are known to exist.

#### SALT

Thanks to her favourable coastal features, lagoons, long periods of rainlessness in the Dry Zone, etc. Ceylon has a high potential for salt-making using sea water by solar evaporation. Many by-products like epsom salt, plaster of Paris, chlorine, etc. can also be made in large quantities. The principal salterns are at Elephant Pass, Puttalam, Nilaveli and Hambantota.

#### GROUND WATER

This is a great need in the Dry Zone. Abundant supplies exist in the Miocene limestone area as well as in the alluvial deposits of the Dry Zone lowlands.

#### WATER FOR POWER

More than fifty waterfalls of considerable size are found in the hill country; in addition, the major irrigation works like Gal Oya, Walawe and Mahaveli also can provide much water power.

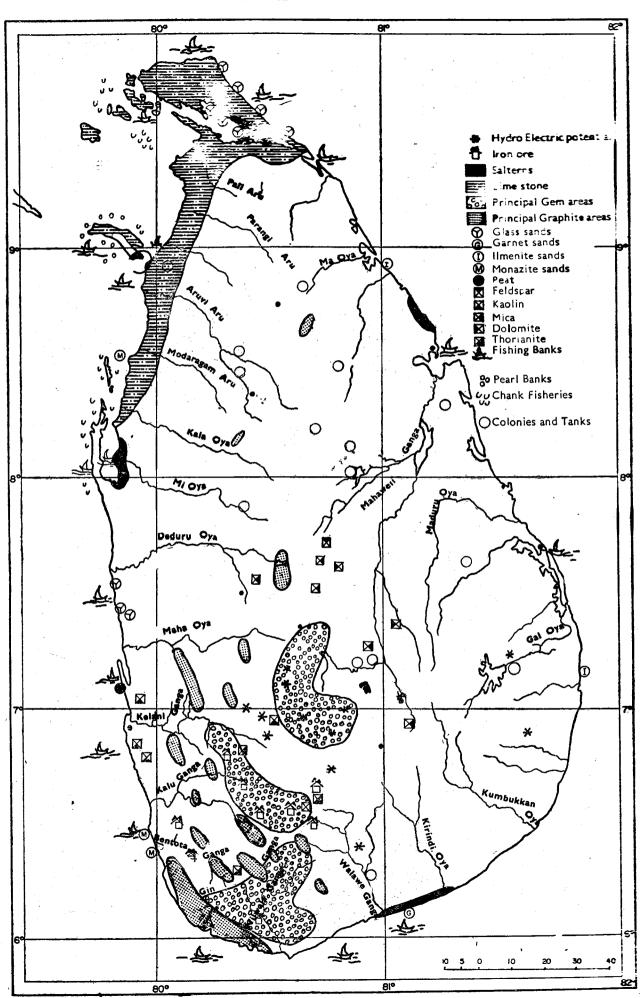
Fish and other edible marine life abound in the seas around the Island and in the rivers. Current marine fish production in about 3 million hundred weights per annum and fresh water about 170,000 cwt. LIVESTOCK

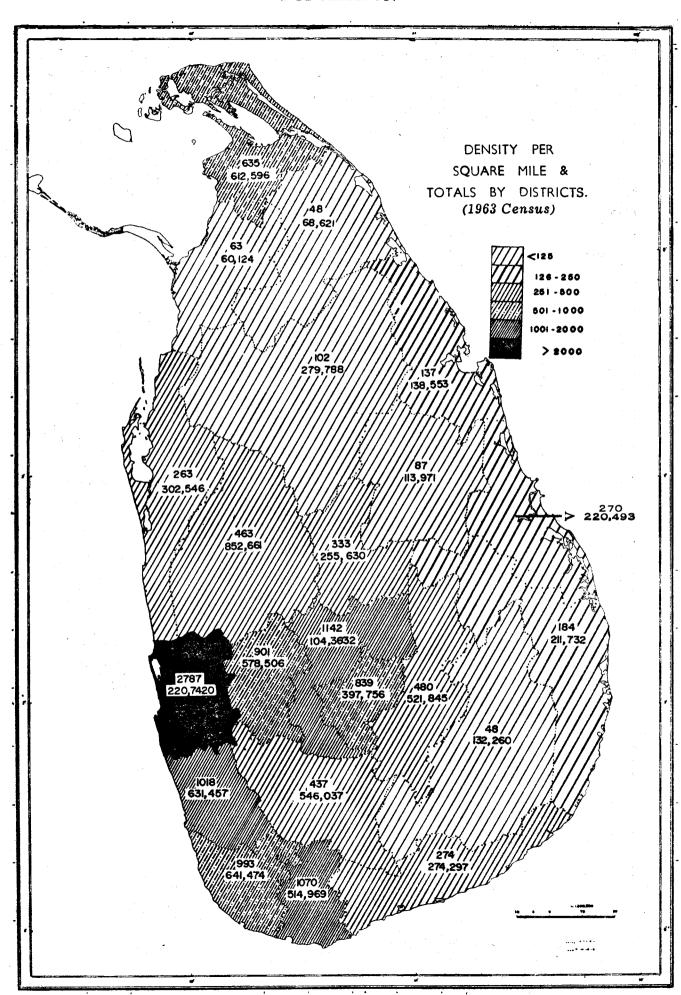
There are in Ceylon about 1,500 000 cattle, 690,000 buffaloes, 300,000 sheep and goats, 50,000 pigs and 3 million chicken,

#### TIMBER

Timber production amounts to about 4 million cubic feet of logs and 5 million cubic feet of firewood.

(The use of colours on this map will be found helpful).





#### 13. POPULATION

(See map for 1963 census figures)

Population of Ceylon	1968 Estimate:		
by districts.	Thousands		%
Colombo	2489		20.80
Kalutara	706	<i>2</i> ' '	5.90
Kandy	1184		9.90
Matale	287		2.4
Nuwara Eliya	443		3.7
Galle	718		60
Matara	586		4.9
Hambantota	311		2.6
Jaffna	694	<u></u>	5.8
Mannar	. 68		0.57
Vavuniya	77	•	0.64
Batticaloa	227		1.90
Amparai	239		2.00
Trincomalee	156		1.30
Kurunegala	969	×	8.10
Puttalam	335		2.8
Anuradhapura	311		2.6
Polonnaruwa	131		1.09
Badulla	586		4.90
Moneragala	155		1.3
Ratnapura	622	-	5.2
Kegalle	670		<b>5</b> .6
Ceylon Total	12,000		100.0

## Population by Ethnic Groups

	Thousands		%
Low Country Sinhala	4470		42.2
Kandyan Sinhala	3043		28.8
Ceylon Tamils	1165		11.0
Indian Tamils	1123	2.7	10.6
Ceylon Moors	627		5.9
Indian Moors	55		0.5
Burghers and Eurasians	46		0.4
Malays	33		0.3
Others	20	**	0.2
Religious Groups.	Thousands		%
Buddhists	7003		66.3
Hindus	1958		18.5
·Christians	885	. :	8.4
Muslims	. <b>7</b> 24	ń.	6.7
Others	12		0.1

Estimated total population 2000 A. C. 26 millions.

<sup>%</sup> Population by age groups.

<sup>0-14</sup> years about 40%

<sup>15-55</sup> years about 52%

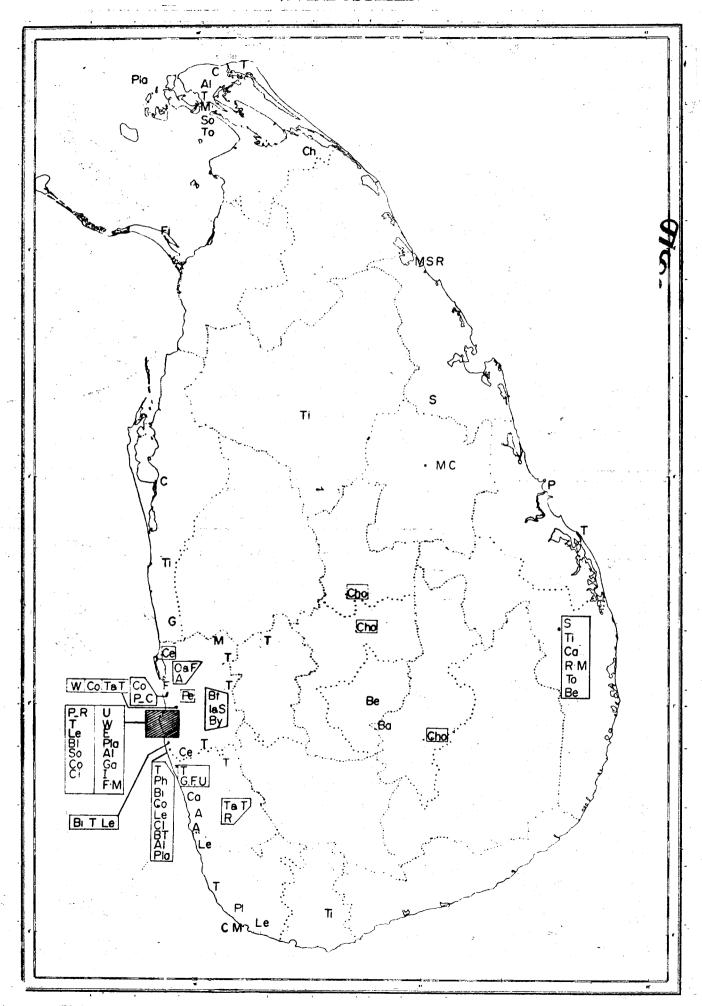
## 14. INDUSTRIES

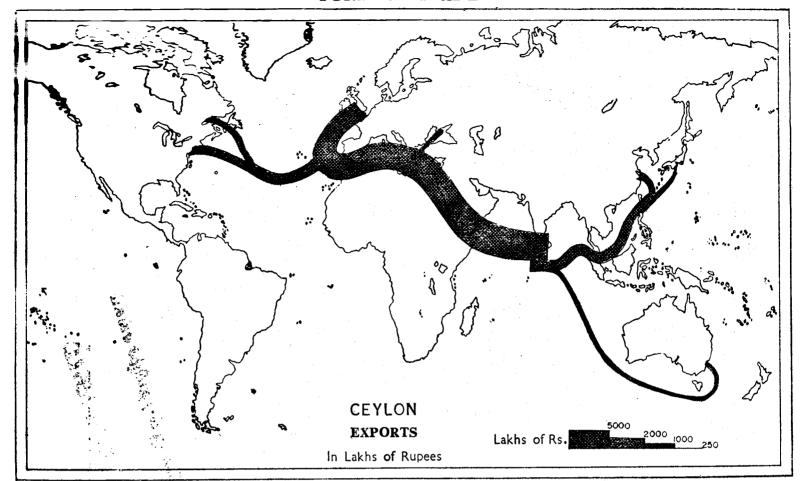
State Production Per Annum: 1968/69

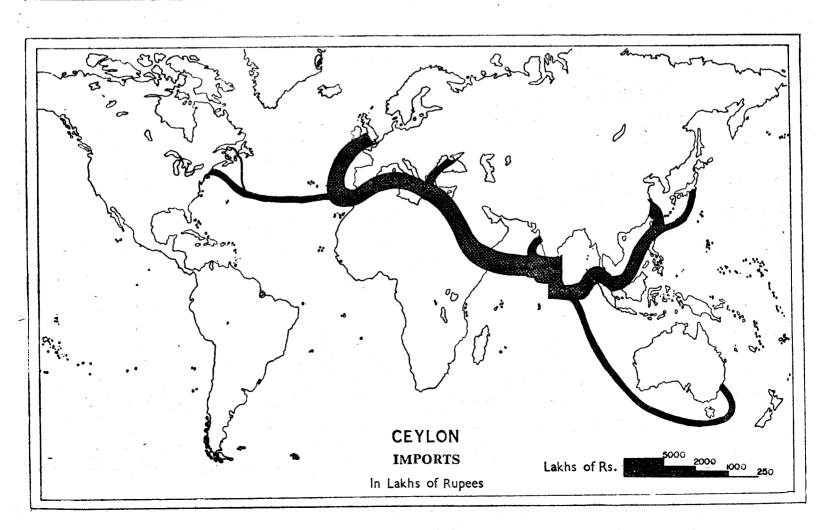
Milk, processed	25 million pints.
Condensed milk	12 million cans
Paper	9000 tons
Ceramic ware	1000 ,,
Crockery	1000 ,,
Kaolin (refined)	2,750 ,,
Coconut oil	1,500 ,,
Animal foods	53000 ,,
Fatty acid	8000 ,,
Plywood	25 million sq.ft.
Shoes	300,000 pairs
Caustic Soda	1020 tons
Chlorine	640 tons
Table Salt	205 ,,
Cement (Kankesanturai)	155,000 tons
(Galle)	85,000 ,,
Sugar (Kantalai)	3500 ,,
(Gal Oya)	4500 ,,
Ilmenite	72,000 ,,
Rutile	1200 ,,
Salt	91,000 ,,
Cotton Yarn	2.3 million lbs.
Cotton Textiles	6.1 million yards
Furniture	Rs. 4 million
Bricks and Tiles	Rs. 3 ,,
Drugs	Rs. 1 ,,
Rolled iron	26,000 tons
Wire Products	4,000 ,,
Tyres	62,000 ,,
Tubes	43,000 ,,
Mamotties	200,000 ,,
Builders Hardware	1.1 million units
Cutlery	75,000 units
Fertiliser	220 million lbs.
Fish (caught)	10 million lbs.
Dried fish	650,000 lbs.
Flour (milled)	4,500 tons.
Total value of industrial	production:

Rs. 1300 million equal to 12 pc of Gross National Production.

Α	_	Arrack
A1	_	Aluminium
Ba	-	Bacon
Вe	_	Beer
Bi		Biscuits
Bl		Blades
Bt		Battery
Ву		Bicycle
C	_	Cement
Ca		Carpentry
Се		Ceramics
Ch		Chemicals
Cho		Chocolate
Ci		Cigarette
Cl		Clay
Co		Confectionery
E		Electroplating
F	_	Fertiliser
Fi	_	Fish (Canning)
Ca		Galvanising
G	_	Glass
I		Ink
IaS		Iron & Steel
Le	_	Leather
M	_	Matches
MC	_	Milk Condensery
M.S.R.	_	Mineral Sand Refinery
OaF	_	Oils & Fats
P		Paper
P-C		Paper Converters
Pe		Pencil .
Ph		Pharmaceuticals
Pla		Plastic
P-R	_	Petroleum Refinery
R	_	Refrigerator
S	_	Sugar
So		Soap
T	· —	Textile
TaT	_	Tyre & Tubes
Ti		Tile
То		Tobacco
U		Utencils
W		Wire







## 15. FOREIGN TRADE

1969

EXPORTS	Million Rupees	Percentage of Exports.
Tea	1061	56.6
Rubber	431	23.0
Coconut Products	221	11.8
Others	162	8.6
Total	1875	100.0
IMPORTS		
Rice	341	15.7
Flour	250	11.5
Sugar	97	4.5
Milk and milk products	74	3.4
Meat, fish and eggs	70	3.2
Food, other	127	5.8
Textiles	77	3.5
Other consumer goods	81	3.7
Fertilises	110	5.1
Petroleum products	196	9.0
Chemicals	45	2.1
Paper	37	1.7
Yarn and thread	71	3.3
Cement	17	0.8
Transport equipment	80	3 7
Machinery and equipment	195	9.0
Unclassified imports	14	0 6
Total including others not mentioned al	bove 2173	100.0

#### EXPORTS AND IMPORTS BY DESTINATION

COUNTRY	% of exports	% of imports.
U. K.	20.2	17.4
Australia	4.2	4.1
Canada	2.6	1.4
India	1.3	8.3
NZ	1.8	0.3
Pakistan	2.6	3.0
Total Commonwealth	41.1	39.3
Belgium	6.2	0.9
Burma	2.4	1.2
China	12.8	11.1
UAR	2.4	0.7
France	0.9	2.8
GDR	0.7	3.3
German (Fed.)	4.1	6.3
Italy	1.9	1.4
Japan	2.4	7.4
Netherlands	1.8	1.4
Poland	1.5	0.9
Rumania	1.1	0.6
S. Africa	4.5	0.4
U. S. A.	8.0	8.4
USSR	4.8	2.0
Total non-Commonwealth	63	60.5

#### 16. CITY OF COLOMBO.

Colombo city lies in the Colombo District which covers 808 sq. miles, including 16 sq. miles of water. The average rainfall is 94 ins. and the average maximum and minimum temperatures are 86° and 75 °F.

The city covers an area of about 13 sq. miles and has a population of about 600,000.

The growth of the city is indicated by the following population figures:

1871. 96,000

1901. 155,000

1955. 461,000

1963. 511,000

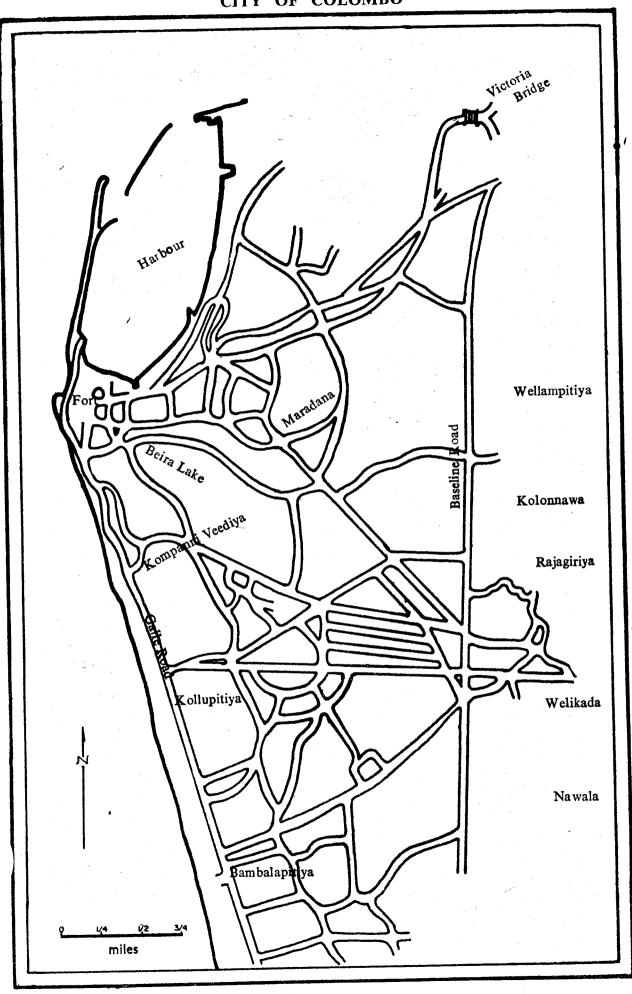
The first settlement of Colombo was a scattered Muslim settlement at the mouth of Kolon Ganga which entered the sea near Pettah bay. The Fort area was the choice of the Portuguese for strategic reasons, because of its proximity to Kotte and the cinnamon hinterland. It remained an open roadstead till the British decided to build a breakwater. The inner harbour wall of the breakwater was completed only in 1880.

Colombo lies between 10 and 40 ft. above sea - level and its built up area covers about 5700 acres.

The road pattern in the Fort and Pettah shows a gridiron pattern suited to their original military purposes. This pattern extends fanwise from Kayman's Gate. With time, subsidiary cores and suburbs have grown at road junctions.

Colombo is the administrative and commercial capital of Ceylon. Industries also have grown, but now the tendency is to move them outside the city into new suburbs, including Ratmalana, Ekala Industrial Estate, Maharagama and Homagama.

Colombo in also the educational and cultural metropolis of Ceylon, and the principal shopping centre for the Island.



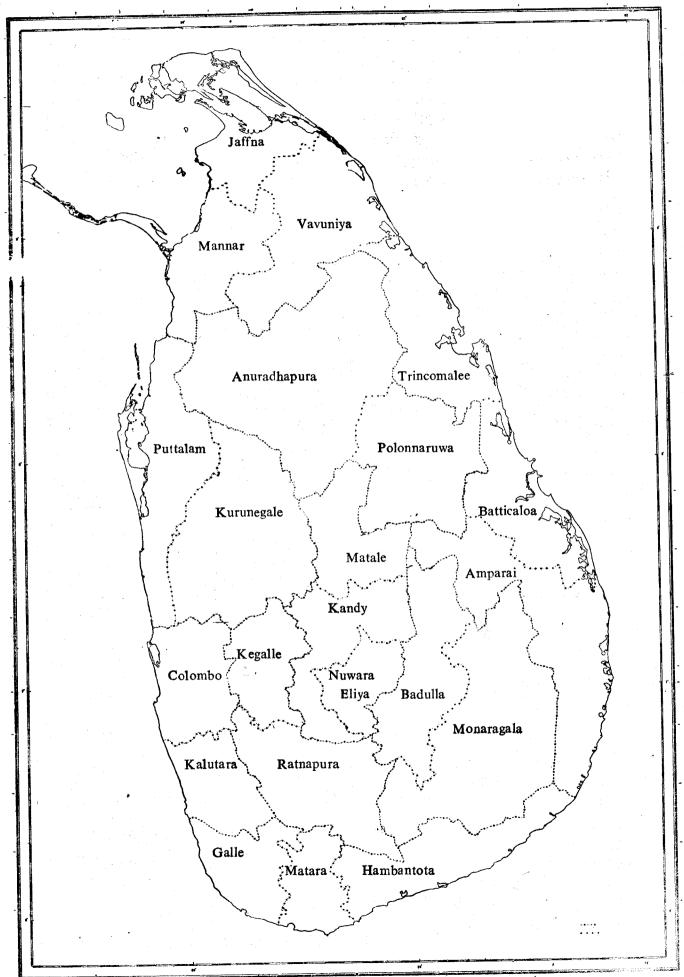
## ACKNOWLEDGEMENT

## A CONCISE

# ATLAS GEOGRAPHY OF CEYLON.

This small contribution is the outcome of our response to numerous requests to fill an urgent void in our literature on Ceylon. It does not claim originality. It is based on various government and other publications too numerous to list here; we are grateful to all these sources and to the several persons whose advise in the planning and execution of this work we are pleased to acknowledge. We invite comments, suggestions and criticisms from the users of this book so that in our next edition we may make it more useful and valuable.

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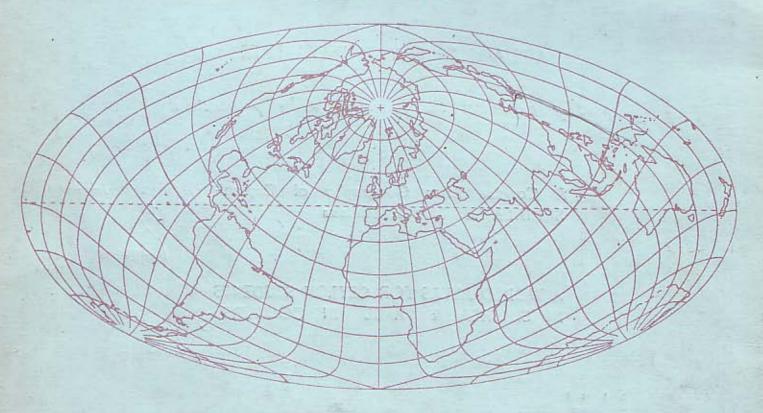
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