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ECONOMIC RESOURCES
OF
INDIA AND PAKISTAN

ECONOMIC RESOURCES
OF
INDIA AND PAKISTAN

By
KALI CHARAN GHOSH
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DEDICATED

TO

The Sacred Memory

OF MY

MOTHER

PREFACE

The long gap between the publications of the first and the revised and enlarged edition of the book is compensated by an increase in new subjects and more varied informations about those dealt with in the first. Historical events happening in the meantime make it compulsory to enlarge the original title : "Economic Resources of India" by addition of "and Pakistan" to it.

As far as it had been possible, the principal economic factors that go to create wealth have been taken into account, the primary ones coming earlier followed by a fairly big chapter on the Raw Material Resources with special stress on the Minerals including all new finds in India and Pakistan. The number of published reports of the Governments of India and Pakistan on the various aspects of economic life is fairly large and more or less comprehensive but one on the raw commercial products is suffering from delay due to unavoidable reasons. It involved serious and prolonged efforts on my part to locate the sources of supply of different articles in their respective countries all over the world and the ultimate shape that this section has assumed is something like *a study of World Economic Products with special reference to India and Pakistan.*

The next few chapters are devoted to exploitable sources of nature where man with his ingenuity and endeavour has turned them into profitable use of enormous economic value, such as the Ports, Projects for Irrigation and Power, Transport and Communications, etc. Financial and/or industrial organisations are primarily man's handmaid and they have received treatment at places they are entitled to. Last of all comes the picture of National Income, an outcome of forces both natural and human.

The economy of India (and Pakistan) had hitherto been considered in the light of her capacity to supply raw materials to the industrially developed countries of the world. Today the position is fast changing and India and Pakistan are being transformed into manufacturing countries without losing much of

their agricultural character. The time has come when every nook and corner of this vast sub-continent should be explored to find out what commercial products and other wherewithal are there which with skill, enterprise and organisation could be utilised and developed within the country for making both India and Pakistan economically self-reliant.

The First Five Year Plan of India is running out its course and the Second is taking shape. It is the duty of every citizen of India to contribute his mite towards its success. In my own humble way, I have tried to serve my Motherland by offering a factual survey of almost all the economic resources of the country to the great architects of modern India who would reconstruct a country which, in the words of Max Muller, was "most richly endowed with all the wealth, power and beauty that nature can bestow — in some parts a very paradise on earth." The book is the result of hard labour done singlehanded for over three years where the work of revision has had to be carried on all along its course till the press had intervened and made further changes impossible.

Friends who have rendered ungrudging help deserve my sincerest thanks. I must recount with gratitude the invaluable help rendered by the staff of the Commercial Library, Calcutta, from the Librarian to all grades of Assistants in affording me limitless facilities in consulting, according to my convenience, multitude of books, periodicals, etc., the property of the Library. I am deeply indebted to Sri Balkrishnalalji Poddar, who by a liberal supply of reference books from his remarkable family Library of choicest volumes, has put me under a feeling of thankful obligation. I have also to thank my sincere friend Sri Prafulla Kumar Chakravorty for his critical reading through the proofs and making a number of weighty suggestions with the earnestness and care that is only possible in one who is eager to forward the best interests of the work. To the Printers and Publishers I owe an unqualified apology for making their task extremely difficult by introducing new matters in places of old, not only in the successive galley proofs but also at stages when the printing machine was on the point of being put to motion.

Of the innumerable works of reference which I have

consulted for information I can mention but a few. They are chiefly Watt's Dictionary of Commercial Products, Statistical Abstract of India, Accounts Relating to the Sea-borne Trade and Navigation of (British) India, and the Records and Memoirs of the Geological Survey of India, from the very first issues of their respective publications, the Census Reports, 1951, Imperial Gazetteer of India (Hunter, 1884), the annual Reports of the different Ministries of India, Reports of the Reserve Bank of India and the State Bank of Pakistan, of the I.M.F. and the I.B.R.D. The publications of the U.N.O., particularly the Statistical Year Book, the Year Books and special issues of the different nations published individually, more so of the U.S.A., the publications of Her Majesty's Government of the U. K., such as the Reports of the Commonwealth Economic Committee, the Colonial Geological Surveys, the Overseas Economic Surveys, numerous maps of all the countries of the world especially those published by the National Geographic Society, Lippincott's Gazetteer of the World, etc. have been diligently hunted for all relevant information. A very large number of Indian and foreign journals and monographs having bearing on the subject matter of the book have been consulted amongst which the *Reserve Bank Bulletin* and the *Commerce* deserve special mention.

Faults of omission and commission may be noticed here and there for which I must appeal for pardon to the indulgence of the reader.

Calcutta,
The 23rd June, 1956 AUTHOR

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CHAPTER I

AREA AND POLITICAL DIVISION

India (or Bharat), the seventh largest country in size in the World, has an area of 1,269,640 sq. miles (812,569,600 acres) including the State of Jammu and Kashmir with a population of 356,879,000. It comprises 29 States of varying size with Madhya Pradesh, 130,274 sq. miles and Delhi 578 sq. miles only in area. There are *ten* Part "A" States, *viz.*, Andhra, Assam, Bihar, Bombay, Madhya Pradesh, Madras, Orissa, Punjab (East), Uttar Pradesh and West Bengal ; *eight* Part "B" States, *viz.*, Hyderabad, Jammu and Kashmir, Madhya Bharat, Mysore, PEPSU (Patiala and East Punjab States Union), Rajasthan, Saurashtra and Travancore-Cochin ; *nine* Part "C" States, *viz.*, Ajmer, Bhopal, Coorg, Delhi, Himachal Pradesh, Kutch, Manipur, Tripura, Vindhya Pradesh and *one* Part "D" territory, the Andaman and the Nicobar Islands.

According to the *village papers* the total area of land is 623,477,114 acres and of these only 43 per cent is available for cultivation, *Uncultivated Land other than Fallow* 16·5 per cent, *Fallow* land 9·5 per cent, *Area not available for Cultivation* 16 per cent and area under *Forests* is 15 per cent. Total irrigated area is 7·6 per cent (of land according to *village papers).*

The land distributed amongst the total population gives per capita area of 2·25 acres or in other words, if "the entire territory of India is divided (with mathematical exactitude) equally among all the people, we may each expect to get a square plot of land measuring a little more than one hundred yards from north to south as well as from east to west."

India and the World
(Land and Population)

	India	World
Population (in *crores*)	36	240
Land (in *crores of acres*)	81	3,251
Area per capita (in *acres*)		
All land	2·25	13·54
Agricultural area	·97	3·51
Arable land	·97	1·26

PHYSICAL ASPECTS

India consists of three separate and well-defined tracts which are very much unlike to one another both in their physical features and geological characters. The first is the great Himalayas of stupendous magnitude, of loftiest peaks, of deepest gorges, of fast flowing mountain streams and running rivers, of magnificent scenery and multiplicity of vegetation on her eastern area. The mountain ranges stretch for 1,500 miles from East to West with a width between 150 to 300 miles.

At the bottom is the great plateau of the Peninsular India or the southern Tableland "composed of old, hard and crystalline rocks." The Vindhyas on the north with heights ranging between 1,500 and 4,000 feet and the Eastern and the Western Ghats have formed the plateau ; the western side rising to an average height of 3,000 feet slopes down to the eastern side where the average height does not exceed 1,500 feet. The area is fringed by coastal plains between the "Ghats" and the sea, with the eastern plain being wider than the west.

In between the two mountainous areas lies the great plain of Hindusthan, commonly known as "the Region of Depression," composed of alluvial soil which runs a length of nearly 1,800 miles with a width varying between 250 miles in the East narrowing down to about 90 miles in the West.

Strangely enough the mighty Himalayas are regarded by the geologists as of recent date compared with the Tableland of the south ; and the "Plains" are deemed to be still geologically taking shape.

SOILS

The main classes of soil found in India are four in number, *viz.*, (i) black soil, (ii) red soil including red loams and yellow earths, (iii) laterite and lateritic soil, and (iv) alluvial soil. A few that bear individual characteristics to enable them to be distinguished from others are : saline and alkaline soils, mountain and hill soils, desert soil, peaty and other organic soils.

The different soils that are found in various regions of India may broadly be divided into the following groups :

Black Soil is found in the greater part of Bombay and Saurashtra, western part of Madhya Pradesh, Madhya Bharat and Hyderabad and some parts of Madras, especially Tirunelvelli and Ramnad districts.

Red Soil occupies almost the whole of Madras, Mysore, south-east Bombay, the eastern part of Hyderabad and of Madhya Pradesh upto Chota Nagpur and Orissa. The greater part of Santhal Parganas (Bihar), the district of Birbhum (West Bengal), the districts of Mirzapur, Jhansi and Hamirpur (Uttar Pradesh), northern portion of Madhya Bharat, the eastern part of Rajasthan and the Aravallis are covered by the Red Soil (*Ranga-mati*) and are known as "*Ranga-matir Desh.*"

Alluvial Soil covers the whole of Indo-Gangetic plain : the States of Punjab, Uttar Pradesh, Bihar, West Bengal, parts of Assam and Orissa together with the coastal regions of South India are marked by alluvial soil in different degrees of depth.

Laterite and **Lateritic Soil** are found occupying the hills of the Deccan, Madhya Bharat, Madhya Pradesh, the Rajmahal and the Eastern Ghats and certain parts of Assam, Orissa, Malabar and Bombay. These soils are formed "by the atmospheric weathering of several types of rocks under monsoon conditions of alternating dry and wet periods."

Saline and Alkaline Soils are found in Uttar Pradesh (Usar land), a small portion of Bihar and Bombay Deccan.

REGIONAL RAINFALL
(In Inches)

[M = Monsoon]

	S.-W. M (Jan.-Sep.)	Post M (Oct.-Dec.)	Winter M (Jan.-Feb.)	Sum. M (Mar.-May)	Whole Year (Jan.-Dec.
Bay Islands	70'9	30'9	2'9	18'6	123'3
Assam (incl. Manipur & Tripura)	64'3	7'0	2'3	25'1	98'7
West Bengal	51'5	5'1	1'5	9'5	67'5
Orissa	44'4	7'0	1'4	5'3	58'1
Chota Nagpur	44'3	3'8	2'2	3'3	53'7

REGIONAL RAINFALL *(Contd.)*

(In Inches)

	[M = Monsoon]				
	S.-W. M (Jan.-Sep.)	Post M (Oct.-Dec.)	Winter M (Jan.-Feb.)	Sum. M (Mar.-May)	Whole Year (Jan.-Dec.)
Bihar	41·0	3·1	1·3	3·1	48·4
Uttar Pradesh, East	34·9	2·3	1·2	1·1	39·6
Uttar Pradesh, West	33·7	1·5	1·9	1·5	38·7
Punjab (incl. PEPSU & Delhi)	19·2	1·1	2·1	1·7	24·1
Jammu and Kashmir	19·3	3·7	8·2	10·4	41·7
Rajasthan, West	9·5	0·3	0·3	0·7	10·9
Rajasthan, East (incl. Ajmer)	24·7	1·0	0·5	0·9	27·2
Madh. Bharat (incl. Bhopal)	33·1	1·8	0·5	0·6	36·0
Vindhya Pradesh	40·3	2·4	1·5	1·1	45·3
Madhya Pradesh, East	49·4	3·4	1·3	2·1	56·3
Madhya Pradesh, West	37·9	2·9	1·1	1·3	43·1
Saurashtra and Kutch	19·5	0·9	0·1	0·4	20·9
Gujerat	33·5	2·4	0·2	0·4	36·4
Konkan	104·3	5·8	0·2	1·9	112·2
Deccan (Desh)	23·9	4·4	0·2	2·0	30·5
Hyderabad, North	52·0	3·8	0·9	2·2	58·9
Hyderabad, South	23·4	4·4	0·7	2·7	31·3
Coastal Andhra (Desh)	21·8	12·5	0·8	3·2	38·4
Rayalaseema	14·3	6·7	0·3	2·7	24·0
Tamilnad	12·0	18·0	1·8	4·8	36·6
Malabar, S. Kanara	95·5	14·9	0·4	10·4	121·2
Mysore	22·2	8·2	0·3	5·6	36·3
Travancore-Cochin	55·8	23·2	2·0	16·0	97·0

RAINFALL and VEGETATION

The different regions of India are marked by wide variation in rainfall which is anything between 80″ or more to 20″ or les in a year.

The States enjoying *heavy rain*, i.e., 80″ or more are Assam Bay Islands. North Bihar. West Coast (Malabar-Konkan

Travancore-Cochin, and a small portion of the east coast with evergreen forests.

Areas with *moderate rain*, i.e., 40" to 80" are West Bengal, South Bihar (Chota Nagpur), Orissa, Madhya Pradesh, Madhya Bharat, Uttar Pradesh, Vindhya Pradesh, Jammu & Kashmir and Hills of Western Ghats with monsoon deciduous forests.

Areas with *meagre rain*, i.e., 20" to 40" are Andhra, Madras, Mysore, Hyderabad, Saurashtra, Kutch, (East) PEPSU, Delhi, Uttar Pradesh (West), Deccan with partly monsoon deciduous and partly dry forests.

Dry or semi-dry deserts with less than 20" of rain are Rajasthan Desert, West Kashmir with dry forests.

Mangrove forests are found in river deltas.

Himalayan forests vary according to altitudinous zones.

Natural *vegetation* of a country gives one an idea of possibilities of agriculture in the region. A large variety of soil, temperature and rainfall has provided India with a wide range of vegetation and it gives an idea of the multiplicity of crops that may be or have been grown on Indian soil.

PAKISTAN

Pakistan consists of two wings, East and West, separated by nearly 1,100 miles with Dacca and Karachi as their respective capitals. In the West, Sind (capital Hyderabad) is a flat country with partly desert areas ; Punjab, capital Lahore, is a well-watered fertile plain ; North-Western Frontier Province, capital Peshawar, a land of mountains and forest-fringed valleys ; and Baluchistan, capital Quetta, is a land of lofty hills interspersed with large open spaces. The whole of West Pakistan has recently been forged into one Unit with 10 Chief Commissioners' Divisions, *viz.*, Peshawar, Dera-Ismail-Khan, Rawalpindi, Lahore, Multan, Bahawalpur, Khairpur, Hyderabad, Quetta and Kalat.

East Pakistan (or Bengal) is a densely populated region, plain and fertile, irrigated by the Ganges and the Brahmaputra and a large number of their tributaries. The southern portion is fringed by the majestic Sunderbans, the "Queen of Forests".

The West has a bright sunny climate influenced by extremes of temperature which goes below freezing point rising to 78° F. by day in winter with a summer temperature of 90° to 120° F. Annual rainfall is between 0"-32", Punjab having 10" to 15" and N.-W.F.P. 7" only.

The East is predominantly a wet area with sub-tropical climate during the major part, nearly two-thirds, of the year enjoying a cool season, between November and February, with low humidity and scanty rainfall. Mean temperature is 64° F. during the cold season with 83° F. in the hot. Rainfall has great variation between 70" in the western and nearly 400" in another small area in the eastern part most of which is showered during the monsoons.

Out of a total population of 75·8 millions as much as 56·6 per cent (42·06 million) live in East Pakistan and the rest in the ten Commissioners' Divisions in the West. Only four per cent of the population in East Pakistan is urban in an averge of ten for the whole of Pakistan, with, as it should be, 95 per cent in the Federal Capital Area of Karachi.

In the total labour forces of Pakistan, 23·2 per cent and 7·5 per cent are engaged, respectively, in Agricultural and non-Agricultural pursuits and East Pakistan has the largest percentage, *viz.*, 25·5, engaged in agriculture.

Punjab has the largest acreage under irrigation, 12,311,000 acres (30·8 per cent of the total area of the State) in a total irrigated area of 22,713,000 acres for the whole of Pakistan. Sind comes next with 5,495,000 acres and Bahawalpur 2,416,000 acres. East Pakistan has the lowest acreage, 404,000 acres only, with the advantage of natural irrigation from the various rivers and their tributaries running towards the Bay of Bengal.

In respect of the net sown area East Bengal leaves every other State behind having for its share 47·5 per cent of the total of such area, (54,112,000 acres), for Pakistan. Punjab has the next best, *viz.*, 16,950,000 acres which is 42·4 per cent of the area of Punjab and 31·4 per cent of the total sown area of Pakistan.

CHAPTER II

LAND*

The different land areas of India are as follows :—

Forests : All land bearing Vegetation Associations dominated by trees of any size exploited or not capable of producing wood or of exerting influence on the climate or on the water regime.

Include (i) Lands from which forest have been recently cut or burnt but which will be reforested in the near future ; (ii) Public and private forest of any size ; (iii) Tree nurseries ; (iv) Forest roads, Forest Pastures, etc. ; (v) Mangrove forests, forests of slow growth and dwarfed or stunted forms.

Land put to non-agricultural uses includes all lands occupied by buildings, roads and railways or under water, *e.g.*, rivers and canals and other lands put to uses other than agriculture.

Barren and unculturable Land includes all barren and unculturable land like mountains, deserts, usar, sheet rock, waterlogged, etc. Land which cannot be brought under cultivation unless at a high cost is classed as unculturable whether such land is isolated blocks or within cultivated holdings.

Culturable Waste includes all grazing lands, whether they are permanent pastures and meadows or not. Village common and grazing lands within forested areas are included under this head.

Land under miscellaneous tree crops, etc. includes all cultivated land which is not included in "Net Area Sown" but is put to some agricultural use, land under Casuarina trees, thatching grasses, bamboo bushes and other groves for fuel, etc. Lands which are not included under "Orchards" are classed under this category.

Current Fallows represent cropped areas which are kept fallow during the current year. For example, if any seedling is not cropped again in the same year it may be treated as 'current fallow'.

Other Fallow Lands include all lands which were taken up for cultivation but are temporarily out of cultivation for a period of not less than one year and not more than five years. The

*According to the Ministry of Food and Agriculture, Government of India.

reasons for keeping these lands fallow may be one of the following : (1) Poverty of the cultivator, (2) Inadequate supply of water, (3) Malarial climate, (4) Silting up of canals and rivers, and (5) Unremunerative nature of farming.

Net area sown : This represents net area sown with the crops, the areas sown more than once during the year being counted once only.

Classification of Land

	Acres
Area according to the Surveyor General	812,569,600
Land for which *village papers* are available	623,477,114
Area under Forests	93,384,959
Area not available for cultivation	99,571,778
Other uncultivated Land excluding fallow Land	102,664,651
Fallow Land	59,365,197
Net area sown	268,428,964
Total irrigated Area according to *village papers*	47,861,322

Area of the Indian Union, in *sq. miles*, is 1,176,860 excluding the area of Jammu & Kashmir (92,780 sq. miles)

Land according to *village papers* is less by 1·7% of what is given by the Surveyor General.

Land according to *village papers* is 623,477,114 acres including 61,565 acres in Kutch for which classification details are not available.

Topographical Division of the different Zones of India

(*In Lakhs of Acres*)

Indian Zones	Total land area	Mountains	Hills	Plateaus	Plains	Unusable area (−)	Usable area
North	726	79	41	34	572	143	583
East	1,675	145	521	204	804	620	1,055
South	1,075	4	278	286	506	310	765
West	957	...	198	284	476	314	643
Central	1,852	...	333	1,125	395	550	1,302
North-West	1,226	97	88	300	742	583	643
India (ex. Jammu and Kashmir)	7,532	325	1,479	2,232	3,495	2,535	4,997
India (incl. do)	8,126	873	1,506	2,248	3,498	3,082	5,044

[Individual figures have been rounded to nearest lakhs.]

Note :—Mountain : "Steep land at a very high elevation and generally excluding all land below a limit of 7,000 feet above sea-level."

Hill : "All kinds of weathered highlands (except mountains) without any reference to the level at which they are situated."

Plateau : "All relatively flat tracts of land which lie between one thousand feet and three thousand feet above sea-level." (This relates to Indian conditions only.)

Natural Regions and Sub-Regions

Besides the grouping of the geographically contiguous States, India has been 'divided into five 'Natural Regions' the boundaries of which have been fixed solely with reference to the physical features.'

The five main 'Regions' have again been sub-divided into the following fifteen 'Sub-Regions' based on the differences regarding, primarily, rainfall, climatic conditions and soil insofar as they are distinctly "identifiable and are reflected in their cropping pattern":

I. *Himalayan Region* :
   1. Western Himalayan Sub-Region
   2. Eastern Himalayan Sub-Region

II. *Northern Plains Region* :
   1. Lower Gangetic Plains Sub-Region
   2. Upper Gangetic Plains Sub-Region
   3. Trans-Gangetic Plains Sub-Region
   4. The Desert Sub-Region

III. *Peninsular Hills and Plateau Region* :
   1. North-West Hills Sub-Region
   2. North Central Hills and Platean Sub-Region
   3. North-East Plateau Sub-Region
   4. North Deccan Sub-Region
   5. South Deccan Sub-Region

IV. *Western Ghats and Coastal Region* :
   1. Gujrat-Kathiawar Sub-Region
   2. Malabar-Konkan Sub-Region

V. *Eastern Ghats and Coastal Region* :
   1. North Madras and Orissa Coastal Sub-Region
   2. South Madras Sub-Region

PAKISTAN

Population of Pakistan

	(In Thousands)			Urban Population as % of total	Labour forces % of total	
	Male	Female	Total		Agri-cultural	Non-Agri-cultural
Baluchistan and Baluchistan States Union	644	530	1,174	12	22·5	8·1
East Bengal	22,039	20,024	42,063	4	25·5	5·1
Federal Capital Area of Karachi	646	480	1,126	95	0·4	33·4
N.-W. F. Province and Frontier Regions	3,113	2,787	5,900	9	21·5	9·6
Punjab and Bahawalpur State	11,058	9,593	20,651	17	19·9	10·1
Sind and Khairpur State	2,709	2,219	4,928	14	24·2	9·3
Total	40,209	35,633	75,842	10	23·2	7·5

Classification of Land

(Acres in Thousands)

Province or State	*Area acc. to Survey Papers	Not available for Cultivation		Area under Cultivation		
		Forest	Fallow Land	Net area sown	Total	Irrigated
East Bengal	34,881	2,927	5,010	1,965	25,659	27,624	404
Baluchistan	34,833	80	476	680	464	1,144	516
N.-W. F. P.	9,133	349	2,669	384	2,456	2,840	1,192
Punjab	39,837	1,148	6,828	2,522	16,950	19,472	12,311
Sind	30,289	716	13,445	5,277	5,495	10,772	5,495
Bahawalpur	11,182	13	905	285	2.709	2,994	2,416
Khairpur	3,846	23	358	207	379	586	379
Total	164,001	5,256	29,691	11,320	54,112	65,432	22,713

* Total area of Pakistan including States and Tribal Areas, etc., is 231,354, 000 acres.

CHAPTER III

MAN POWER

I. NUMBER

The total population of India, according to 1951 census, is 356·8 millon, divided into 183·3 million males and 173·5 million females. Of the total, 295·0 million live in rural areas and 61·9 million in the urban. The largest number of males and females are found in the age group 5-14 with 44·7 millions and 42 millions,respectively, followed by the age group 15-24 with 30·7 and 30·0 million of males and females.

In the six *'population zones'*, East India has the largest number of inhabitants with nearly a quarter of the total population (90·1 million) and the other zones in order of their number of population are ; South 20·9 per cent (75·6 million), North 17·64 per cent (63·2 million), Central 14·6 per cent (52·3 million), West 11·4 per cent (40·7 million) and North-West India 9·7 per cent (35 million).

India has a predominantly agricultural population, 249·07 million (69%) and less than one third 107·55 million (30·3%) are dependent on non-agricultural pursuits.

In each of the two groups, the majority are "non-earning dependents" being 59·0 per cent (146·96 million) in the agricultural and 62·3 per cent (67·33 million) in the non-agricultural classes. The non-agricultural classes have a larger percentage, 30·9 (33·35 million) of "self-supporting persons" than the agricultural, 28·5 per cent (71·05 million) ; and 6·3 per cent (6·87 million) and 12·5 per cent (30·01 millions) as "earning dependents", respectively. Agriculture provides a better scope for ordinary or 'non-skilled' worker and the said advantage is reflected in the share of "non-earning dependents" in each of the two groups.

Of the "self-supporting" group, 32·37 million persons of both sexes inhabiting in villages and towns, 1·1 million persons are "Employers" of men, 14·8 million as "Employees" and 16·47 million as "Independent Workers."

The "non-agricultural" section includes a large proportion, 34·9 per cent (37·67 million) who are engaged in "production other than cultivation", such as, stock raising, rearing of small animals and insects, fishing, plantation industries, etc. ; a mere 5·2 per cent. (5·6 million) in transport services and 19·7 per cent

(21·3 million) in commerce. But the largest number in this section, 42·95 millions (39·7%) earn their livelihood by services other than in agriculture and the three other non-agricultural sources of income just specified above.

The number of "all agricultural classes" is 249·1 million out of which more than two-thirds 67·0%, (167·33 million) are 'cultivators of land wholly or mainly *owned* and their dependents ; persons and their dependents working in rented fields comprise 12·7 per cent. (31·6 million). The problem is grave with 18·0% (44·7 million) "cultivating labourers and their dependents" having no land, owned or rented, and no fixity of income and continuity of labour. The rent-receivers, intermediaries or "non-cultivating owners of land" as they are called, constitute only a small fraction of this group, *viz.*, 2·1 per cent. (5·3 million) and taking over of their landed property, therefore, has not caused even a ripple of agitation in the country. It remains to be seen whether the land secured from the landlords would be able to mitigate the disabilities of the landless millions of the country.

India is a poor country and it will take many years of all-round and intense efforts to improve the financial condition of the masses compared with some of the progressive nations of the world ; the per capita income of Rs. 283·9 a year (1953-54) is rather a very poor show. The First Five Year Plan has given a good start in upgrading the income from Rs. 246·9 in 1948-49 and the Second Five Year Plan expects to accelerate the rate of such increase.

The wastage of man power in India is colossal, not only by premature death but by the idle hours which majority of the people of all age groups are compelled to while away on nothing. It is the aim of the Welfare State of India to harness this tremendous energy along with the mighty rivers that pour their wealth into the sea.

Union Population Zones (Grouping of geographically contiguous States)

I. North India—Uttar Pradesh.

II. East India—Bihar, Orissa, West Bengal, Assam, Manipur, Tripura, Sikkim and Chandernagore.

III. South India—Madras, Mysore, Travancore-Cochin and Coorg.

IV. West India—Bombay, Saurashtra and Kutch.

V. Central India—Madhya Pradesh, Madhya Bharat, Hyderabad, Bhopal and Vindhya Pradesh.

VI. North-West India—Rajasthan, Punjab, Patiala and East Punjab States Union, Jammu and Kashmir, Ajmer, Delhi, Bilaspur and Himachal Pradesh.

Bay Islands—Andaman and Nicobar.

Land, Area and Population

Zone	Area (lakhs of acres)	Population (in lakhs)	% of total	Acre (per capita)
North India	726	632	17·64	1·15
East India	1,675	901	25·00	1·86
South India	1,075	756	20·90	1·42
West India	957	407	11·40	2·35
Central India	1,852	523	14·60	3·54
North-West India	1,226	350	9·70	3·51
India (ex. Jammu and Kashmir	7,532	3,569		2·11
India (including ,,)	8,126	3,613		2·25

Area, Houses, Towns and Villages

Zone	Area (Sq. m.)	Villages	Towns	Occupied Houses Total	Rural	Urban
India	1,176,864	558,089	3,018	64,362	54,056	10,305
1. North	113,409	111,722	486	10,409	9,074	1,335
2. East	261,661	185,319	298	17,285	15,255·5	2,029·5
3. South	168,009	57,758	683	13,387·5	11,251·4	2,136
4. West	149,609	39,533	594	7,248·6	5,056·8	2,191·8
5. Central	289,399	102,062	517	10,145·2	8,720	1,425
6. N.-West	191,562	61,494	440	5,881	4,695·2	1,185·8
Andaman & Nicobar	3,215	201	—	5·3	3·4	1·9

(Area of Jammu and Kashmir, 92,780 sq. miles, and its population not included.)

Population in Villages and Towns

(In Thousands)

Zone	Male	Female	Total	Rural	Urban
India	183,334	173,546	356,829	295,004	61,875
1. North	33,099	30,117	63,216	54,590	8,626
2. East	46,344	43,786	90,130	80,166	9,965
3. South	37,823	37,778	75,601	60,734	14,867
4. West	20,982	19,679	40,661	27,984	12,677
5. Central	26,498	25,770	52,268	44,031	8,237
6. North-West	18,570	16,403	34,973	27,477	7,496
Andaman and Nicobar	19	12	31	23	8

Population by Zones and States

	Area Sq. m.	% of total area	Person in thousands	% of total population	1941 population in thousands	Mean decennial growth rate (1941-51)
India	**1,269,644**		**356,829·5**		**314,776·4**	**+12·5**
I *North India*	*113,409*	*8·9*	*63,215·7*	*17·64*	*56,531·8*	*+11·2*
1. Uttra Pradesh	113,409	8·9	63,215·7	17·64	56,531·8	+11·2
II. *East India*	*261,657*	*20·6*	*90,080·3*	*25·00*	*80,873·0*	+10·8
1. Bihar	70,330	5·54	40,225·9	11·2	36,528·1	+ 9·6
2. Orissa	60,136	4·73	14,645·9	4·0	13,768·0	+ 6·2
3. West Bengal	30,775	2·42	24,810·3	6·9	21,837·3	+12·7
4. Assam	85,012	6·70	9,043·7	2·15	7,593·0	+17·4
5. Manipur	8,628	·70	577·6	·16	512·1	+12·0
6. Tripura	4,032	·30	639·0	·1	513	+21·9
7. Sikkim	2,744	·20	137·7	—	121·5	+12·5
III. *South India*	*168,009*	*13·20*	*75,600·8*	*20·9*	*64,837·4*	+15·3
1. Madras	127,790	10·00	57,016·0	16·0	49,830·1	+13·4
2. Mysore	29,489	2·32	9,075·0	2 6	7,337·8	+21·2
3. Travancore-Cochin	9,144	·72	9,280·4	2·6	7,500·1	+21·2
4. Coorg	1,586	·12	229·4	·06	168·7	+30·5
IV. *West India*	*149,609*	*12·8*	*40,661·1*	*11·4*	33,249·7	+20·1
1. Bombay	111,434	9·0	35,956·2	10·1	29,181·1	+20·8
2. Saurashtra	21,451	1·7	4,137·4	1·1	3,560·7	+15·0
3. Kutch	16,724	1·32	567·6	·16	507·9	+11·1
V. *Central India*	*289,399*	*22*	*52,268·0*	*14·6*	*47,273·9*	*+10·0*
1. Madhya Pradesh	130,272	10·25	21,247·5	6·0	19,631·6	+ 7·9
2. Madhya Bharat	46,478	3·66	7,954·2	2·2	7,169·9	+10·4
3. Hyderabad	82,168	6·47	18,655·1	5·5	16,327·1	+13·3
4. Bhopal	6,878	·54	836·5	·2	778·6	+ 7·2
5. Vindhya Pradesh	23,603	1·80	3,574·7	1·0	3,366·6	+ 6·0
VI. *North-West India*	*284,342*	*22·4*	*34,972·6*	*9·7*	*31,966·8*	+ 9·0
1. Rajasthan	130,207	10·25	15,290·8	4·3	13,306·2	+13·9
2. Punjab	37,378	2·94	12,641·2	3·5	12,698·6	− 0·5
3. PEPSU	10,078	·80	3,493·7	1·0	3,402·6	+ 2·6
4. Jammu & Kashmir	92,780	7·30	—	—	—	—
5. Ajmer	2,417	·20	693·4	·19	583·7	+17·2
6. Delhi	578	—	1,744·1	·5	917·9	+62·1
7. Bilaspur	453	—	126·1	—	110·3	+13·3
8. Himachal Pradesh	10,451	·82	983·4	·3	947·4	+ 3·7
Andaman & Nicobar	3,215	—	30·1	—	33·8	− 8·6

Population by Sex in different Zones and States

		Male 000's	Female 000's	Total 000's	Females per 1,000 Males
	India	**183,305·6**	**173,523·8**	**356,829·5**	**947**
I.	*North India*	*33,098·9*	*30,116·9*	*63,215·7*	*910*
	Uttar Pradesh	33,098·9	30,116·9	63,215·7	910
II.	*East India*	*46,315·7*	*43,764·6*	*90,080·3*	*945*
	Bihar	20,223·7	20,002·3	40,225·9	989
	Orissa	7,242·9	7,403·0	14,645·9	1,022
	West Bengal	13,345·4	11,464·9	24,810·3	859
	Assam	4,812·2	4,231·5	9,043·7	879
	Manipur	283·7	293·9	5,777·6	1,036
	Tripura	335·6	303·4	639·0	904
	Sikkim	72·2	65·5	137·7	907
III.	*South India*	*37,882·5*	*37,778·3*	*75,600·8*	*999*
	Madras	28,419·0	28,597·0	57,016·0	1,006
	Mysore	4,657·6	4,417·6	9,074·9	949
	Travancore-Cochin	4,620·8	4,659·6	9,280·4	1,008
	Coorg	125·3	104·1	229·4	830
IV.	*West India*	*20,982·3*	*19,678·8*	*40,661·1*	*938*
	Bombay	18,614·9	17,341·3	35,956·1	932
	Saurashtra	2,094·4	2,042·9	4,137·4	975
	Kutch	273·0	294·7	567·6	1,079
V.	*Central India*	*26,497·5*	*25,770·4*	*52,268·0*	*973*
	Madhya Pradesh	10,662·8	10,584·7	21,247·5	993
	Madhya Bharat	4,133·1	3,821·1	7·954·2	925
	Hyderabad	9,431·1	9,224·0	18,655·1	978
	Bhopal	437·6	398·8	836·5	911
	Vindhya Pradesh	1,832·9	1,741·7	3,574·7	950
VI.	*N.-W. India*	*18,570*	*16,403*	*34,973*	*883*
	Rajasthan	7,962	7,329	15,291	921
	Punjab	6,787	5,854	12,641	863
	PEPSU	1,895	1,599	3,494	844
	Jammu & Kashmir	...	...	...	...
	Ajmer	360	333	693	925
	Delhi	987	758	1,744	768
	Bilaspur	65	61	126	948
	Himachal Pradesh	515	469	983	910
Andaman & Nicobar		19	12	31	625

II. ECONOMIC STATUS

The vast population of India follows a fairly large variety of avocations for their livelihood and these have been divided into three broad categories of economic status *viz.*, (i) Self-supporting

persons, (ii) Non-earning dependents and (iii) Earning dependents. In a study of the group of self-supporting persons, it is noticed that *Independent Workers* (16·6 million) is equal to the combined strength of *Employers* (1·1 million) and *Employees* (14·8 million). More Employers are found in *Commerce* (·504 million) than in any other sphere followed by *Processing and Manufacture of Foodstuffs, Textiles, Leather*, etc. (·181 million) and *Services not elsewhere specified* (·154 million). The largest number of *Employees* is found in the group : *Services not elsewhere specified* (3·4 million) ; next in *Health, Education and Public Administration* (3 million) and *Processing and Manufacture of Foodstuffs*, etc. (2·2 million). The major portion of *Independent Workers* is found in *Commerce* (4·3 million) and the other two main forms of activities are *Services not elsewhere specified* (3·9 million) and *Processing and Manufacture of foodstuff*, etc. (3·2 million).

Division of Population by Livelihood Classes

Total population	**356,628,312**	% of total
All agricultural classes	249,074,901	69·7
All non-agricultural classes	107,553,411	30·3

Division of Population by Agricultural (Livelihood) Classes

All agricultural classes	*249,074,901*	%
Self-supporting persons	71,049,356	28·5
Non-earning dependents	146,956,640	59·0
Earning dependents	30,068,905	12·5

Sub-division of Population by Agricultural (Livelihood) Classes

All agricultural classes	*249,074,901*	%
I. Cultivators of land wholly or mainly owned and their dependents	167,326,578	67·0
II. Cultivators of land wholly or mainly unowned and their dependents	31,618,073	12·7
III. Cultivating labourers and their dependents	44,809,019	18·0
IV. Non-cultivating owners of land ; agricultural rent receivers and their dependents	5,321,231	2·1

Division of Population by All Non-agricultural (Livelihood) Classes

All Non-agricultural Classes	*107,553,411*	%
Self-supporting persons	33,350,447	30·9
Non-earning dependents	67,334,634	62·3
Earning dependents	6,868,330	6·3

Sub-division of Population by All Non-agricultural (Livelihood) Classes

All Non-agricultural Classes	*107,553,411*	%
I. Production other than cultivation	37,671,902	34·9
II. Commerce	21,311,898	19·7
III. Transport	5,620,717	5·2
IV. Other Services and miscellaneous sources	42,948,894	39·7

Sub-division of Agricultural Population by Economic Status

I. *Cultivators of land wholly or mainly owned and their dependents*	*167,326,578*	%
Self-supporting persons	45,761,578	27·4
Non-earning dependents	100,116,886	59·9
Earning dependents	21,448,114	12·7
II. *Cultivators of land wholly or mainly unowned and their dependents*	*31,618,073*	
Self-supporting persons	8,765,396	27·7
Non-earning dependents	18,896,000	59·7
Earning dependents	3,936,677	12·4
III. *Cultivating Labourers and their dependents*	*44,809,019*	
Self-supporting persons	14,881,262	33·2
Non-earning dependents	24,636,612	55·0
Earning dependents	5,291,145	11·8
IV. *Non-cultivating owners of land ; Agricultural rent Receivers and their dependents*	*5,321,231*	
Self-supporting persons	1,641,120	20·8
Non-earning dependents	3,307,142	62·1
Earning dependents	372.969	7·0

Sub-division of Non-agricultural Population by Economic Status

I. *Production other than cultivation*	*37,671,902*	%
Self-supporting persons	12,135,714	32·2
Non-earning dependents	22,402,329	59·4
Earning dependents	3,133,859	8·3
II. *Commerce*	*21,311,898*	%
Self-supporting persons	5,903,038	27·7
Non-earning dependents	14,475,871	67·9
Earning dependents	932,989	4·3
III. *Transport*	*5,620,717*	%
Self-supporting persons	1,734,395	30·6
Non-earning dependents	3,649,511	64·9
Earning dependents	236,811	4·3
IV. *Other Services and miscellaneous Sources*	*42,948,894*	%
Self-supporting persons	13,577,300	31·6
Non-earning dependents	26,806,923	62·4
Earning dependents	2,564,671	5·9

Division of Population according to nature of Residence and Economic Status

	Male	Female	Total
Self-supporting persons	*27,992,201*	*4,374,682*	*32,366,883*
Rural	13,665,199	2,808,201	16,473,400
Urban	14,327,002	1,566,481	15,893,483
Employers	*1,025,540*	*79,089*	*1,104,629*
Rural	349,980	45,346	395,326
Urban	675,560	33,743	709,303
Employees	*12,915,584*	*1,880,417*	*14,796,001*
Rural	4,956,516	1,090,894	6,047,410
Urban	7,959,068	789,523	8,748,591
Independent Workers	*14,051,077*	*2,415.176*	*16,466,253*
Rural	8,358,703	1,671,961	10,030,664
Urban	5,692,374	743,215	6,435,589

Share of each group of Industry and Services in the total Self-supporting Population

Description of Industry	*Total* (000's)	%
All Industries and Services	**32,367**	
I. Primary Industries not elsewhere specified	2,401	7·4
II. Mining and Quarrying	567	1·8
III. Processing and Manufacture : —Foodstuffs, Textiles, Leather and Products thereof	5,510	17·0
IV. Processing and Manufacture : Metals, Chemicals and Products thereof	1,237	3·8
V. Processing and Manufacture not elsewhere specified	2,429	7·5
VI. Construction and Utilities	1,586	4·9
VII. Commerce	5,901	18·2
VIII. Transport, Storage and Communications	1,902	5·8
IX. Health, Education and Public Administration	3,290	10·1
X. Services not elsewhere specified	7,544	23·3

Division of Self-supporting Population by Industries and Services

[In the following tables *self-supporting* persons of the *non-agricultural classes* have been classified on the basis of the commodity produced or the services rendered by them.]

	Em-ployers	Em-ployees	Independent Workers	Total
All Industries and Services	*1,104,629*	*14,796,001*	*16,466,253*	*32,366,883*
I. Primary Industries not elsewhere specified	*46,758*	*1,253,287*	*1,100,633*	*2,400,678*
Stock Raising	16,568	141,951	472,286	630,805
Rearing of small Animals and Insects	1,332	7,677	18,178	27,187
Plantation Industries	8,683	963,830	89,505	1,061,018

	Em-ployers	Em-ployees	Independent Workers	Total
Forestry and Wood-cutting	5,944	88,763	157,145	251,852
Hunting (including Trapping and Game Propagation)	478	1,307	6,987	8,772
Fishing	13,753	50,759	356,532	421,044
II. Mining and Quarrying	*5,936*	*445,113*	*115,821*	*566,870*
Non-metallic Mining and Quarrying not otherwise specified	164	6,689	4,517	11,370
Coal Mining	1,236	304,669	5,495	311,400
Iron Ore Mining	76	7,699	844	8,619
Metal Mining (except Iron Ore Mining)	701	41,597	14,654	56,952
Crude Petroleum and Natural Gas	131	1,912	409	2,452
Stone-quarrying, Clay and Sand-pits	2,696	45,606	73,546	121,848
Mica	599	26,188	5,841	32,628
Salt, Saltpetre and Saline substances	333	10,753	10,515	21,601
III. Processing and Manufacture—Food-stuffs, Textiles, Leather and Products thereof	*181,657*	*2,170,143*	*3,158,274*	*5,510,07*
Food Industries otherwise unclassified	9,872	59,496	113,871	184,239
Grains and Pulses	18,671	109,258	275,674	403,603
Vegetable Oil and Dairy Products	13,185	72,025	181,890	267,100
Sugar Industries	3,596	82,846	48,828	135,270
Beverages	6,663	45,718	112,477	164,858
Tobacco	13,478	149,914	192,310	355,702
Cotton Textiles	56,961	981,521	1,023,269	2,061,751
Wearing apparel (except Footwear) and made-up Textile Goods	30,644	122,669	495,358	648,671

	Employers	Employees	Independent Workers	Total
Textile Industries otherwise unclassified	12,324	463,736	235,141	711,201
Leather, Leather products and Footwear	16,263	82,960	478,456	577,679
IV. Processing and Manufacture—Metals, Chemicals and Products	*39,674*	*693,345*	*504,028*	*1,237,047*
Manufacture of Metal Products otherwise unclassified	21,732	207,307	391,506	620,545
Iron and Steel (Basic Manufacture)	1,793	95,996	14,584	112,373
Non-Ferrous Metals (Basic Manufacture)	245	6,166	4,463	10,874
Transport Equipment	6,338	170,837	39,099	216,274
Electricity Machinery, Apparatus, Appliances and Supplies	1,209	29,763	11,798	42,770
Machinery (other than Electrical) including Engineering Workshops	3,093	102,990	18,885	124,968
Basic Industrial Chemicals, Fertilisers and Power Alcohol	719	14,867	5,892	21,478
Medical and Pharmaceutical Preparations	410	12,300	2,163	14,873
Manufacture of Chemical Products otherwise unclassified	4,135	53,119	15,638	72,892
V. Processing and Manufacture—not elsewhere specified	*81,804*	*616,503*	*1,730,840*	*2,429,147*
Manufacturing Industries otherwise unclassified	25,967	107,888	375,454	509,309
Products of Petroleum and Coal	251	9,056	2,491	11,798
Bricks, Tiles and other Clay Products	4,578	88,656	90,921	184,155

	Em-ployers	Em-ployees	Independent Workers	Total
Cement—Cement Pipes and other Cement Products	373	20,797	4,682	25,852
Non-metallic Mineral Products	12,112	54,723	378,326	445,161
Rubber Products	753	15,191	3,297	19,241
Wood and Wood products other than Furniture & Fixtures	27,346	191,666	822,277	1,041,289
Furniture and Fixtures	1,680	9,297	23,518	34,495
Paper and Paper Products	617	24,062	6,532	31,211
Printing and Allied Industries	8,127	95,167	23,342	126,636
VI. Construction and Utilities	*31,560*	*713,203*	*840,963*	*1,585,726*
Construction and Maintenance of Work otherwise unclassified	2,064	26,585	53,566	82,215
Construction and Maintenance—Buildings	19,680	236,071	500,956	756,707
—Roads, Bridges and other Transport Works	4,874	94,231	49,699	148,804
—Telegraph and Telephone Lines	116	6,589	866	7,571
—Irrigation and other Agricultural Works	1,436	70,579	41,984	113,999
Works and Services	920	64,015	7,070	72,005
—Domestic and Industrial Water Supply	1,135	27,526	35,498	64,159
Sanitary Works and Services (including Scavengers)	1,335	187,607	151,324	340,266
VII. Commerce	*503,675*	*1,134,886*	*4,262,757*	*5,901,318*
Retail Trade otherwise unclassified	169,665	360,627	1,577,713	2,108,005
—in Foodstuffs	167,516	293,356	1,793,142	2,254,014
—in Fuel (incl. Petrol)	19,386	42,643	130,978	193,007

	Em-ployers	Em-ployees	Independent Workers	Total
—in Textile and Leather goods	67,835	103,975	387,845	559,655
Wholesale Trade in Foodstuffs	21,766	40,107	102,786	164,659
—in Commodities other than Foodstuffs	33,756	136,329	128,431	298,516
Real Estate	2,555	7,579	10,002	20,136
Insurance	1,600	25,265	10,863	37,728
Money-lending, Banking and other Financial Business	19,596	125,005	120,997	265,598
VIII. Transport, Storage and Communications	*37,296*	*1,290,973*	*573,702*	*1,901,971*
Transport and Communications otherwise unclassified and incidental Service	834	19,539	20,427	40,800
Transport by Road	30,015	388,803	474,641	893,459
—by Water	5,878	158,906	51,984	216,768
—by Air	135	11,904	1,455	13,494
Railway Transport	307	549,304	23,108	572,719
Storage and Warehousing	118	7,765	1,742	9,625
Postal Services	9	114,698	282	114,989
Telegraph Services	...	20,593	28	20,621
Telephone Services	...	15,313	25	15,338
Wireless	...	4,148	10	4,158
IX. Health, Education and Public Administration	*22,708*	*3,032,414*	*235,205*	*3,290,327*
Medical and Health Services	15,454	200,733	168,674	384,861
Educational Services and Research	7,602	672,568	63,720	743,349
Army, Navy and Air Force*	...	...	...	...
Police (other than Village Watchman)	...	379,721	...	379,721

*Shown under "Employees of Union Government".

	Em-ployers	Em-ployees	Independent Workers	Total
Village Officers and Servants, including Village Watchmen	193	234,176	2,811	237,180
Employees of Municipalities and Local Boards	...	224,249	...	224,249
Employees of State Governments	...	809,012	...	809,012
Employees of Union Governments	...	503,062	...	503,062
Employees of non-Indian Governments	...	8,893	...	8,893
X. Services not elsewhere specified	*153,561*	*3,446,134*	*3,944,030*	*7,543,725*
Services otherwise unclassified	31,408	1,489,308	2,211,899	3,732,615
Domestic Services	4,761	1,247,256	172,465	1,424,482
Barbers and Beauty Shops	15,203	64,693	430,701	510,597
Laundries and Laundry Services	17,657	74,000	472,852	564,509
Hotels, Restaurants and Eating Houses	56,802	237,040	164,450	458,292
Recreation Services	6,480	76,271	131,429	214,180
Legal and Business Services	12,194	141,708	76,418	230,320
Arts, Letters and Journalism	2,198	14,455	22,603	39,256
Religious, Charitable and Welfare Services	6,858	101,403	261,213	369,474

CHAPTER IV
AGRICULTURE

Agriculture is literally the mainstay of Indian economy. It supplies more than half of the annual National Income of India and 69·7 per cent of the total population is in some way or other dependent on agriculture. It is the chief source that supplies the staple food of the people, the raw materials of some of the principal industries and materials for internal and international commerce.

The land given to the various principal agricultural crops, according to the Census of 1951, are given as follows. *(The recent acreage will be found under each individual crop under "Raw Materials") :*

Indian Cropping Pattern—1951

	Acres in Thousands	% of total sown area
Rice	69,800	22·8
Wheat and Barley	32,026	10·5
Jowar, Bajra and Ragi	62,264	20·4
Other Foodgrains including Maize, Gram and Pulses	73,121	24·0
Foodcrops other than Foodgrains and Oilseeds	13,381	4·4
Oilseeds	24,540	8·0
Fodder Crops	11,261	3·7
Cotton	11,947	3·9
Jute and other Fibres	2,049	·67
Tea, Coffee, Tobacco and Others	3,980	1·3
Total area sown	304,379	
Area sown more than once	35,950	
Net area sown	268,429	

The value of the chief agricultural crops, nearly Rs. 5,000 crores (in 1950-51), has advanced a good deal due to the progress made particularly in production of foodgrains.

In agriculture India shows a marvellous variety of products. In some of the food and commercial crops she holds a very prominent place. India, in point of production, is first in groundnuts, tea (perhaps next to China), sugar (cane), cashewnuts,

indigo, pepper, opium, niger seed ; second in jute, mustard and rape, kapok, ginger, sunn hemp ; third, may be fourth, in cotton and cotton seed, tobacco, castor, etc. In many other sorts, she holds not a very insignificant position.

With such huge agricultural produce running into millions of tons, India is sorely in need of more foodcrops, more textile fibres, sugar (cane), etc. Imports of only four of the abovenamed articles involved Rs. 171 crores in imports in 1954-55 disclosing a rather ugly feature of Indian agricultural resources.

What is necessary is a better yield per acre, more land under plough and perhaps more than this, more manure, additional irrigation, better seed, more efficient agricultural methods and implements including more healthy and active cattle, protection against pests and ravages caused by rodents. Intelligent and hardworking (and honest) labour is more necessary than many of the above mentioned deficiencies combined. It is likely that more capital has to be invested in the biggest industry of India for larger scope of labour and better return on investment.

The First Five Year Plan has produced some tangible results and additional advantages are likely to follow at the end of the Plan Period.

The latest estimates of area and yield of the principal crops (for 1954-55) are given below :

	Acres in Thousands	Tons in Thousands		Acres in Thousands	Tons in Thousands
Rice	74,424	24,209	Sugarcane	3,932	5,546
Wheat	26,842	8,539	Groundnut	12,647	3,823
Jowar	43,456	9,092	Linseed	3,290	388
Bajra	27,350	3,555	Castorseed	1,273	112
Barley	7,999	2,786	Mustard and		
Maize	9,325	2,944	Rape	5,665	962
Ragi	5,747	1,778	Sesamum	6,460	592
Small Millets	13,680	2,424	Tobacco	837	238
Tur	5,944	1,661	Black Pepper	208	26
Gram	20,991	5,125	Ginger	44	13
Jute (bales)	1,273	3,153	Chillies (dry)	1,742	356
Cotton (bales)	18,346	4,298	Potato	639	1,657

Classified Land Area and Cropping Pattern of different Natural Regions of India

(Thousand Acres)

	I Himalayan	II N. Plains	III Peninsular Hills and Plateau	IV W. Ghats & Coastal	V E. Ghats & Coastal
Total Land area acc. to Sur. Genl.	152,574	189,194	332,908	69,521	66,315
Population (*000's*)	17,043	139,398	108,599	39,927	51,832
Land acc. to Village Papers	67,235	136,389	299,873	54,583	5,397
Area under Forests	15,303	4,861	55,712	7,936	9,573
Area not available for Cultivation	15,532	18,703	42,433	8,534	14,370
Uncultivated land excluding Fallow	21,724	18,732	46,822	7,027	8,360
Fallow Land	2,589	10,340	31,309	6,831	8,295
Total irrigated Area	2,630	25,252	9,338	1,629	10,013
Rice	6,408	25,354	21,165	4,810	12,063
Wheat and Barley	2,125	19,357	9,867	950	7
Jowar, Bajra and Ragi	593	11,270	36,927	7,432	6,043
Maize, Gram, Pulses, etc.	2,315	30,494	33,025	2,773	4,514
Foodcrops	962	6,150	3,036	1,873	1,360
Oilseeds	614	2,735	15,220	2,410	3,561
Foddercrops	69	5,028	3,264	2,434	466
Cotton	82	766	8,325	1,913	862
Jute and other Fibres	291	865	621	39	232
Tea, Coffee, Tobacco, etc.	859	850	734	989	599
Total Area sown	14,320	102,878	131,903	25,621	29,656
Area sown more than once	2,233	19,126	8,306	1,428	4,858
Net Area sown	12,087	83,753	123,598	24,193	24,799

For Agricultural Machinery and Implements see pp. 32-33

PAKISTAN

Principal Agricultural Crops

	Acres in Thousands	Tons in Thousands		Acres in Thousands	Tons in Thousands
Rice	24,533	9,151	Mustard and Rape	1,631	272
Wheat	10,651	3,683	Sesamum	216	36
Bajra	2,585	455	Linseed	74	12
Jowar	1,504	280	Tea	75	23
Maize	1,067	437	Tobacco	193	90
Barley	613	156	Cotton	2,881	251
Gram	2,767	645	Jute	760	447
Sugarcane	962	1,263			

[The above figures are not entirely reliable, because machinery for collection of agricltural statistics are rather imperfect.]

CHAPTER V

LIVESTOCK

In the national economy of India, Livestock, particularly the cattle and buffaloes, play a very important role. The value of the principal economic products derived from this source is very large (Rs. 508 crores), Milk (Rs. 405 crores), Meat (Rs. 65 crores), and Hides and Skins (Rs. 20 crores) are regarded as the chief contributions of Livestock towards the national wealth of India. But cattle and buffaloes have an essential part in the agricutural economy of the country for their function as a source of 'power'. They drive the plough, draw the cart, raise water from the wells, turn indigenous oilseed and sugarcane crushers, carry burden on the back. In the shape of bones and manure as also a few other minor commercial products their contribution is not inconsiderable.

Inspite of their number, the drawback lies in the fact that the yield of milk per cow and buffalo is very low, hides are of poor quality, proportion of dry animals is very large with the result that the maintenance cost has become very high.

India possesses the largest number of cattle in the world (155 million heads) and in addition has 43 million heads of buffaloes. The number of sheep and goats, in India, is 39 million and 47 million, respectively. When other domestic animals, such as horses and ponies, donkeys, camels, pigs, etc., are taken into account the total livestock population comes to 292 millions.

The largest number of cattle (excluding buffalo) is found in Uttar Pradesh (23·5 million) followed by Madras (19·4 million). The States of Bihar, Madhya Pradesh and Bombay occupy the next three places.

In respect of the total yield of milk per year Uttar Pradesh again comes first with 123 million maunds composed of Cow, Buffalo and Goats' milk, with Punjab, Madras and Rajasthan coming next. The total quantity of milk produced in India is 520 million maunds (19 million tons).

Besides milk, the annual meat production comes to 738,000 tons. Wool (and hair) and pig bristles are the two other important items of commerce.

All the products are very poor returns compared with the total number of Livestock which have to be maintained. India has a sheep population of 39 million with an yield of wool not even two pounds per sheep per year. Total production of hides and skins is 21 million pieces and 37 million pieces, respectively.

There are 32 million wooden and 931,000 iron ploughs, 10 million carts, 520,000 (bullock-driven) sugarcane crushers and 243,000 ghanies (*kohlus*) in operation in India. To keep all these going is a tremendous task preformed by animal power for which no value has yet been properly assessed.

In the total economy of nutritious food of a country poultry holds an important place for the supply of meat and eggs as also for feather. The total number of poultry is 73 million (fowls and ducks) and the quantity of available meat on this account per year is roughly estimated at 35,000 tons.

There is much scope for improvement in animal husbandry in India and the measures adopted by the Central and State Governments are sure to produce appreciable results within a reasonable time.

Livestock (1951)

Cattle

(In Thousands)

States	Part 'A'	Part 'B'	Part 'C'	Total
Total Cattle	112,712	35,795	6,592	155,099
1. *Males of 3 years*	*47,067*	*12,371*	*2,321*	*61,759*
(*a*) Breeding	481	102	63	646
(*b*) Working	44,524	11,739	2,150	58,413
(*c*) Others	2,062	530	107	2,699
2. *Females of 3 years*	*34,918*	*12,506*	*2,424*	*40,848*
(*a*) Breeding				
(i) in milk	13,534	4,481	938	18,953
(ii) dry and not calved	18,683	7,343	1,360	27,386
(*b*) Working	1,761	504	49	2,314
(*c*) Others	940	178	76	1,194
3. *Young stock*	*30,727*	*10,918*	*1,847*	*43,492*

Buffaloes

(In Thousands)

	States	Part 'A'	Part 'B'	Part 'C'	Total
Total Buffaloes		31,734	10,250	1,367	43,351
1. *Males over 3 years*		*5,805*	*851*	*122*	*6,778*
(*a*) Breeding		224	67	15	306
(*b*) Working		5,180	726	100	6,006
(*c*) Others		401	58	6	465
2. *Females over 3 years*		*15,632*	*5,414*	*796*	*21,842*
(*a*) Breeding					
(i) in milk		7,324	2,564	329	10,217
(ii) dry and not calved		7,592	2,738	446	10,776
(*b*) Working		473	50	10	533
(*c*) Others		243	62	10	315
3. *Young stock*		*10,297*	*3,985*	*449*	*14,731*

Sheep, Goat, Horses and Ponies

(In Thousands)

	'A'	'B'	'C'	Total
Total Sheep	*22,528*	*14,936*	*1,364*	*38,829*
(*a*) One year and above	19,282	11,410	1,099	31,791
(*b*) Below one year	3,246	1,679	265	5,190
Total Goats	*32,906*	*12,501*	*1,670*	*47,077*
(*a*) One year and above	26,444	9,460	1,335	37,239
(*b*) Below one year	6,462	1,990	335	8,787
Total Horses and Ponies	*999*	*456**	*61*	*1,514**
(*a*) Three years and above	677	239	47	963
(*b*) Below 3 years	322	124	14	460
(i) Mules	45	10	5	60
(ii) Donkeys	789	419	32	1,240
(iii) Camels	188	429	12	629
(iv) Pigs	3,730	478	212	4,420
Total Livestock	*205,631*	*75,272*	*11,315*	*292,218*

* Include 91,000 for which details are not available.

Cattle Population by States—1951

(In Thousands)

	Male	Female	Total
Part 'A' States			
Assam	2,630	2,516	5,146
Bihar	8,438	6,860	15,297
Bombay	6,956	4,960	11,915
Madhya Pradesh	7,612	7,246	14,858
Madras	10,402	9,015	19,417
Orissa	4,117	3,772	7,889
Punjab	2,340	1,952	4,292
Uttar Pradesh	14,645	8,868	23,513
West Bengal	5,335	5,051	10,385
Total	*62,474*	*50,238*	*112,712*
Part 'B' States			
Hyderabad	5,041	4,179	9,220
Jammu & Kashmir	416	485	901
Madhya Bharat	3,060	3,007	6,067
Mysore	2,173	2,516	4,689
PEPSU	760	704	1,464
Rajasthan	4,935	5,520	10,455
Saurashtra	714	579	1,293
Travancore-cochin	523	762	1,285
Total	*17,622*	*17,752*	*35,374*
Part 'C' States			
Ajmer	143	183	327
Bhopal	396	336	733
Bilaspur	51	17	68
Coorg	73	68	141
Delhi	55	52	107
Himachal Pradesh	509	539	1,048
Kutch	127	151	278
Manipur	69	75	144
Tripura	106	85	191
Vindhya Pradesh	1,748	1,804	3,553
Total	*3,278*	*3,311*	*6,589*

Statewise Distribution of Sheep, Goats, Horses and Ponies, Camels, Pigs and Donkeys—1951

(In Thousands)

	Sheep	Goats	Horses & Ponies	Camels	Pigs	Don-keys
Part 'A' States						
Assam	33	917	16	...	292	·01
Bihar	1,050	5,941	153	1·3	653	40
Bombay	2,515	4,312	134	25·8	74	116
Madhya Pradesh	330	2,300	138	·06	266	28
Madras	15,161	7,425	67	·02	1,002	248
Orissa	682	1,599	7	...	108	·3
Punjab	641	1,156	88	121·5	74	114·5
Uttar Pradesh	1,636	5,234	371	38·9	963	242
West Bengal	480	4,031	25	...	298	·9
Total	*22,528*	*32,906*	*999*	*187·7*	*3,730*	*789·7*
Part 'B' States						
Hyderabad	4,300	2,607	90	1·4	166	63
Jammu & Kashmir	979	487	60	·9	...	11
Madhya Bharat	280	1,306	107	11·0	30	36
Mysore	2,709	1,586	21	·2	89	42
PEPSU	205	482	20	73·8	16	36
Rajasthan	5,108	5,395	125	339·1	52	209
Saurashtra	869	564	31	3·2	...	22
Travancore-Cochin	487	74	·3	...	126	2
Total	*14,936*	*12,501*	*454*	*429·5*	*479*	*419*
Part 'C' States						
Ajmer	278	166	2	1·4	3	5
Bhopal	12	40	10	...	3	3
Bilaspur	12	23	·1	...	...	...
Coorg	·2	2	·1	...	32	...
Delhi	7	29	6	1	7	11
Himachal Pradesh	615	554	5	...	4	2
Kutch	218	247	3	9	...	6
Manipur	...	...	·7	...	34	...
Tripura	1	34	·5	...	73	...
Vindhya Pradesh	221	565	34	·3	55	3
Total	*1,364*	*1,667*	*61*	*12*	*211*	*32*

Agricultural Machinery and Implements—1951

(In Units)

	'A'	'B'	'C'	Total
Ploughs—				
(i) Wooden	24,707,861	6,030,632	1,041,045	31,779,538
(ii) Iron	725,633	204,733	1,644	932,010
Carts	7,589,367	2,009,446	264,298	9,863,111
Sugarcane Crushers				
(i) Power	18,524	2,403	301	21,228
(ii) Bullocks	470,765	43,610	5,134	519,509
Oil Engines	69,056	24,760	1,324	95,140
Electric Pumps	25,498	4,035	301	29,834
Tractors	6,794	1,341	187	8,322
Ghanies (Kohlu)				
(i) More than 5 seers	224,480	14,951	2,999	242,430
(ii) Less than 5 seers	182,143	11,521	10,342	204,006

Electric Pumps (also Tractors) have practically no relation to 'Livestock' but have been shown under this section in official reccords for their uses in agriculture. Pumps for drainage and industrial water supply, etc., have been excluded from the table. Tubewell and well irrigation is coming more into vogue and there will be a larger use of Electric Pumps in future.

Distribution of Agricultural Machinery and Implements by States—1951

(Ploughs, Tractors and *Carts)*

Part 'A' States

	Ploughs		Tractors	Carts
	Wooden	Iron		
Assam	1,067,383	111	206	75,665
Bihar	2,417,834	29,828	506	510,359
Bombay	2,364,558	217,728	1,072	1,077,372
Madhya Pradesh	2,391,122	67,482	637	1,456,680
Madras	5,454,173	94,981	479	1,596,820
Orissa	1,953,392	7,135	59	374,144
Punjab	976,163	148,254	1,064	299,273
Uttar Pradesh	5,940,571	156,855	2,548	1,577,613
West Bengal	2,142,665	3,259	223	621,441
Total	*24,707,861*	*725,633*	*6,794*	*7,589,367*

	Ploughs		Tractors	Carts
	Wooden	Iron		
Part 'B' States				
Hyderabad	1,318,565	85,225	86	625,194
Jammu & Kashmir	412,951	4,226	13	999
Madhya Bharat	867,136	8,686	175	394,394
Mysore	1,006,942	60,067	147	302,768
PEPSU	282,587	14,947	328	89,426
Rajasthan	1,697,055	11,276	506	480,466
Saurashtra	170,806	6,764	77	96,212
Travancore-Cochin	274,590	12,642	41	19,987
Total	*6,030,632*	*203,833*	*1,373*	*2,009,446*
Part 'C' States				
Ajmer	45,223	30	28	20,678
Bhopal	90,943	...	42	67,278
Bilaspur	26,109	...	...	18
Coorg	30,284	948	12	993
Delhi	18,704	389	28	7,945
Himachal Pradesh	166,258	11	1	1,134
Kutch	28,474	90	14	30,919
Manipur	51,077	...	...	13,752
Tripura	43,543	...	2	515
Vindhya Pradesh	540,430	174	53	121,066
Total	*1,041,045*	*1,644*	*180*	*264,298*

Distribution of Agricultural Machinery and Implements by States—1951

(Sugarcane-Crushers and *Ghanies)*

	Sugarcane-Crushers		Ghanies	
	Power	Bullock	5 seers or more	Less than 5 seers
Part 'A' States				
Assam	24	10,145	104	781
Bihar	1,083	30,823	*n.a.*	*n.a.*
Bombay	7,331	11,687	8,311	3,475
Madhya Pradesh	252	8,368	2,069	10,791
Madras	3,386	60,991	183,010	48,420
Orissa	128	10,062	*n.a.*	*n.a.*
Punjab	428	62,021	2,244	466
Uttar Pradesh	5,068	269,069	20,208	113,566
West Bengal	806	7,599	8,534	4,644
Total	*18,524*	*470,765*	*224,480*	*182,143*

	Sugarcane-Crushers		Ghanies	
	Power	Bullock	5 seers or more	Less than 5 seers
Part 'B' States				
Hyderabad	462	8,854	7,209	...
Jammu & Kashmir	*n.a.*	605	*n.a.*	...
Madhya Bharat	363	6,506	2	...
Mysore	677	6,097	1,546	...
PEPSU	101	4,620	1,135	...
Rajasthan	497	14,785	4,515	...
Saurashtra	114	507	544	...
Travancore-Cochin	189	1,636	*n.a.*	...
Total	*2,403*	*43,610*	*14,951*	
Part 'C' States				
Ajmer	1	140	...	...
Bhopal	...	456	...	551
Bilaspur	...	144	1,066	204
Coorg	...	4	...	...
Delhi	111	84	905	21
Himachal Pradesh	2	351	272	526
Kutch	5	55	74	123
Manipur	5	2,125	...	...
Tripura	...	991	76	427
Vindhya Pradesh	177	784	606	8,490
Total	*301*	*5,134*	*2,999*	*10,342*

Poultry in India—1951

(In Thousands)

States	'A'	'B'	'C'	Total
Total Poultry	*60,370*	*11,793*	*1,258*	*73,421*
Fowls	54,652	11,357	1,128	67,137
Ducks	5,718	436	130	6,284

Output of Livestock

(In Crores of Rupees)

Milk	405	Eggs	11
Meat	65	Hides and Skins	20
Cattle & Buffalo	13'5	Other by-products	
Sheep and Goat	28'5	of slaughter	3
Poultry	19	Wool and Hair	1
Pig	4	Miscellaneous	3

Production of Milk in India—1951

(In Lakh maunds)

	Cow	Buffalo	Goat	Total
Assam	25·60	5·60	1·07	32·27
Bihar	284·50	183·48	1·60	469·58
Bombay	69·09	257·11	12·36	338·56
Madhya Pradesh	82·05	61·29	8·73	152·07
Madras	281·73	302·30	4·92	588·95
Orissa	76·25	19·83	·50	96·58
Punjab	213·25	385·31	12·36	610·92
Uttar Pradesh	463·02	747·47	15·87	1,226·36
West Bengal	148·67	13·47	4·70	166·84
Hyderabad	73·95	112·73	8·71	195·39
Jammu & Kashmir	16·51	12·61	·43	29·55
Madhya Bharat	76·45	77·11	2·38	155·94
Mysore	46·12	46·43	1·03	93·58
PEPSU	47·40	89·71	2·35	139·46
Rajasthan	337·42	166·15	18·16	521·73
Saurashtra	54·30	106·26	4·11	164·67
Travancore-Cochin	26·85	5·60	·26	32·71
Delhi	4·81	10·63	·14	15·58
Himachal Pradesh	38·60	14·30	2·70	55·60
Vindhya Pradesh	22·79	27·56	2·12	52·47
Other States	41·28	20·69	2·60	64·57
Total	*2,430·64*	*2,665·64*	*107·10*	*5,203·38*

Production of Fish in India—1952

(In Thousand Maunds)

Madras	5,064·1	Hyderabad	24·0
Travancore-Cochin	2,777·7	Jammu & Kashmir	16·3
West Bengal	1,775·0	Mysore	12·1
Bombay	1,594·8	Punjab	10·0
Bihar	1,009·5	Madhya Bharat	9·0
Assam	756·6	Delhi	5·0
Orissa	645·0	Ajmer	2·0
Madhya Pradesh	162·0	Coorg	0·1
Uttar Pradesh	157·0	Others	92·4
Saurashtra	99·8	*Total*	*14,212·4*

PAKISTAN

Livestock—1948

Cattle	24·30	millions	Horse	·50	millions
Water Buffaloes	5·60	»	Donkeys	·90	»
Sheep	6·10	»	Mules	·04	»
Goats	16·10	»	Pigs	·10	»

Milk

1948-155·8 million maunds

Fish

Marine	53,942 tons
Inland	115,230 tons

Workers and Crafts in Fishing

Active Fishermen	120,770
Fishing (country) Crafts	29,001

WORLD

Livestock Population—(1952-1953)

(In thousands)

Cattle	795,000	Pigs	325,000	Sheep	805,000
Horses	75,700	Mules	16,400	Asses	36,400

Production of Milk

(In Thousand Tons)

	1952	1953		1952	1953
U. S. A.	52,434	55,120	Sweden	4,480	4,478
India	19,214	19,400	Belgium	3,344	3,537
West Germany	15,813	16,740	Turkey	3,486	...
France	15,500	17,500	Finland	2,770	2,850
United Kingdom	10,156	10,731	Switzerland	2,692	2,735
Canada	7,137	7,450	Austria	2,311	2,424
Pakistan	6,135	...	Ireland	2,243	2,421
Italy	5,941	6,045	Union of South		
Netherlands	5,592	5,819	Africa	1,862	...
Australia	4,920	5,710	Spain	1,967	...
Denmark	4,998	5,378	Yugoslavia	1,501	1,741
New Zealand	5,054	5,342	Norway	1,613	1,620
Argentina	4,493	...	Egypt	261	...

CHAPTER VI

FOREST

The need of forest areas in relation to the size of a country is influenced by a multiplicity of factors and varies from country to country and region to region. But the essentiality of forests to the well-being of a nation has been accepted all over the world and each country is trying to have as much as forest lands as the geographical and topographical conditions may allow.

For about two centuries, Forests in India, did not have the same degree of attention as their services to mankind warrant. Denudation and/or indiscriminate destruction and utter neglect in restoring the damage caused to them have resulted in a serious situation which can no longer be looked upon with equanimity. The idea that Forests have no right to exist except on the sufferance of agriculture and scores of other demands on land, particularly of the roads and railway tracks, prospective mining areas, factory sites of fantastic dimensions, etc., have caused the greatest injury to the interests of forests and reflexively to man himself. It has caused scarcity of fuel and timber, has exposed land surface to the influences of weather causing erosion and consequent loss of the fertile layer of the earth's surface, deprived the soil of the leaf-mould and hastened the silting up of river beds followed by devastating and recurrent floods. There has been a severe loss of the protective vegetation that prevented the cultivable lands from being the playground of dust storms and hot winds and as a handmaid, helped barrenness to spread its tentacles all around it. Rainfall and temperature have become erratic. The soil has lost most of its natural moisture by the disappearance of tree roots which had helped percolation of excess water along their course.

The Forests play a large part in the destiny of a nation and their role in national economy, both protective and productive, entitle them to a better consideration and justify them to put an irresistible claim on a bigger area. This is essentially necessary for the improvement of physical and climatic conditions of a territory, to meet the increasing demands on timber and firewood for different uses including essential industries, for grazing fields

and fodder, and for preservation of rare an[illegible]ring denizens of the forest. Considering the importance of the minor forest produce and as a source of a steady revenue to the state exchequer it can be safely accepted that together with agriculture, Forests hold a very important place in the economic structure of human society.

The damage to the forests has already gone too deep. It is now time to strive for a sufficiency in wooded areas for meeting the needs of a progressive nation. The National Forest Policy has been adopted for achieving this end. Forests are broadly divided into different categories according to the purposes they are destined to serve. The most important, from the point of view of a long term welfare to the community at large, are the "Protective Forests" or Forests "found or required on hill slopes, river basins and river banks, sea-shores and other erodable localities." They prevent erosion, conserve moisture, help in absorption of a good deal of water and control the rushing torrents of floods. In the plains, particularly during the hot weather when strong currents of wind and desert gales sweep the fields lying deep in neighbouring areas desiccating and singeing the crops, Forests serve us as wind belts or screen against "wind erosion fixing the soil and preventing the formation of sand dunes" in such localities.

The second group may be termed as "National Forests" destined to give the nation health, strength, beauty and plenty of forest produce. Densely wooded impassable and tractless Forests stretching over miles is a line of natural defence of inestimable value. Such Forests will supply the needs of communications and raw materials for some of the essential industries of the country. The "Village Forests", with rather a modest name, are required to serve the rural areas with the supply of materials for housing, agricultural tools and handles, fencing and fencing hedges, fodder, leaves for manure, firewood and a host of articles of everyday use. The minor forest produces are to be collected from all grades of forest by whatever nomenclature they go. Besides what goes by the name of Forests, lands with planned afforestation are necessary for restoring, as the experts say, the "hydrological nutritional balance of the country."

The importance of Forests to the well-being of a nation cannot be over emphasised. The National Forest Policy of India aims "at maintaining one-third of its total land area under Forests. As an insurance against denudation a much larger percentage of land, about 60 per cent should be kept under Forests for their protective function in the Himalayas, in the Deccan, and other mountainous tracts liable to erosion. In the plains, where the ground is flat and erosion is normally not a serious factor, the proportion to be attained should be placed at 20 per cent." A planned extension of all classes of Forests roughly divided into the Protection, National and Village together with wooded areas created out of planned afforestation is the objective to be attained as speedily as possible.

From the accepted standard the present forest area of India is smaller by a considerable size and comprises nearly 22·3 per cent of the total land area of the country. There has been a remarkable increase in size during the last few years which has increased from a mere 13 per cent before the Partition. In 1946-47 the recorded area was 154,217 sq. miles when big tracts were excluded from enumeration due to administrative and other difficulties. With the political integration of India following Independence and the progress of the forest survey operations which mark an improvement upon the past method of recording, the forest areas of all the States have increased from 274,050 sq. miles in 1950-51, 280,160 sq. miles in 1951-52 to 282,840 sq. miles in 1953-54. Efforts in the direction of gradual afforestation have their due share in this increase.

Of the total forest area 190,913 sq. miles (67·4%) are "Exploitable", 40,800 sq. miles (14·4%) are "Potentially Exploitable" and 35,029 sq. miles (12·4%) are "Lands classed as Forests." Of the remaining 5·8 per cent of forest areas no details are available.

The State Forest Departments are the biggest owners and the area under their management comes to 269,915 sq. miles or 95·4 per cent of the total. The Communal Forests which comprise all areas under the control of public bodies such as Municipal and other Corporate Bodies, village Panchayets, etc., are only 1·2 per cent, which together with Forests under Private ownership form only 4·6 per cent.

The Reserved and Protected Forests constitute more than two-thirds of the forest area and are exploitable only under a previously laid-out working plan. The proportion of Reserved and Protected Forests in relation to the total area is 67·33.

From the point of difference in nature of the trees, the Forests are classified as Coniferous and non-Coniferous (broad-leaved). Of the Exploitable Forests, about 95 per cent are non-Coniferous. Even in the "Potentially Exploitable Forests" more than 95 per cent are non-Coniferous.

Merchantable Forests (*i.e.*, of which exploitation is economic), constitute 73·1 per cent of the total forest areas out of which, again, 55·1 per cent are Reserved and Protected. The major part of such Forests is of a non-coniferous type. The rest (26·9%) is Inaccessible or Unprofitable Forests which may some day be workable with the improvement in communications. Between 1948-49 and 1953-54 about 9,000 sq. miles of "Inaccessible Forests" have become workable with a fair margin of return.

The annual outturn of Forest Produce is in the neighbourhood of Rs. 42 crores of which the "Major", *i.e.*, Timber of various sorts and Fire and Charcoal Wood contribute Rs. 31·6 crores. Of the "Minor" Products, Charcoal alone is valued at Rs. 4 crores with Fodder and Grazing Grasses, Rs. 1·3 and Rs. 1·1 crores, respectively, occupy the next two places. Gums and Resins, Lac, Grass (other than Fodder), Dyeing and Tanning materials, Vegetable Oils, etc., constitute the most important items in the "Minor" groups.

Employability of labour in Forestry and Forest Industries is not inconsiderable, the total number being more than 80 lakhs. Out of this Forestry engages about 62 lakhs of people, the rest goes to the share of industries.

The State derives an annual revenue of about Rs. 14·13 crores on the working of its Forest Department which is expected to increase with better management of the Forests and afforestation progressing rapidly. The benefits derived from the control of floods, etc., are immeasurable.

The total annual foreign trade, Imports and Exports, of Forest Products are Rs. 20·03 and Rs. 9·61 crores. (1954-55) respectively.

Paper and Pasteboard form the bulk of Imports, being Rs. 12·65 crores with Wood and Timber, (Rs. 2·1 crores) coming next. The value of Exports is not so impressive. Wood and Timber valued at Rs. 1·10 crores, and the Spices at Rs. 1·53 crores. Dyeing and Tanning materials account for Rs. 1·32 crores and the fourth item, Paper and Pasteboard, Rs. 67 lakhs.

Over and above what is derived as Forest Revenue, Exports and Export Duty, the internal consumption of the "Major' products is valued at Rs. 21·4 crores and the "Minor", Rs. 13·7 crores.

There is still a larger scope for expansion and no efforts are to be spared to augment the revenue, develop commerce and industry and meet the demands of the huge population in full from internal resources.

Classification of Forest Area—1953-54

	Sq. miles	%
Total geographical Area	*1,266,890*	of total
I. *Forest Land*	*282,840*	*22·3*
II. *Classification of Area other than Forest Land* :		
(i) Land not available for cultivation :	175,395(*a*)	13·8
(*a*) Land put to non-agricultural uses	47,909	3·8
(*b*) Barren and unculturable land	86,533	6·8
(ii) Other uncultivated land excluding follow lands :	176,439(*b*)	13·9
(*a*) Permanent pastures and other grazing grounds	32,511	2·6
(*b*) Miscellaneous tree crops & groves not included in net sown area	52,398	4·1
(*c*) Culturable waste	90,558	7·1
(iii) Fallow Lands :	108,170(*c*)	8·5
(*a*) Fallow lands other than current fallows	44,602	3·5
(*b*) Current fallows	49,802	3·9
(iv) Net Area sown	463,105	36·6

(*a*) Includes 40,953 sq. miles for which details are not available.
(*b*) Includes 972 sq. miles for which details are not available.
(*c*) Includes 13,766 sq. miles for which details are not available.

Topographical Classification of Forests—1953-54

Class of Forests	Area Sq. m.
I. *Exploitable* :	
(i) Reserved and Protected	160,259
(ii) Others (unclassed)	30,654
Total	*190,913*
II. *Potentially Exploitable* :	
(i) Reserved and Protected	15,381
(ii) Others (unclassed)	25,419
Total	*40,800*
III. *Other Land classed as Forest* :	
(i) Reserved and Protected	21,099
(ii) Others (unclassed)	10,472
Total	*35,029(x)*
GRAND TOTAL	282,840(y)

Classification of Forests by Ownership and Nature of Trees (Vegetation) (1953-54)

(R.—Reserved, P.—Protected)

	State Forest R. & P.	State Forest Others	Commu-nal	Private	Sq. m. Total	% of total
I. *Exploitable*						
(i) Coniferous	6,821	435	5	238	7,499	2·7
(ii) Non-Coniferous						
(Broad-leaved)	138,010	30,700	318	3,520	172,548	61·0
(iii) Mixed	652	104	···	377	1,133	0·4
Total	*145,483*	*31,239*	*323*	*4,135*	*181,180*	*64·1*
II. *Potentially Exploitable*						
(i) Coniferous	637	1,029	2	73	1,741	0·6
(ii) Non-Coniferous						
(Broad-leaved)	12,614	23,013	2,468	1,493	39,588	14·0
(iii) Mixed	361	228	···	76	665	0·3
Total	*22,254*	*25,094*	*2,470*	*4,065*	*53,883*	*19·1*
	(a)	(b)		(c)	(d)	

(x) Includes 3,458 sq. miles for which details are not available.
(y) Includes 16,098 sq. miles for which details are not available.
(a) Includes 8,642 sq. miles for which details are not available.
(b) Includes 824 sq. miles for which details are not available.
(c) Includes 2,428 sq. miles for which details are not available.
(d) Includes 11,889 sq. miles for which details are not available.

	State Forest R. & P.	Others	Communal	Private	Sq. m. Total	% of total
III. *Other Land classed as Forest*	21,890	10,860	405	1,527	34,682	12·3
GRAND TOTAL	*189,627*	*80,288* (e)	*3,198*	*9,727*	*282,840* (e)	*100·0*
Percentage of Total Forest Area	67·0	28·4	1·2	3·4	100·0	

Classification of Standing Timber—1953-54

(In Thousand Cubic feet of round timber)

Coniferous	5,860,765	5·9 %
Non-Coniferous	92,685,242	94·1 %
Total	98,546,007	

Classification of Outturn of Major Forest Products—1953-54

(In Thousand cubic feet)

Class of Forest and Timber	Timber	Round Wood	Fire and charcoal Wood	Total	Value 000-Rs.
I. *State :*					
(i) Coniferous (soft Woods)	22,653	6,499	11,143	40,295	1,87,22
(ii) Non-Coniferous (hard and soft Woods)	69,174	46,115	386,150	501,439	29,28,60
Total	*91,827*	*52,614*	*397,293*	*541,734*	*31,15,82*
II. *Communal :*					
(i) Coniferous (soft Woods)	...	2	278	280	14
(ii) Non-Coniferous (hard and soft Woods)	517	1,007	8,908	10,432	17,24
Total	*517*	*1,009*	*9,186*	*10,712*	*17,38*
III. *Private :*					
(i) Coniferous (Soft Woods)	71	83	864	1,018	5,07
(ii) Non-Coniferous (Hard and soft Woods)	1,274	9	4,365	5,648	19,93
Total	*1,345*	*92*	*5,229*	*6,666*	*24,98*
Grand Total :					
(i) Coniferous	22,724	6,584	12,285	41,593	1,92,41
(ii) Non-Coniferous	70,965	47,181	399,423	517,519	29,65,77
Total	*93,689*	*53,715*	*411,708*	*559,112*	*31,58,18*

(e) Includes 13,095 sq. miles for which details are not available.

Classification of Outturn of Minor Forest Products—1953-54

(In Thousand Rupees)

	State Forest	Communal Forest	Private Forest	Total
I. *Vegetable Products*				
Bamboos	1,08,74	...	10	1,08,84
Canes	6,14	...	(a)	6,14
Drugs	4,92	...	3	4,95
Spices	40	...	...	40
Fibres and Flosses	22	...	...	22
Fodder and Grazing Grasses	1,30,84	53	2,84	1,34,21
Grass other than Fodder	23,44	...	4,51	27,95
Gums and Resins	70,16	9	1,88	72,13
Rubber and Latex	5	...	...	5
Incense and Perfume Woods	5,27	...	...	5,27
Dyeing and Tanning Materials	12,57	41	6	13,04
Vegetable Oil and Oilseeds	66	...	1	67
Essential Oils (excluding Sandalwood Oil)	23,84	...	...	23,84
Sandalwood	15,20	...	...	15,20
Sandalwood Oil	42,67	...	...	42,67
Bidi Leaves	67,75	27	5	68,07
Charcoal	3,09,94	...	...	3,09,94
Others	21	...	14	35
II. *Animal Products :*				
Lac	23,13	...	80	23,93
Ivory	51	...	1	52
Honey	31	...	2	33
Beeswax	8	...	...	8
III. *Other Minor Forest Products :*	1,35,42	43	66	1,36,51
Total	*9,84,89*	*1,73*	*11,11*	*9,97,73*

(a) Below Rs. 500.

Forest Revenue and Expenditure—1953-54

	Rupees in Thousands	% of total Revenue
I. *Revenue :*		
(i) Timber and other produce removed from the Forests :		
(*a*) by Government Agency	6,32,50	27·1
(*b*) by the Consumers and Purchasers	14,84,92	64·0
(ii) Drift and waif-wood and confiscated forest produce	3,79	0·2
(iii) Revenue from forests not managed by Government	18,02	0·8
(iv) Miscellaneous	1,97,31	8·5
Gain or loss by Exchange	—1,01	...
Refunds	—13,88	—0·6
Total	*23,21,65*	*100·0*
II. *Expenditure :*		
(*A*) Conservancy, Maintenance and Regeneration :		
(i) Timber and other produce removed from the Forests :		
(*a*) by Government Agency	2,69,07	25·1
(*b*) by Consumers or Purchasers	41,29	3·9
(ii) Drift and waif-wood and confiscated forest produce	39	...
(iii) Expenditure on Collection of Revenue from Forest not managed by Government	1,03	0·1
(iv) Rent of leased Forest and payments to Shareholders in Forest managed by Government	12,22	1·1
(v) Livestock, Store, Tools and Plants	19,66	1·8
(vi) Communication and Buildings	79,02	7·4
(vii) Demarcation, improvements and extension of Forests	87,51	8·2
(viii) Miscellaneous	50,86	4·8
(ix) Work advances	3	...
Total	*5,61,08*	*52·4*

	Rupees in Thousands	% of total Revenue
B. Establishment	5,06,31	47·3
C. Gain or loss by Exchange on English transactions, interest on Capital Outlay, etc.	28	...
D. Miscellaneous	3,24	0·3
Total Expenditure	*10,70,91*	*100·0*
Surplus	12,51,01(*a*)	...
Net Revenue per square mile of Forest Area under Control of Government	46	

Consumption of Major Forest Produce per annum—1953-54

Timber and Wood : **Quantity : '000 cubic ft.**

Timber 36,588 ; Round Wood 24,875 ; Pulp Wood 4,455 ; Fire Wood 161,255 ; Charcoal Wood 39,306.

Total 266,479

Value in Rs. 21,38,25,000.

Consumption of Minor Forest Produce

I. Vegetable Products : **Value : Rupees in Thousands**

Bamboos 36,29 ; Canes 6,23 ; Drugs 32,04 ; Spices 2,00,35 ; Fibres and Flosses 18 ; Fodder and grazing Grasses 5,41,18 ; Grass and other Fodder 13,96 ; Gums and Resins 47,61 ; Rubber and Latex 2,96 ; Incense and perfume woods 84 ; Dyeing and Tanning materials 7,85 ; Vegetable Oils and Oilseeds 43,47 ; Essential Oils (excluding Sandalwood Oil) 10 ; Sandalwood 11,61 ; Sandalwood Oil 41,67 ; Bidi Leaves 60,77 ; Charcoal 2,35,72.

II. Animal Products : **Value : Rupees in Thousands**

Lac 5,15 ; Ivory 1,48 ; Honey 39 ; Bee's wax 17.

III. Other sorts of minor forest Produce	63,95
Total Minor Forest Produce	*Rs. 13,73,97*

(*a*) Includes Rs. 27,000 recovered from other Government Departments.

Employment of Labour in Forestry and Forest Industries

	No. of Industrial units	No. of Employees
Forestry	274	6,189,281
Forest Industries	57	1,851,694
Total	*331*	*8,040,975*

Foreign Trade in Major Forest Products—1954-55

(Figures are subject to slight revision)

	Rs.
Imports :	
Wood and Timber	2,10,36,588
Paper and Pasteboard	12,65,16,044
Paper-making materials	1,70,63,202
Total	*16,46,15,834*
Exports :	
Wood and Timber	1,10,25,794
Paper and Pasteboard	67,16,323
Paper-making materials	51,91,378
Total	*2,29,33,495*

Foreign Trade in Minor Forest Products—1954-55

(Figures are subject to slight revision)

	Imports	Exports
Canes and Rattans	10,88,262	3,94,256
Cork manufactures	33,38,046	...
Drugs	48,81,982	9,40,142
Dyeing and Tanning substances	46,61,509	1,32,97,617
Gums and Resins	96,28,200	95,08,672
Lac	89,03,790	3,35,87,994
Mats and Matting (except coir etc.)	1,475	1,56,371
Spices	32,30,498	1,53,74,220
Total	*3,57,33,762*	*7,32,59,272*

Forest Area compared with Area of each State—1949-50

	Area of State sq. miles	Area of Forest sq. miles.	% of Total
Part 'A' States			
Assam	85,012	19,867	23·4
Bihar	70,330	2,474	3·5
Bombay	1,11,271	16,294	14·6
Madhya Pradesh	1,30,274	36,396	27·9
Madras	1,27,790	17,752	13·9
Orissa	60,136	10,263	17·1
Punjab	37,379	4,598	12·3
Uttar Pradesh	1,13,433	9,200	8·1
West Bengal	30,775	2,688	8·7
Part 'B' States			
Hyderabad	82,143	9,823	11·9
Jammu & Kashmir	92,780	11,058	11·9
Madhya Bharat	46,538	11,153	23·9
Mysore	29,489	4,704	15·9
PEPSU	10,049	284	2·8
Rajasthan	130,199	12,784	9·8
Saurashtra	21,335	925	4·3
Travancore-Cochin	9,144	3,052	33·4
Part "C" States			
Ajmer	2,417	73	3·02
Bhopal	6,878	1,255	18·2
Bilaspur	453	200	44·2
Coorg	1,586	829	52·3
Himachal Pradesh	10,457	3,346	32·0
Kutch	16,974	198	1·2
Manipur	8,622	2,250	26·1
Tripura	4,032	3,458	85·8
Vindhya Pradesh	23,601	7,714	32·7
Andaman and Nicobar	3,215	2,190	68·1
Total	*1,266,312*	*194,835*	

Forest Revenue and Expenditure by States—1950-51

Working of the State Forest Departments :

Figures **(In Lakhs of Rupees)** those are outside the brackets represent *Revenue* and those within, *Expenditure.*

Part 'A' States

Assam : 56·77 (37·55) ; Bihar : 66·85 (46·16) ; Bombay : 4,06·62 (1,31·05) ; Madhya Pradesh : 2,90·68 (98·84) ; Madras : 1,86·26 (73·73) ; Orissa : 99·82 (32·40) ; Punjab : 50·22 (45·69) ; Uttar Pradesh : 3,50·33 (1,02·32) ; West Bengal : 53·68 (52·07).

Part 'B' States

Hyderabad : 98·12 (27·30) ; Jammu & Kashmir : 47·76 (22·86) ; Mysore : 1,28·99 (31·12) ; Madhya Bharat : 54·36 (17·89) ; PEPSU ; 5·86 (2·62) ; Rajasthan : 45·47 (23·90) ; Saurashtra : 6·85 (4·53) ; Travancore-Cochin : 1,52·23 (61·53).

Part 'C' States

Ajmer : 1·69 (·93) ; Bhopal : 9·73 (2·10) ; Bilaspur : 2·88 (·53) ; Coorg : 30·20 (8·19) ; Himachal Pradesh : 70·02 (25·51) ; Kutch : ·65 (·86) ; Tripura : 7·84 (3·38) ; Vindhya Pradesh : 79·44 (14·22) ; Manipur : 1·44 (·59) ; Andaman and Nicobar : 52·59 (61·47).

Grand Total : 23,62·36 (9,49·34).

PAKISTAN

Forest

(In Square miles)

Total Area	...	7,441	Sind	...	760
East Bengal	...	3,186	W. Punjab	...	1,203
N.-W. F. P.	...	353	Baluchistan	...	1,939

Forest products : Timber for building purposes and for paper manufacture, firewood, gums, resins, bamboo, tanning materials, etc. Forests in Pakistan occupy about 5 million acres and is roughly 5% of the total area. In Western Pakistan there is not much of forest areas, particularly the N.-W. F. P. and Sind. The Eastern Pakistan has the most of the Sunderbans, and forests as well in Chittagang. Timber of any value such as Sundri, Gamari, Garjan and bamboos are abundant in the forests of the East while Babul and a few others are the product of the West Pakistan. Annual production of timber is 9·26 million cubic feet.

CHAPTER VII

MINERALS

The mineral resources of India though not quite sufficient for all her needs are still richer than every other country of the world barring a very few. India has large deposits of iron, mica, manganese, bauxite, monazite, thorium, silica, natural abrasives, kyanite, gypsum, beryl, steatite, corundum and refractory materials which are more than sufficient for her domestic needs with a very comfortable margin for export. In respect of coal, chromite, sand, asbestos, limestone, feldspar, building stones, beryl, zircon, industrial clays, barytes, semi-precious stones, fluorspar, mineral pigments, gypsum, saltpetre, etc., she has not much to depend on others, indigenous supply being more than what is necessary at the present moment. But in some other very important minerals, the position is rather unsatisfactory. She has small deposits of copper and also of gold, petroleum, sulphur (pyrites), graphite which meet only a portion of her needs. There are still smaller deposits of lead, zinc, silver, and almost none of tin, nickel, mercury, vanadium, molybdenum, cobalt, etc., and some of these are essential for war industries.

The quantity of reserves, knowledge of which is by no means complete, is quite considerable and sufficient to put at rest the anxiety over shortage in the near future. This concern was particularly applicable to the case of high quality coal, but subsequent investigations into hitherto unexplored parts of the active mines and discovery of new coal areas, the increasing use of mineral oil and hydro-electric power, proper grading and washing of coal are measures sufficient to meet the situation without any trouble or uneasiness. The development projects for power that have just been completed and are under execution will enhance the volume of supply of energy to such an extent that the increasing demands of rapid industrialization, lighting of wider areas and expansion of steam transport will not be looked upon so much as an additional drain on India's reserves of coal.

The Geological Survey of India is unceasingly working for finding out fresh reserves particularly of the minerals that have

extensive use and their efforts are oft times crowned with success. Estimates of **Reserves** of some of the essential minerals are known and they are as follows :

Minerals			*Tons*
Bauxite	...	...	250,000,000
Chromite	...	...	602,000
Coal	...	...	67,402,000,000
Copper Ore	...	...	3,448,000
Gypsum	...	...	74,000,000
Iron	...	... (proved)	5,008,000,000
		(possible)	17,630,000,000
Kyanite	...	...	300,000
Lead	...	...	200,000
Magnesite	...	...	90,000,000
Manganese	...	...	80,000,000
Monazite	...	...	2,000,000
Titanium	...	...	250,000,000
Vanadium	...	...	2,500,000

India suffers from a serious drawback due to uneven territorial distribution of the important minerals. Nature has been rather partial to the Damodar Valley Area, having endowed it with India's total reserve of Copper Ore and Kyanite, 85 per cent of Iron Ore, 80 per cent of Coal, 70 per cent of Chromite and Mica, half of Fire-clay and almost as much of Asbestos and China Clay, one-fifth of Limestone and one-tenth of Manganese and Building Materials. The close proximity of coal and iron ore in this area has made the foundation of one of the largest steel production unit of Asia possible in Bihar.

Bihar is the richest State in respect of minerals and it holds the highest place in the production of at least four of the most important minerals, *viz.*, Iron, Coal, Copper and Kyanite. The other States having deposits of a large number of minerals, and annually producing a fairly large quantity are Madhya Pradesh, Rajasthan, Mysore, Orissa, Andhra, Madras and Bombay. Occurrence or production of minerals in the different States are given hereunder : (Names of minerals in italics represent the more important ones.)

PART 'A' STATES :

Andhra : Asbestos, Barite, Beryl, China Clay, *Chromite*, Coal, Corundum, Diamond, Dolomite, *Graphite*, *Iron*, *Kyanite*, Limestone, *Manganese*, *Mica*, *Monazite*, Ochre, *Petroleum*, Saltpetre, *Steatite*, Tantalum.

Assam : Coal, Corundum, *Fire-clay*, *Petroleum*, *Sillimanite*.

Bihar : Agate, Alum, Apatite, *Asbestos*, Barite, *Bauxite*, Bentonite, Beryllium, *China Clay*, *Chromite*, *Coal*, *Copper*, Dolomite, Fire-clay, Fuller's Earth, *Garnet*, Graphite, *Iron*, *Kyanite*, Lead, *Limestone*, Lithium, Magnesite, *Manganese*, *Mica*, Molybdenum, Monazite, Pyrites, Reh, Saltpetre, *Steatite*, Tantalum, Tin, Vanadium, Wolfram.

Bombay : Agate, *Bauxite*, China Clay, Chromite, *Ilmenite*, *Iron*, *Limestone*, Magnesite, *Manganese*, Mica, Reh, *Salt*.

Madhya Pradesh : Asbestos, Barite, *Bauxite*, *China Clay*, *Coal*, Cobalt, *Copper*, Corundum, Dolomite, *Feldspar*, Fire-clay, *Fluorite*, *Fuller's Earth*, *Graphite*, *Iron*, Limestone, Lithium, *Manganese*, Mica, Molybdenum, *Ochre*, Reh, Sillimanite, *Steatite*, Wolfram.

Madras : Apatite, Barite, Bauxite, China Clay, Chromite, *Corundum*, Dolomite, Feldspar, Fire-clay, *Garnet*, *Graphite*, *Gypsum*, *Iron*, Limestone, *Magnesite*, *Mica*, Ochre, Pyrites, *Salt*, Saltpetre, Steatite, Strontium, Vermiculite, Zirconium.

Orissa : Bauxite, China Clay, Cobalt, Dolomite, Fire-clay *Graphite*, *Iron*, *Kyanite*, *Manganese*, Steatite.

Punjab : Antimony, Lead, Saltpetre.

Uttar Pradesh : Arsenic, Asbestos, Bauxite, Dolomite, *Magnesite*, Pyrites, Reh, Saltpetre, Steatite.

West Bengal : Fire-clay, *Coal*, Dolomite, Ochre, Vermiculite, Wolfram.

PART 'B' STATES :

Hyderabad : China Clay, *Coal*, Corundum, Dolomite, *Gold*, *Graphite*, *Iron*, Kyanite, Mica, Ochre, Sillimanite, Silver, Steatite.

Kashmir : Bauxite, Bentonite, Borax, China Clay, Chromite, Coal, Corundum, Gypsum, Saltpetre, Zinc.

Madhya Bharat : Asbestos, Barite, Bauxite, Dolomite, Iron, Manganese, Molybdenum, Saltpetre.

Mysore : Antimony, Asbestos, Bauxite, *China Clay*, *Chromite*, *Corundum*, *Feldspar*, *Gold*, *Graphite*, *Iron*, *Kyanite*, Limestone, *Magnesite*, *Manganese*, Mica, Monazite, *Ochre*, Reh, Sillimanite, Silver, Steatite, Vermiculite.

PEPSU : Dolomite, *Iron*, Kyanite, Limestone, Mica, Saltpetre.

Rajasthan : Asbestos, Barite, Beryllium, Bentonite, Borax, China Clay, *Coal*, *Cobalt*, Dolomite, *Emerald*, *Feldspar*, Fire-clay, *Fuller's Earth*, *Garnet*, Graphite, *Gypsum*, Iron, Lead, Magnesite, Manganese, *Mica*, Molybdenum, Reh, *Salt*, *Steatite*, Wolfram, *Zinc*.

Saurashtra : Alum, Borax, *China Clay*, Fire-clay, *Gypsum*, Limestone, *Ochre*, Reh, *Salt*.

Travancore-Cochin : China Clay, Graphite, *Ilmenite*, *Monazite*, Molybdenum, Zirconium.

PART 'C' STATES :

Ajmer : Asbestos, Beryllium, Dolomite, *Emerald*, *Feldspar*, Iron, Mica, Vermiculite.

Himachal Pradesh : Barite, Gypsum, Iron, Limestone, Pyrites, Salt.

Vindhya Pradesh : Bauxite, China Clay, *Coal*, Corundum, *Diamond*, Feldspar, Fire-clay, *Ochre*, Sillimanite.

The total value of the annual (1954) production of minerals in India is Rs. 102·40 crores of which Coal contributes 52·6% (Rs. 53·90 crores). The respective value of minerals mined in 1954 is given below :

	000-Rs.		000-Rs.
Coal	53,90,93	Iron ore	2,89,36
Manganese ore	19,54,17	Kyanite	87,80
Mica	6,57,30	Copper ore	1,87,23
Gold	5,62,07	Saltpetre	16,24
Salt	4,25,64	Ilmenite	79,80
Building materials	4,00,00	Chromite	13,60

	000-Rs.		000-Rs.
Gypsum	41,59	Emerald	6,70
China Clay	25,20	Barytes	2,61
Lead metal	23,08	Ochre	5,47
Magnesite	14,53	Corundum	1,69
Zinc	10,81	Fuller's Earth	13
Fire-clay	7,70	Wolfram	12
Bauxite	8,28	Silver	6,68
Steatite	13,28	Rutile	52
Asbestos	2,29	Feldspar	69
Diamond	4,74	Apatite	38
Other Clays	8,00	Calcite	42
Sillimanite	1,51	Bentonite	4
Graphite	1,37	Vermiculite	·12

The value of foreign trade in minerals (1954-55) is fairly high. Out of the total *imports* of the value of Rs. 611 crores, "Metals and Ores" and derivatives of minerals contribute more than half, *i.e.*, Rs. 315 crores. The chief items are Mineral Oils (Rs. 82·85 crores), Machinery and Millwork (Rs. 81·62 crores), Mechanically propelled Vehicles (Rs. 30·65 crores), Coal tar Dyes and Colours (Rs. 16·43 crores), Inorganic Chemicals (Rs. 17·81 crores), Hardware (Rs. 5·43 crores), Metallic portion of Instruments and Apparatuses (Rs. 10·50 crores), Building Materials (Rs. 5·61 crores), Glass and Glasswares (Rs. 1·39 crores), Paints and Colours (Rs. 1·33 crores), Cycles (Rs. 2·62 crores).

The value of *exports* of minerals and mineral products is Rs. 39·71 crores of which "Metals and Ores," etc., including Manganese cover Rs. 22·84 crores, followed by Mica Rs. 6·59 crores and Coal and Coke, Rs. 3·63 crores.

India holds the largest and easily workable deposits of Iron ore and Mica. In the production of Ilmenite India leads the world.

There is a very large scope for development of industries related to minerals particularly in all those where the imports show huge figures, such as Iron and Steel, Machinery, Vehicles, Inorganic Chemicals, and Coal tar by-products, such as Aniline and Alizarine Dyes.

PAKISTAN

Pakistan is rather deficient in mineral resources. It is likely that after further geological investigations more deposits would be found in addition to the present reserves. This hope is encouraged by the discovery of Natural Gas in Sui, Baluchistan, (probable Reserve : 5 million cubic feet), Oil in Sylhet and indications of deposits of Coal in some parts of Eastern Pakistan.

Pakistan has workable deposits of *Antimony* and *Arsenic* (Chitral), *Chromite* (Baluchistan : Zhob, Quetta-pishin), *Coal* (West Punjab, Baluchistan and Sind), *Gypsum* (Baluchistan : Sibi ; Punjab : Jhelum ; Sind : Karachi), Fire-clay (Punjab : Salt Range ; Sind : Tatta and Dadu districts), *Fuller's Earth* (Khairpur ; Sind : Sukkur, Hyderabad). *Iron ore* (N.-W. F. P. : Bajaur ; Bannu District ; Hazara, North and South Waziristan ; Chitral), *Limestone* (N.-W. F. P. : Bannu, Dera Ismail Khan ; North and South Waziristan districts), *Petroleum* (Punjab : Attock ; the area stretching from Sind to North-East Punjab through Baluchistan ; N.-W. F. P. is a promising area), *Salt* (Punjab ; Baluchistan ; Kohat ; Sind), *Silica* sand distributed over many areas ; *Sulphur* (Koh-i-Sultan in Baluchistan).

CHAPTER VIII

RAW MATERIALS

India abounds in raw materials which are of great present or prospective industrial and commercial importance. The largest number come from the vegetable kingdom which supply the principal articles of food, fibre, oil, beverage, tobacco, tanning and dyeing, drugs, narcotics and a host of others too numerous to mention.

Metals and ores the chief of which are coal, iron, manganese, copper, mica, chromite, petroleum, etc., are meant for industrial and commercial uses,—uses which have carved the path of human civilisation and endowed man with the most devastating weapons for mass destruction.

The animal world supplies supplementary and nutritious diet in the form of milk and milk products, meat and fish in addition to a few other industrial products, such as hides and skins, lac, wool, silk and the like.

There are certain items in each section which enjoy international reputation and more or less fuller data of production and consumption are readily available. But there are others of great potential value for which extensive research and investigation for expansion of foreign markets are absolutely necessary. In recent years cashew nuts, black pepper and karaya gum have leapt into great prominence and their exports have reached unprecedented heights. It is very likely that if all relevant informations relating to their availability and the variety of their known uses are placed before the interested people of every country, then a few of the hitherto unknown articles may be in greater demand both within and outside the country.

Considering the huge number of raw materials that are, in some form or other, in actual use of the general mass of people, the articles which are known for their ready value seem rather quite small. The vegetable crops of immense variety for daily use are of considerable value but are seldom taken seriously into account. Of the innumerable vegetable and mineral drugs, very few have attained any position of consequence but the valuable services they render to the individual and the family, not excluding the animal life, in mitigating suffering and curing sicknesses, is really very large even in terms of money.

Of the few that have lost much of their original position, indigo, opium and silk—a great trio of the past—deserve special mention. There is only a remote chance of raw jute and cotton regaining their former position in the export market, but what has been lost in that sphere, has been gained in another, *i.e.*, internal consumption.

The 'lesser known' articles form a legion and only a few of these have been, so far, taken into account. If they have failed in the past to make their presence felt, it may be that a few of these might have some recognition, to compare great things with small, like uranium in recent years. The total cash price of such articles may not be as large as the combined value of the few principal ones but by the numerous benefits they bestow on the common man, their worth is really immeasurable. They claim a closer study.

NOTE

Figures indicate, unless otherwise stated, the latest available annual production, import or export as the case may be.

Accounts of **Trade** start, particularly in cases of non-minerals with the first separate recording in official returns and give the year of undivided India's normal trade and the latest available disclosing the recovery from the "shock" of Partition and loss or gain in subsequent years. *Figures for 1954-55 are subject to revision.*

Names of **countries** and/or **States** have been arranged, as far as possible, in order of importance in their respective spheres.

Articles have been classified into trade-groups on the basis of the most important of their various uses.

Abbreviations have been sparingly used. The most common are:

N.-W. F. P. (North-Western Frontier Province). PEPSU: Patiala and East Punjab States Union. U. P.: Uttar Pradesh. U. K.: United Kingdom. U. S. A.: United States of America. U. S. S. R: Union of Soviet Socialist Republic. Un. of S. A.: Union of South Africa.

AGATE

[*Mineral*]

Occurrence in India :

Bombay; Madhya Pradesh; U. P. (Banda.); Rajpipla (Ratanpur); Bihar.

"Agate like chalcedony and related substances—onyx, opal, cornelian, jasper, etc. is a form of silicate which is commonly found with quartz in basaltic lavas or spread loose in gravels."

Uses :

In burnishing and grinding instruments ; fulcrum of chemical balances ; ornaments ; in watches (as beds of wheel axles) ; pestles and mortars ; cups ; knife handles ; etc.

AJAMA or AJMOT

(CELERY)

(Carum Roxburghianum)

[*Oilseed*]

Occurrence in India : It grows almost in every part of the country.

Uses : Condiment ; in confectionery ; essential oil. Medicine.

Vernacular names : Randhuni, ájmúd, ájmúdá, chanu, dágá, vóman, vomaru, ájmodá, vova, etc.

Trade : EXPORTS : 1875-76 : cwts. 616—Rs. 2,771 ; 1901-02 : cwts. 13,939—Rs. 1,25,037 ; 1946-47 : cwts. 320—Rs. 10,179 ; 1954-55 : cwts. 1,920—Rs. 56,003.

AJWAN

(Carum copticum)

[*Essential oilseed*]

Chief Producers in the World : Pakistan (Baluchistan) ; Afghanistan ; Egypt ; Persia ; India.

Principal Indian States : Bengal ; Bombay (Indore) ; Hyderabad.

Uses : As a condiment and in cooking ; in *pan* chewing ; beverages ; essential oil ; as soap perfume ; etc. Medicine ; thymol.

Vernacular names : Jowan, jamani, ajamo, chohara, owa, aman, oman, omami, omamu, omu, oma, etc.

Trade : EXPORTS : 1875-76 : cwts. 80—Rs. 618 ; 1901-02 : cwts. 1,891—Rs. 15,600 ; 1946-47 : cwts. 1,920—Rs. 92,878 ; 1954-55 : cwts. 3,100—Rs. 97,346.

ALDER (Indian)
(Alnus nepalensis)

[*Timber*]

Occurrence in India and around : From Kashmir to Assam : On the Kachin Hills in BURMA.

Uses : Building construction ; general carpenters' timber ; tea boxes (restricted use).

Vernacular names : Utis, kohi, maiban, etc.

ALMOND
(Prunus Amygdalus)

[*Fruit*]

Occurrence in India : Kashmir ; Punjab ; scattered in different parts of India.

Uses : KERNEL : Food and in confectionery. Medicine. OIL (from Kernel) : both essential and fixed oil.

Vernacular names : Bádám, bódam-kottai, badam vittulu, etc.

ALOE (Eagle) WOOD
(Aquilaria agallocha)

[*Gums & Resins*]

Occurrence in India : ASSAM : Khasia, Garo, Cachar ; Bengal : mostly on the north-eastern parts.

Occurrence outside India : Burma ; Bhutan ; etc.

Uses : RESIN : Agar : (found in the interior of the trunk and branches of "diseased" trees). Perfume (otto or attar), incense. Medicine. BARK : 'Natural Paper'.

Vernacular names : Agaru, aguru, agar, sasi, ugar, ugal, akyau, kayu, etc.

ALUM (Shales)
(Potash alum)

[*Mineral*]

Occurrence in India : BIHAR : Shahabad ; Rhotasgarh ; Saurashtra ; Kutch ; RAJASTHAN : Jaipur.

Occurrence in Pakistan : N.-W. F. P. ; Punjab (Mianwali) ; Sind ; Baluchistan.

Uses : Mordant in dyeing ; medicine ; photography ; for fire-proofing ; etc.

ALUMINIUM (Aluminum)

(See **Bauxite**)

[*Mineral*]

World Production : 2,800,000 tons
Indian Production : 4,856 tons

Chief Producers in the World :

U. S. A. (40%) ; Canada (21%) ; U. S. S. R. (14%) ; France (5%) ; Germany ; Norway ; Italy ; etc.

Uses :

Car and plane bodies ; accessories, fittings, structural parts, etc. ; containers, cans, utensils, pipings, valves, etc. ; in chemical and other industries ; electrical parts ; building furnishings ; metallurgical alloy ; in paints, glass, ceramics ; fireworks, explosives ; welding ; as a reducing agent ; filler in rubber ; decorative material ; wires, foils ; toys ; coatings for metals ; aluminium compounds.

(Used in the shape of bars, busbar, cables, dust, filings, flakes, foil, ingot, pipes, plates, powder, ribbon, rods, sheets, tubings, wires, etc.)

Trade : There had been systematic IMPORTS for a long time past. 1946-47 : *Unwrought* : cwts. 147,309—Rs. 82,71,859 ; *Wrought* : cwts. 234,448—Rs. 1,93,30,441 ; 1954-55 : *Unwrought* : cwts. 66,160—Rs. 79,16,815 ; *Wrought* : cwts. 1,81,445 —Rs. 2,81,65,243. EXPORTS are of recent date : 1954-55 : *Unwrought* : cwts. 997—Rs 11,987 ; *Wrought* : cwts, 23,065—Rs. 58,39,172.

AMOORA

(Appanamixis polystachya)

[*Timber*]

Occurrence in India : Uttar Pradesh ; Bengal ; Assam ; Western Ghats ; Andamans. **Outside India :** Burma.

Uses : Canoes, dugouts ; (light) constructional work ; etc.

Vernacular names : Harin-hárá ; rohituka, pittaráj, chawa-manu, málámpu-luvan, etc.

ANISEED
(Carum copticum)

[*Essential oilseed*]

Chief Producers in the World : Spain ; Germany ; Italy ; U. S. S. R. ; Malta ; Asia Minor ; etc.

Principal Indian States : Uttar Pradesh ; East Punjab ; Orissa ; etc.

Uses : Condiment ; in confectionery ; essential oil (anethol) ; perfumery : soap and other toilet articles and beverages ; etc.

Vernacular names : Mauri, muhuri, saunf, saonf, pan-mahuri, anisun, orvados, sewa, somp, badi-shep, sembu, shombu, kuppi, pedda, julakara, sopu, pedda, sadapa, etc.

Trade : EXPORTS : 1875-76 : cwts. 2,962—Rs. 24,587 ; 1901-02 : cwts. 1,767—Rs. 19,316 ; 1946-47 : cwts. 2,140—Rs. 1,61,878 ; 1954-55 : cwts. 620—Rs. 27,626.

ANJAN
(Hardwckia binata)

[*Timber*]

Occurrence in India : Madras ; Bombay ; Mysore ; Madhya Pradesh ; etc.

Uses : Agricultural implements (ploughs, clod crushers) ; naves of cart wheels ; posts ; tent pegs ; beams ; mine props ; floorings (parquets) ; railway keys, brake blocks ; etc.

Vernacular names : Kamra, yepi', acha, etc.

ANNATTO or ARNOTTO
(Bixa orellana)

[*Dyestuff*]

Occurrence in India : South India : (Mysore) ; Bengal ; etc.

Occurrence outside India : Burma.

Uses : PULP (of the fruit) : dyeing for wool, silk and calico goods ; in paint, varnish lacquer and soap ; for colouring butter, cheese, chocolate. Medicine ; etc.

FIBRE : Cordage.

Vernacular names : Látkán, láthkan, jarat, jolandhar, gúlbas, powasi, kisri, kesari, sendri, japhara-chettu, japhra-naram, jafra-virai-maram, rangamali, etc.

ANTIMONY

(Stibium)

[*Mineral*]

World Production : 32,000 tons

Chief Producers in the World :

CHINA (25%) : *Hunan* : Hsi-Kuang Shan ; Yunnan ; Kwenchow ; Kwantung ; Szechwan ; Kwangsi ;

BOLIVIA (17%) : Uncia, Porco.

MEXICO (11%) : San Luis Potosi, Oaxaca, Queretaro.

UNION OF SOUTH AFRICA (8%). YUGOSLAVIA (5%) : Loznica.

ALGERIA (5%) ; Peru ; Austria ; Greece ; Turkey (Turhal) ; Japan ; U. S. A. ; France ; BURMA : Amherst District ; (Shan State : Tavoy).

PAKISTAN : Baluchistan : Chitral.

Occurrence in India : Mysore : (Chitaldrug) ; Punjab : (Lahaul) ; Kashmir ; etc.

Uses : Various alloys : type metal, bearing and stereo (type) metal ; pewter ; bath tub enamels ; alloyed with lead ; bullets, plates in storage batteries, pipes and sheet lead for chemical industry ; chemical explosives and matches ; etc.

Vernacular names :

Rasanjan, anjanam, surmah, anj anjanak-kallu, etc.

APATITE

(Natural phosphate and fluoride of calcium)

[*Mineral*]

Indian Production : 4,359 tons

Indian Reserve : 1,000,000 tons

Chief Producers in the World : U. S. A. (Florida, Tennessee) ; North Africa (Tunis, Algeria, Morocco, Egypt) ; Canada ; Coral Islands ; (Naaru) South Africa.

Occurrence in India : BIHAR (Singbhum : Dhalbhum) ; MADRAS : Tiruchirapalli, etc.

Uses : Super-phosphate : fertilisers ; as a source of Phosphorus (Norway and Canada); for making super-phosphate of lime.

(It is the chief constituent of the mammalian teeth.)

(Custard) APPLE
(Anona squamosa)

[*Fruit*]

Found in West Indies and America and known as SUGAR APPLE.

Occurrence in India : Throughout India both in cultivated and wild form.

Uses : BARK : Fibre (coarse). FRUIT : Food. LEAVES, fruit, bark, root : Medicine ; insecticide.

Vernacular names : Sharifa, sitaphal, ata, auza, etc.

(There is a similar variety of "Anona" which is of inferior quality, ANONA RETICULATA, growing mostly wild. In the trade circle it is known as BULLOCK'S HEART.)

Vernacular names : Ramphal, nona.

ARJUNA
(Terminalia arjuna)

[*Tan stuff*]

Occurrence in India : Central and Southern India (mostly on the banks of rivers). West Coast.

Uses : BARK : "The dry bark from the stem contains from 20 to 24 per cent of tannin" and "can be used for production of fine upper leather and excellent sole leather." TIMBER : Carts, boats and agricultural implements ; pit props ; household articles.

Vernacular names : Arjun, savimadat, sadura, arjuno, arjan, koha, kowa, yermaddi, vella marda, kula maruthu, billi matti, etc.

(Indian) ARROWROOT
(Curcuma angustifolia and maranta arundinacea)

[*Starch*]

Occurrence in India : (Grows wild, mainly at the foot of the Himalayas).

Madhya Pradesh ; Bengal ; Bombay ; Madras, etc.

Uses : Substitute for true starch (obtained from *maranta arundinacea*).

Diet ; milk puddings ; flour ; etc.

Vernacular names : Tikhur, tikar, tankir, tavakshiri, kuva, ararut-kizhangu, ararut-gaddalu, etc.

Other trade name : TRAVANCORE STARCH.

ARSENIC (Ore)

[*Mineral*]

World Production (white arsenic)—60,000 tons

White Arsenic : the *Oxide*, (safed sambul, somal, etc.).

Yellow Arsenic : Orpiment, the *Sulphide*, (haritala, pinda haritala, hsædan, etc.).

Red Arsenic : Realgar.

Chief Producers in the World : U. S. A., Mexico, Canada, France, Sweden.

Occurrence in India and around : India ; Burma ; PAKISTAN (Chitral).

Principal Indian States : U. P. : Kumaon ; WEST BENGAL : Darjeeling, Kalimpong, Sampthar Hill ; RAJASTHAN : Jaipur ; Kashmir.

Uses : (Chiefly, Arsenious Oxide) : Pigments ; medicine ; pyrotechny ; in fixing aniline colours ; glass making ; taxidermy and tanning.

(Chiefly, the Sulphide) : Medicine ; DYE : "an essential ingredient in the manufacture of shellac, lac toys, Afridice wax-cloths, etc."

ASAFŒTIDA (Hing)
(Ferula fœdita)

[*Resin*]

Chief Producers in the World : Turkey ; Persia ; Afghanistan ; Central Asia (Caspian and Ural regions) ; Tibet ; etc.

Principal Indian State : Kashmir.

Uses : For flavouring sauces, curries, etc. Medicine.

Vernacular names : Hing, hingra, anguza-kema, zinirigu ; etc

Trade : EXPORTS : 1946-47 : cwts. 2,268—Rs. 3,31,194 1954-55 : cwts. 753—Rs. 2,04,513. IMPORTS : 1946-47

cwts. 11,010—Rs. 1,69,461 ; 1954-55 : (by sea) ; cwts. 3,803—Rs. 4,79,557 ; (by land) : cwts. 5,408—Rs. 11,32,823 (mainly from Afghanistan).

ASBESTOS
(Calcium magnesium silicate)

[*Mineral*]

World Production : 1,125,000 tons
Indian Production : 389 tons

Chief Producers in the World :

CANADA (72%) : Quebec : Thetford, Black Lake, E. Broughton, Danville.

S. RHODESIA (7%) : Bulawayo : (In Matabeleland) ; Shabane, Mosaba ; Victoria ; Lomagundi.

UNION OF S. AFRICA (9%) : Transvaal : Barberton, Carolina.

U. S. A. (5%) ; Swaziland (2%) ; Italy ; Cyprus : Amiandos ; France ; Yugoslavia ; U. S. S. R. : Urals ; Bajenova ; Minusinsk.

Occurrence in PAKISTAN ; Baluchistan : Hindubagh.

Principal Indian States :

BIHAR : Singhbhum (Dhalbhum) ; Manbhum ; Ranchi ; Seraikela (Bara Bana), Surangposi, Rajnagar.

ANDHRA : Cuddapah. MYSORE : Hassan (Holenarsipur), Mysore. MADHYA PRADESH : Mandya, Bhandara : Tumkhera khurd. RAJASTHAN : Udaipur, Deogarh, Kherwa ; AJMER : Kanwaldi. UTTAR PRADESH : Garhwal. MADHYA BHARAT : Jhabua.

Uses :

Fireproof fabrics ; fireman's robes ; boiler packing ; mill boards ; insulating material ; asbestos cement goods ; slates, roofing tiles, flat or corrugated sheets ; paints ; special cements ; fireproof screen in acetylene welding ; fabrics for filtering of fruit juices, acids ; brake linings ; belts for conveying hot cement clinkers ; asbestos paper ; for gaskets ; steam and pump packings ; damp proof sheets ; sheets for absorbing sound, constituent of air filter ; etc.

Trade : IMPORTS have been systematic for a long time past ; 1946-47 *Raw* : cwts. 152,232—Rs. 32,56,235 ; *Manufactures* :

Rs. 25,63,052. 1954-55 : *Raw* : cwts. 180,326—Rs. 1,02,10,586 ; *Manufactures* : Rs. 56,85,962.

EXPORTS : 1954-55 : *Raw* : cwts. 1,155—Rs. 1,30,060 ; *Manufactures* : Rs. 10,61,862.

ASSES (Donkeys)

[*Livestock*]

World Population : 36,400,000 heads
Indian Population : 1,240,000 heads
Pakistan Population : 959,000 heads

Principal Indian States : Madras ; Uttar Pradesh ; Rajasthan ; Bombay ; Punjab ; etc. (See LIVESTOCK).

Uses : For draft purposes ; beast of burden ; hides and skins (q. v.) ; milk (sick diet) ; manure (excreta) ; bones (q. v.), etc.

Vernacular names : Gardhav ; gádhá.

AXLE-WOOD

(Anogeissus latifolia)

[*Timber*]

Occurrence in India : U. P., Madhya Bharat, Bihar, Madras, Chota Nagpur, Orissa, Nepal.

Uses : TIMBER : Tool handles ; poles ; cart shafts and axles ; agricultural implements, furniture, boats ; charcoal. BARK, LEAVES : Tanning material in light leather industry ; dye. GUM : Calico printing.

Vernacular names : Dhaura, dhawa, cellaynaga, chirimanu.

BABUL

(Acacia arabica)

[*Tanstuff*]

Chief Producers in the World :

Arabia ; Pakistan ; India ; Egypt ; Sudan ; Iran ; Iraq ; etc.

Occurrence in India :

"Throughout the drier regions of the North" ; Madhya Pradesh ; Berar ; Bombay ; Madras ; Punjab ; West Bengal ; etc. (The tree is suitable for reclamation of waste lands.)

Uses :

TIMBER : Cart parts (spokes, naves) ; agricultural implements ; tool handles ; in sugarcane and oil presses ; tent pegs ; hubs (of carts) felloes ; (engraving) blocks ; parquets (picker arms) ; railway keys and brake blocks ; shuttles ; tobacco pipes ; fuel.

BARK : Tanning material.

GUM : Mucilage in calico printing ; in sizing paper ; textiles ; ingredient in making up whitewashes ; paints ; in the preparation of native sweetmeats. Medicine.

PODS : Black dye ; fodder. Medicine. LEAVES : Fodder : dye. TWIGS : Baskets. THORNS : Pins, etc.

Vernacular names :

Babul, jali, gobli, gobalu, vedi-babul, babbar, babur. kalikikar. nalla, tuma, tamma, karuvelam, kikar, etc.

BAING (Maina)

(Tetrameles nudiflora)

[*Timber*]

Occurrence in India : Assam ; West Bengal ; Madras ; Andamans ; etc.

Uses : (Light wood) ; Matches ; packing boxes ; tea chests ; ceiling boards ; picture and slate frames.

Vernacular names : Bhelu, maina kat, pontham cheeni ; perumara, thitpok, etc.

BAJRA or (Spiked) MILLET

(Pennisetum typhoideum)

[*Foodgrain*]

Indian Production : 3,555,000 tons
Indian Acreage : 27,350,000 acres
Pakistan : 2,584,000 acres ; *Production* : 455,000 tons

Chief Producers in the World :

India ; Egypt ; Aden ; etc.

Principal Indian States :

BOMBAY : Nasik ; Ahmednagar ; Meshana ; Banaskantha ; Bijapur ; Poona ; Satara North ; West Khandesh ; East Khandesh ; Sholapur ; Kaira ; Ahmedabad ; Belgaum ; etc.

RAJASTHAN : Jhunjhunu ; Nagaur ; Jalore ; Pali ; Bharatpur ; Gaganpur ; etc.

UTTAR PRADESH : Aligarh ; Badaun ; Agra ; Etah ; Mathura ; Moradabad ; Bulandshar ; Etawah ; Mainpuri ; etc.

MADRAS : Tiruchirapalli ; Salem ; Tirunelveli ; South Arcot ; Ramnad ; etc.

ANDHRA : Visakhapatnam ; etc.

PUNJAB : Hissar ; Gurgaon ; Rhotak ; Ferozepur ; Karnal ; etc.

HYDERABAD : Nalgonda ; Aurangabad ; Bir ; Raichur ; Gulbarga ; etc.

MADHYA PRADESH : Buldana ; Yeotmal ; Akola ; etc.

BIHAR : Shahabad ; Patna ; Saran ; etc.

SAURASHTRA : Bhavnagar.

Uses : Food ; bread and cake ; birdseed ; etc.

Vernacular names : Bajra, bajri, lahra, lenda, kambu, gantelu, sajjalu, mattari, etc.

Other trade names : BULRUSH MILLET ; CUMBOO MILLET.

Trade : EXPORTS : 1867-68 (under "Jowar and Bajra") cwts. 1,369—Rs. 4,812. 1868-69 : cwts. 6,532—Rs. 34,508. Again in 1881-82 : cwts. 407,074—Rs. 10,86,398 ; 1901-02 : cwts. 302,000 —Rs. 9,52,470 ; 1933-34 : tons 5,082—Rs. 4,81,000 when exports completely stopped. IMPORTS : 1884-85 : cwt. 1—Rs. 3 ; 1887-88 to 1889-90—*Nil* : Again in 1991-92 : cwts. 63, 505— Rs. 2,28,503 ; 1901-02 : cwts. 17,413—Rs. 77,166 ; 1946-47 : tons 99—Rs.32,509 ; 1947-48 : tons 14,704—Rs. 54,10,569 ; 1954-55 : *nil.*

BAMBOO

(Bambusae)

[*Wood & Pulp*]

Occurrence outside India :

Pakistan ; Burma ; China ; Japan ; Malaya ; Ceylon ; etc.

Occurrence in India :

"Bamboos occur in most tropical countries, but they are especially common in the monsoon regions of Eastern Asia."

Throughout India : Assam ; Bengal ; Orissa ; Western Ghats ; Andamans ; etc.

Uses :

"The native uses of the bamboo are legion for all parts of the plant are of value."

Posts and fencing ; roofing ; scaffolding ; rafters and battens ; ladders ; bridges ; wicker-work and furniture ; bows and arrows ; spear and other tool and umbrella handles ; water pipes ; fishing rods ; flutes, musical instruments ; cricket balls ; domestic 'utensils' ; sieves ; fish traps ; brushes ; umbrellas or *tokas* ; caps : (twigs) to support creeping plants ; etc., etc.

Extensively used in the manufacture of paper. (Bamboo clusters serve as wind breaks).

ROOTS : Cricket balls. SHOOTS and SEEDS : Food. LEAVES : Fodder. TABASHIR : Medicine.

Vernacular names :

Báns, bansa, kattang, bůah, bariala, mándgay, mangal, mulkas, kanka, bonga, verudu, etc.

(Tabashir : Bansa-lochan, bans-kapur, bansa-mitha etc.)

BANANA (Plantain)

(Musa paradisiaca ; M. Sapientum)

[*Fruit*]

World Production : 8,000,000 tons
Indian Production : 1,849,000 tons

Chief Producers in the World :

Brazil (25%) ; India (20%) ; Tanganyika (18%) ; Philippines (5%) ; Costa Rica ; Guatemala ; Honduras ; Colombia ; Mexico ; Jamaica ; Panama ; Canary Islands ; Ecuador ; etc., etc.

Occurrence in India : "The plantain is cultivated very nearly throughout India except in the extreme north-west and from sea-level upto 5,000 to 6,000 feet in altitude."—Watt.

Principal Indian States : Madras (44·3%) ; Bombay (23·4%) ; Assam (7·2%) ; Travancore-Cochin (7·1%) ; Andhra ; Tripura ; Mysore ; etc.

Uses : GREEN FRUIT : Food ; diet or meal in sickness ; cooked food. RIPE FRUIT : Edible. FLOWERS and flower

stalk (the *thor*) : Vegetable ; curry. STEM : Fodder ; water purifier, (the convolute leaf sheaths) in Hindu religious observances ; fibre. LEAVES : (Ashes) for washing clothes ; dressing in blisters ; cattle food ; medicine. [As *plate* in serving food]. ROOT : Medicine.

Vernacular names : Kelá, ram-kela, kánch-kelá, múz, kewiro, vazhaip, pazham, valei, anati, amti, áriti, bálé, kadali, rambha, etc.

BARLEY

(Hordeum vulgare)

[*Foodgrain*]

World Production : 60,000,000 tons
Indian Production : 2,786,000 tons
Indian Acreage : 7,990,000 acres

PAKISTAN : *Acreage :* 5,21,000. *Production :* tons : 112,000

Chief Producers in the World :

U. S. S. R. (13 %) : Ukraine ; White Russia ; Kazakhstan ; etc.

CHINA (11%) : Kiangsu ; Hunan ; Anhwei ; Kwangsi ; Hupeh ; etc.

CANADA : (9%) ; Alberta ; Sasketchewan ; Manitoba ; etc.

U. S. A : (8·5%) : North Dakota ; South Dakota ; Miniresota ; Nebraska ; Iowa ; Kansas ; Oklahoma ; etc.

TURKEY : Smyrna ; etc.

INDIA ; U. K. ; France ; Denmark ; Japan ; West Germany ; French Morocco ; Spain ; Czechoslovakia ; Poland ; etc.

INDIA

UTTAR PRADESH : Azamgarh ; Allahabad ; Gorakhpur ; Jaunpur ; Basti ; Aligarh ; Kanpur ; Deoria ; Bulandshar ; Garhwal ; Partabgarh ; Ghazipur ; Mirzapur ; Unao ; Sitapur ; Rae Bareli ; Banaras ; Fatehpur ; Balia ; Agra ; etc.

BIHAR : Saran ; Muzaffarpur ; Champaran ; Darbhanga ; Shahabad ; Monghyr ; Gaya ; Patna ; etc.

RAJASTHAN : Ganganagar ; Jaipur ; Bharatpur ; Bhilwara ; Alwar ; etc.

PUNJAB : Gurgaon ; Ferozepur ; Hissar ; Rhotak ; etc.

WEST BENGAL : Malda ; Murshidabad.
AJMER : Ajmer ; Beawar.

Uses :

Food : Bread (*chapaties*) ; sick diet ; biscuit ; malt ; beer maltose ; dextrine ; medicine ; etc.

Vernacular names :

Jav, jao, jawa khar, jao ; sûj, thanjat, nai, nas, baril, arisi puchcha yava, barlibiyam, indrajau, etc.

Trade :

EXPORTS : 1868-69 : cwts. 19,626—Rs. 87, 700. After a lapse of several years started again in 1887-88 : cwts. 29,575—Rs 89,776 ; 1901-02 : cwts. 54, 648—Rs 1,80,180. 1938-39 : tons 2,086—Rs. 7,51,223. There is no further export.

IMPORTS : 1888-89 : cwts. 3,833—Rs 10,474 ; 1901-02 : cwts 14,495—Rs. 59,757 ; 1946-47 : tons 25,351—Rs. 40,32,822 ; 1954-55 : Rs. 5,05,330.

BARYTES

[*Mineral*]

World Production : 1,850,000 tons
Indian Production : 18,792 tons

Chief Producers in the World : *Barite* :

U. S. A. (46%) : Arkansas (Magnet Cave) ; Missouri (Washington) ; Georgia ; Virginia ; Tennessee ; etc.

GERMANY (20%) ; Thuringenwald , Harz Mountains ; etc.

CANADA (12%) ; ITALY (4%) ; France ; Greece ; U. K. (Ayrshire, Shropshire, Devonshire).

Occurrence in India :

BIHAR : Ranchi. MADHYA PRADESH : Jabalpur ; Akola ; Buldana. MADHYA BHARAT : Chakrata Hill. MADRAS : Salem : Uppalapalle, Rajupalem. ANDHRA : Anantapur ; Kurnool (Dhone) ; Cuddapah. RASASTHAN : Alwar ; Jaipur. HIMACHAL PRADESH : Rewa.

Production :

ANDHRA : Anantapur : 1,155 tons ; Cuddapah : 12,313 tons ; Kurnool : 4815 tons. RAJASTHAN : Jaipur : 509 tons.

Uses:

Paint (white pigment known as 'permament white'), adulterant of white lead ; filler for better grades of paper and for asbestos cement; rubber goods ; linoleum ; manufacture of lithophone, in certain types of glass, enamels and glazes ; ingredient in the heavy 'drilling muds' ; furnace lining ; in tanning ; printer's ink ; face powder ; etc.

BAUXITE

(See 'Aluminium')

[*Mineral*]

World Production : 13,270,000 tons
Indian Production : 74,743 tons

Chief Producers in the World :

DUTCH GUIANA (Surinam) : (24%) : Morengo Hill.

BRITISH GUIANA (19%) : Mackenzie.

U. S. A. (12%) : Arkansas : (Saline County ; Pulaski) ; Georgia : (Sumter : Andersonville) ; Alabama : (Eufula ; Barbour ; Henry) ; Tennessee ; Arizona ; Washington ; California.

JAMAICA (9%).

FRANCE (9%) : Var and Bolehen du Rhone : (Les Baux, Villeveyrac) ; The Pyrenees.

U. S. S. R. : Northern Urals : (Krasnaya, Shapochka) ; Central Urals : (Kamenesk : Sokolovskii) ; Southern Urals : (Kukshinsk, Novaya Pristan) ; North-West Russia : (Tikhvin).

YUGOSLAVIA (4%) : Slovenia : Bylo Gora : (Cspel, Tota) ; Istria : (Pazin) ; Herzegovnia : (Mostar, Sibenjk).

AUSTRIA : Unterlaussa.

HUNGARY : South-West region : (Lend, Wochein, etc.).

INDONESIA : Bintan Is. ; Singkep Is.

ITALY : Apulia (Lecce) ; Piedmont ; Campgna.

INDIA

Reserves : 250,000,000 tons
High grade : 26,000,000 tons

BIHAR : Ranchi and Palamau (1,400,000 tons).

BOMBAY : Belgaum (6,714,000 tons) ; Kohlapur (21,416,000 tons) ; Kaira and Thana (100,000 tons).

MADHYA PRADESH : Jabalpur (535,000 tons); Balaghat (265,000 tons); Rupjar; Mandla; Bilaspur (825,000 tons); Jashpur (500,000 tons); Surguja; Bastar.

MADHYA BHARAT : Rewah; Bhopal.

KASHMIR : Chakar; Riasi; Poonch.

RAJASTHAN : Bikaner; Kotah; Tonk.

MADRAS : Salem : Shevaroy (650,000 tons).

MYSORE : Bababudan Hills (500,000 tons).

ORISSA : Kalahandi (391,000 tons); Sambalpur (300,000 tons).

Production :

BIHAR (44%) : Ranchi : 31,408 tons.

MADHYA PRADESH (33%) : Jabalpur : 24,361 tons.

BOMBAY (24%) : Kaira : 17,739 tons.

MADRAS : Salem (Shevaroy Hills) : 1,239 tons.

Uses :

As the principal source of aluminium, aluminium salts; in the manufacture of refractory bricks; (aluminium fused) cements; as chemical reagent, in kerosene purification : desulphurising fuel oils; in clarifying molasses; as corrective for slag in the smelting of iron; as a road-making material; filler in paints; etc., etc.

(Indian Butter) BEAN

(Dolichos typicus)

[*Pulse*]

Occurrence in India : Throughout India mainly as a garden vegetable. West Bengal; Bihar; Madhya Pradesh; Bombay; Mysore; Madras; Uttar Pradesh; Saurashtra; etc.

Uses : SEED : Food; fodder. PLANT : Fodder.

Vernacular names : Sem, shim, popat, barbati, urohi, avarai, chikkudu, avara, chimi, katjang, valpapari, etc.

Other trade names : LABLAB BEAN; HYACINTH BEAN : BONAVIST BEAN.

Trade : EXPORTS : 1918-19 : tons 78,927—Rs. 1,78,75,000 and ended in 1938-39 : tons 1,409—Rs. 2,01,000.

(JACK) BEAN

(Canavalia ensiformis)

[*Pulse*]

Occurrence in India : Throughout India : Found "on the borders of fields and over the roofs of huts. "

Uses : PODS : (young) vegetable-curry ; (mature) powdered : as an adulterant of wheat ; etc.

Vernacular names : Makhan-sim, mekhun, kadsambal, tihon, abai, etc.

Other trade names : SWORD BEAN ; HORSE BEAN ; PANTAGONIAN BEAN ; FRENCH BEAN.

BEEFWOOD

(Casuarina equisetifolia)

[*Timber*]

Occurrence in India : The coastal regions. Madras (Nellore) ; Bombay (Karwar, Kumpta, Ankola ranges) ; etc.

Uses : [Serves as a wind screen against sand storms]

TIMBER : House posts ; pit-props ; rafters, masts of country boats ; sledge hammer shafts, yokes and felloes of wheels ; fuel ; etc.

Vernacular names : Jau, jangli saru, saru-gudu, chavuku, savukku, suru, etc.

BEL (Bael)

(Aegle marmelos)

[*Fruit*]

Occurrence in India : Grows almost everywhere ; found both in the forests and orchards.

Uses : TIMBER : Fuel for sacrificial purposes ; railway keys and brake blocks. FRUIT : Delicious and healthy food ; confectionery (*morobba*). LEAVES : Medicine. GUM : (in seed sockets) adhesive ; varnish and paints.

Vernacular names : Bilva, bael, bel, maredu, vilvam, etc.

BENTEAK
(Lagerstroemia lanceolata)

[*Timber*]

Occurrence in India : Bombay ; Madras ; Coorg ; etc.

Uses : General carpentry ; house and carriage building ; wagon floors, bus bodies, parts of trucks ; boats and dhows (of Arabs) ; bent-wood articles ; cooperage ; picker arms ; shuttles ; etc.

Vernacular names : Nana, nandi, venteak, etc.

BENTONITE

[*Mineral*]

World Production : 1,000,000 tons
Indian Production : 286 tons

Chief Producers in the World :

U. S. A. (Wyoming, California, New Mexico, South Dakota, etc.) ; Germany ; U. S. S. R. ; Canada, Mexico : Italy ; China.

Occurrence in India :

(Quantities of Production are shown within brackets) :

BIHAR : Santhal Parganas (210 tons).

RAJASTHAN : Jodhpur : Sheo (76 tons).

KASHMIR : Mirpur (Bhimbar).

Uses :

In refining petroleum products and vegetables ; "as drilling mud" ; in foundry work ; soap manufacture ; base in cosmetics ; sizing ; in manufacture of dynamites (as an absorbent of nitro-glycerine) ; etc.

BERYL (Beryllium)

[*Mineral*]

World Production : 9,100 tons
Indian Production : 150 tons

Chief Producers in the World :

BRAZIL (33%) : Rio Grande de Norte (Cascavil) ; Parahyba (Quixeramobim) ; Pernambuco (Picui) ; Matto Grosso (Sa-dos Cristais).

SOUTH RHODESIA (18%) : Darwin (Mekita).

ARGENTINA (17%).

SOUTH-WEST AFRICA (6%) : Windohek ; Karibib ; Usakos Omararu.

U. S. A. (8%) : North Appalachians ; N. Carolina (Kings Mountain) ; S. Dakota (Black Hills) ; etc.

Un. of SOUTH AFRICA (7%) : Namaqualand ; Warmbad

Principal Indian States :

RAJASTHAN : Mewar. AJMER : Bisundi. ANDHRA ; Nellore ; (Guntur). BIHAR : Hazaribagh, Gaya.

(Obtained irregularly in the process of mining for mica.)

Aquamarine from AJMER.

Emerald from Mewar, RAJASTHAN.

Uses :

Alloy (in non-ferrous metallurgy) particularly "tough copper-beryllium alloys which have the strength of mild steel") ; for springs in electrical devices, motion picture cameras ; aeroplane under-carriage springs ; electrodes of neon signs ; in cyclotrons ; etc.

BETEL (ARECA) NUT

(Areca catechu)

[*Spices*]

World Production :	5,000,000 mds.
Indian Production :	2,179,000 mds.
Indian Acreage :	259,670 acres
Pakistan Acreage :	265,000 acres

Chief Producers in the World :

INDIA ; Pakistan ; Ceylon ; Federated States of Malaya, Siam ; Borneo ; Philippines ; Sumatra ; Java ; etc. ["The cultivated plant is met throughout the hot damp regions of Asia and the Malay Islands."]

Principal Indian States :

MADRAS (35%) : Malabar, South Kanara.

TRAVANCORE-COCHIN : (Pangamuku, Mattam, Koonamuchi, Kodannur, etc.).

MYSORE : Malnad, Shimoga, Chikmagalur.

ASSAM : Goalpara, Cachar.

BOMBAY : (West Coast from Bombay to Trivandrum) ; North Kanara (Kumta, Honnavar, Yellapur), Colaba, Ratnagiri.

WEST BENGAL : 24 Parganas, Nadia.

COORG :

Pakistan :

EAST BENGAL : Bakarganj, Noakhali, Faridpur, etc.

Uses :

NUTS : Masticatory ; tanning (from extract) ; medicine ; etc.

Vernacular names :

Supari, supijári, guà, tambul, pokavakka, vakka, kamugu, pakku, kattaipakku, ádike, sopari, hopari adaka, adike, kuvuku, gubak, kasaile, oka, suvaka, puga, kramuka.

Trade :

EXPORTS : 1875-76 : lbs. 330,000—Rs. 34,900 ; 1901-1902 : lbs. 244,200—Rs. 47,593 ; 1946-47 : cwts. 13,358—Rs. 12,64,351 ; 1954-55 : cwts. 3,361—Rs. 7,22,749.

IMPORTS : 1875-76 : lbs. 16,857,000—Rs. 10,88,216 (chiefly from Straits Settlements and Ceylon) ; 1946-47 : cwts. 718,757—Rs. 3,03,61,516 ; 1954-55 : cwts. 583,606—Rs. 2,16,62,338.

BIJASAL

(Pterocarpus marsipium)

[*Timber*]

Occurrence in India : Madhya Pradesh ; Madhya Bharat ; Bombay ; Coorg ; Madras ; Orissa ; Uttar Pradesh ; etc.

Uses : Constructional work ; furniture ; cart building (felloes, spokes and bent rims) ; agricultural implements : pit props ; railway carriages ; bent wood articles ; spokes (of cart wheels) ; drums (musical).

Vernacular names : Piasal, vengai, honne, etc.

BIRCH

(Betula utilis ; B. alnoides)

[*Timber*]

Occurrence in India : Outer Himalayas ; Khasia Hills ; Northern circle of Bengal ; Himachal Pradesh (Simla) ; Uttar Pradesh (Tehri, Jaunsar) ; etc.

Uses : LEAVES : Fodder.

BARK : Writing material (substitute of paper) for writing medicinal charms ; "for wrapping up parcels ; for surrounding hookah stems ; for umbrellas ; for water-tight roof lining and apparently sometimes for clothing" ; etc.

TIMBER : Plywood ; interiors of cabinet work ; turnery, bobbins ; building work ; camp furniture ; etc.

Vernacular names : Bhujpatra, burj, shak, takpa, pushpat, bhurjapatra.

(*Betula alnoides* : Hlosunli, saur, sous, piya-udish, shaul, shakshin, etc)

Other trade names :

INDIAN PAPER BIRCH ; INDIAN BIRCH ; NAGA BIRCH.

BIRDS

There are more than two thousand varieties of indigenous birds in India with an addition of another three hundred or more which are migratory.

Birds of **direct** *economic value* :

EDIBLE BIRDS : Poultry (domesticated) : India (1951 : Fowls : 67,147,000 ; Ducks : 6,264,000 for meat and eggs.)

GAME BIRDS (wild) for meat :

Common Fowl, Guinea Fowl, the Turkey, Ducks, Geese, Swans, Teal, Pigeons, Doves, Pheasants, Partridges, Jungle-fowl, etc. Some of the common Game Birds are :

The Beefsteak, *manikjor* ; Bustard, *tokdar sohan* ; Houbara Bustard, *hobra, tilur, talur* ; Crane, *saras, bak, balâkâ* ; Florican, *charas* ; Fowl (jungle), *jungli* or *ban murgi* ; (Grey) Fowl ; (Red spur) Fowl ; Gadwall, *peeing hans, nila, bhuar, beykhur* ; (Pheasant-tailed) Jacana (*jalpipi*) ; Ortolan, *baghaira* ; (Black) Partridge, *kala-titar* ; (Kyal) Partridge, *ban-titar Kaindal, chakor* ; Peacock, *mor or moyur* ; Pheasants, *jibanjiba, chir, Kalij, monal* ; (Green) Pigeon, *hurrial* ; (Black Rock) Pigeon, *kabutar* ; (Golden) Plover, *deodar titar or tittir* ; Pochard, *muthia* ; (Grey) Quail, *bater* ; Sandgrouse, *kuhar* ; (Common) and (Pintailed) Snipe, *kada-khoncha* or *kardam-khonchi*

Snippet ; Sand-piper ; (Cotton, Blue-winged or Garganey) Teal, *bali-hans, sarali*, etc

PLUMAGE BIRDS : Adjutant, *hargila, garur, dusta* ; Bustard, *takdar, jangli kabutar* ; (Indian) Darter or Snake-bird, *banwa, pan dubbi, goyar* ; Egrets, *surkhia bagla, humi-koku* ; Florican, *likh, chota charat, charas* ; (Jungle) Fowl, (*ban*) *murgi* ; (Pea) Fowl, *mor, manja, manir, nimili* ; Herons, *bagla, kakku* ; (Common) Heron, *anjan, nari, kokku* ; Hoopoe, *hud hud, sutar, kondeh, pitta* ; Monal, *nil mor, datiya* ; Pheasants, *jibanjiba, jewar, jaghi* ; *sing-monal* ; Rollers, *nil-kant, sabzak tas* ; etc.

Feathers : Upholstery, dusters ; **Down :** quilts, pillows, ornamental feathers ; fans, picture frames, etc.

INSECT & GRUB FEEDERS : (Black) Drongo, *finga, bhringaraj* ; (Roller or Blue) Jay, *kiki-dibi, nil-kant, mani-kantha* ; Swallow, *tala-chanchu, babui* ; Wood-peckers, *kat-thokra* ; etc.

PREYING OR HAWKING BIRDS : Falcons, *baj, shen* ; Owl, *pechaka, ullu* (protection against field rats and mice) ; (Pariah) Kite, *chil* ; (Shikra) Hawk, *baj, sasa-ghataka* ; etc. (The "Chicken Catcher").

FISH CATCHERS : Kites, Herons, Storks, Cormorants, Kingfishers, *Kilkila, mach-ranga.*

"NATURE'S SCAVENGERS" : Vultures, Kites, Crows, etc.

CAGE BIRDS : *Bulbul, (hurriba)* ; Cuckoo ; Hawk-cuckoo (*kupak*) ; *Doel,* Drongo (*bhimraj*) ; Finch, *dhuli chatak* ; *koel* ; Lark (*bharui, bharadwaj*) ; Linnet, *munia, myna,* Paraquet, (*chandana,* tia, *tuia-tota*) ; Partridge, (*titar chukar*) ; *Shalik, Shama,* Thrush, Turtle-dove, (*shyam-ghughu*) ; etc., etc.

Uses :

Meat ; Feathers ; Skin, Eggs : Food ; curry ; powder (preserved food).

SHELL : Ornamental work (painting, etc.).

Trade :

First recorded EXPORT of feather was Rs. 74,554 in 1866-67. The exports at the beginning of the century and before "Partition" are 1901-02 : lbs. 116,946—Rs. 1,79,618 ; 1946-47 : lbs. 36,060—Rs. 19,432. Thereafter export has ceased.

BISHOP WOOD

(Bischofia javanica)

[*Timber*]

Occurrence in India : WEST BENGAL : Jalpaiguri (Buxa) ; Assam ; Madras ; etc.

Uses : Constructional purposes (bridges, rafters, etc.) ; sleeper inferior quality) ; pens and pencils ; etc.

Vernacular names : Uriam, paniala, neeli, chola-venga, kainjal, etc.

BLOOD MEAL

[*Manure*]

Annual collection from the slaughter-houses of Uttar Pradesh (Kanpur, Hapur, Gorakhpur and Lucknow) is about 500 tons ; from Bombay (Poona City, Poona Cantonment and Bombay City) 300 tons. Calcutta and other places contribute to the total production amounting to about 1,050 tons a year.

BONES

Indian Production : 1,400,000 tons

Chief Sources of Supply :

Uttar Pradesh ; Punjab ; Bombay ; Bihar ; Rajasthan ; etc. (Calcutta : mainly imported from Uttar Pradesh).

Uses : Bone charcoal ; bone black ; bone ash (manure) ; buttons, handles ; toys ; etc. Source of superphosphate ; bone meal (manure) ; glue ; etc.

TALLOW : Candles, soaps (low grade). OIL : Insecticide.

Vernacular names : Asthi, haddi, har(d), etc.

Trade : EXPORTS : **Bones** (manurial and other purposes) : 1870-71 : cwts. 53,565—Rs. 66,865 ; 1901-02 : tons 92,033—Rs. 50,48,915 ; 1946-47 : tons 9,675—Rs. 11,57,051 ; 1954-55 : tons 187—Rs. 58,310. **Bone Meal** was chiefly exported to Great Britain and Germany for the manufacture of superphosphate. There has been a systematic trade for long time past but was not separately recorded. 1938-39 : tons 25,072—Rs. 14,85,764 ; 1946-47 : tons 7,778—Rs. 9,66,863. In 1951-52 (whereafter exports ceased) : tons 61,894—Rs. 2,98,15,094.

IMPORTS : 1875-76 : tons 325—Rs. 27,846 ; 1901-02 : tons 60 —Rs. 2,546 ; 1923-24 : tons 125—Rs. 8,093 (thereafter merged with "*Other manures*").

BONSUM
(Phœbe hainesiana ; etc.)

[*Timber*]

Occurrence in India : Assam ; West Bengal.

Uses : (Light) furniture ; cabinet work ; patterns (for foundries) ; gramophone boxes ; etc.

Vernacular names : Makroi, angare, etc.

BORAX (Tincal)
(Borate of Sodium)

[*Mineral*]

World Production : 600,000 tons

Occurrence in India : KASHMIR (Eastern) ; RAJASTHAN (Sambhar Lake) ; SAURASHTRA (Kathiawar).

Chief Sources of Supply :

U. S. A. : California (Kramer, Searles Lake—both in Mojave Desert) ; Italy (Pisa) ; China ; Tibet ; Chile (Atacama) ; Argentina ; Turkey ; Peru (Las Salinas) ; etc.

Uses :

Porcelain enamels ; mordant in dyeing ; medicine ; antiseptic and disinfectant ; substitute for soap ; preservative of meat ; in welding ; as a flux ; glass manufacture : bead, imitation precious stones ; varnish ; ingredient in toilet soaps, etc. ; in the production of self-trimming in candles ; etc.

BOXWOOD
(Buxus sempervirens)

[*Timber*]

Occurrence in India : ".....the Sulaiman and the Salt Ranges, the Himalayas eastward to Nepal and Bhutan (absent from Sikkim) at 4,000 to 8,000 feet.....".

Uses : Turnery, carving ; (substitute for ivory) ; etc.

Vernacular names : Shanda laghune, chikri, papri, shamsad, shumaj, etc.

BRISTLES (Pig)

[*Brush*]

Chief Producers in the World :

Mainly obtained from pigs, hogs and boars.
China ; Poland ; U. S. S. R. ; etc.

Principal Indian States :

Uttar Pradesh ; Madhya Pradesh ; Punjab ; Bhopal ; etc. The Pigs "are found throughout India, from the sea-level to an altitude of about 12,000 feet."

Uses : PIGS : (*Sus cristatus*) meat (pork, ham, etc.) SKIN : (tough) leather : Saddlery ; purses ; coverings ; etc. FAT : lard. BRISTLES : brushes (big and small).

Vernacular names :

(Pig) : Varaha, sur, suar, paddi, dukkar, pandi handi, etc.

Trade :

EXPORTS : 1895-96 : cwts. 14,523—Rs. 8,02,626 ; 1901-02 : cwts. 48,488—Rs. 3,65,600 ; 1946-47 : cwts. 2,219—Rs. 40,80,701; 1954-55 : cwts. 3,864—Rs. 83,78,721.

BUFFALO

(Bas bubalus) [*Livestock*]

World Population :	70,000,000 heads
Indian Population :	43,351,000 heads
Pakistan Population :	5,600,000 heads

Chief Countries in the World : India ; China ; Pakistan ; Thailand ; Indonesia ; Philippines ; Indo-China ; etc ; etc.

Principal Indian States : Uttar Pradesh ; Madras ; Bombay ; Bihar ; Punjab ; Rajasthan ; Hyderabad ; Madhya Bharat ; etc. ; etc.

Uses : For draft purposes ; (tillage, transport). Milk (q. v.) ; meat ; hides and skins (q. v.) ; horns (q.v.) hoofs ; bones (q. v.) ; intestines ; manure (excreta).

Vernacular names : Mahis, bhains, arna, mang, birbiar, iroi, misip, kywai, siloi, pana, moh, karbo, gera erumi, etc.

CALCITE
(Calcspar)

[*Mineral*]

Indian Production : 5,029 tons

Principal Indian States : ANDHRA : Anantapur (2,284 tons) ; SAURASHTRA (2,684 tons) ; RAJASTHAN : Jaipur (20 tons) ; Pali (41 tons).

Uses : "The constituent of chalk, limestone and marble ; when perfectly clear and colourless is made into nicol prisms for polarising microscopes."

CAMEL

[*Livestock*]

Indian Population : 629,000 heads

Chief Countries of the World : China ; Saudi Arabia ; Turkestan.

Occurrence in India : Rajasthan ; Uttar Pradesh ; Punjab.

Total number : Part 'A' States : 188,000 ; 'B' States : 429,000 ; 'C' States : 12,000 ; Total : 629,000 (1951).

Uses : For transport in desert tracts. HAIR : Knitted goods, particularly blankets ; belting ; cords ; ropes ; brushes (beard hair). MILK : Diet. FLESH : Food (young camels). SKIN : Leather goods ; receptacle for oil, etc. *(Kuppas)* ; ornamental flasks (from intestinal walls) ; etc.

Vernacular names : Ustra, oot.

CAMPHOR
(Cinnamomum camphora)

[*Drug*]

Chief Producers in the World :

Japan ; Formosa ; China.

Principal Indian States :

Madras ; Uttar Pradesh (Saharanpur) ; Dehra Dun.

Uses :

Manufacture of celluloid and nitrocellulose compounds ; medicine ; in perfumery ; preventive against insects (in warm clothing) ; flavouring agent. OIL : In perfumery ; substitute for turpentine ; illuminant ; etc.

Vernacular names :

Karpur, kafur, kapur, ghausar, kárpurá, karuppúram, karporabarus, karpuram.

Trade :

EXPORTS : 1875-76 : lbs. 29,568—Rs. 12,160 ; 1901-02 : lbs. 830—Rs 1,158.

IMPORTS : 1946-47 : lbs. 349,705—Rs. 14,17,754 ; 1954-55 : lbs. 2,118,075—Rs. 44,02,425.

CANE (Rattan)
(Calamus)

Chief Producers in the World :

Sumatra ; Borneo ; Thailand ; Straits Settlements ; Burma ; Nepal ; Bhutan ; etc.

Principal Indian States :

ASSAM : Sadiya, Nowgong, Cachar, Sibsagar, Garo ; Khasia Hills. WEST BENGAL : 24-Parganas, Burdwan, Midnapore, etc. ORISSA : Sambalpur, Balasore. Western Ghats : (Malabar) ; Coorg ; Travancore-Cochin ; Mysore.

Uses :

Chairs, sofas, fancy baskets, trays, etc ; miners' baskets, granary baskets ; substitutes for ropes (for towing heavy loads), binding elephants, 'bearing ropes of suspension bridges' ; walking sticks ; handles ; floor mats ; in paper manufacture (China) ; sporting goods (tennis, badminton rackets, polo sticks, cricket bats) ; etc.

Vernacular names :

Betra, bet, pepa, prabha, perambu, betamu, bettapu-chettu, pepu, prabhali, etc.

Trade :

EXPORTS : 1946-47 ; cwts. 25,190—Rs. 9,51,742 ; 1954-55 : (by sea) including bamboos : cwts. 8, 571—Rs. 3, 94, 256 ; (by land) : cwts. 225 —Rs. 7, 765.

IMPORTS : 1946-47 : cwts. 11, 747—Rs. 5,13,654 ; 1954-55 : (by sea) including bamboos : cwts. 896—Rs. 14, 638 ; (by land) excluding bamboos : cwts. 3,399—Rs. 36,090.

CARAWAY
(Carum carui)

[*Spices*]

Occurrence in the World : Central Europe ; Holland ; Central Asia.

Occurrence in India : Sub-Himalayan regions ; in the plains, Chamba, Kumaon, Garhwal ; Kashmir.

Uses : SEED : Curry powder ; with cakes and biscuits ; in flavouring cordials ; ingredient of sausage ; medicine ; etc.

OIL : Flavouring agent ; medicine.

Vernacular names : Zirá, jirá, Karaya ; Karawya, etc.

CARDAMOMS

Chhoto eláchi : (*Elettaria cardamomum*)
Bara eláchi : (*Amomum subulatum*)

Indian Production : 45,000 cwts. [*Spices*]

Occurrence in the World : India ; Ceylon ; Central America.

Principal Indian States : MYSORE : Kadur, Shimoga, Hassan ; COORG ; MADRAS : Madurai, Nilgiris (Malabar) ; TRAVANCORE-COCHIN : (Cardamom hills) ; BOMBAY : North Kanara (*Amomum subulatum*) ; NEPAL ; SIKKIM ; ASSAM ; W. BENGAL.

Uses : Masticatary ; spices ; medicine ; flavouring agent.

Vernacular names : Upakunchika (brihat, kshudra), elcho, yelak-kayalu, yelakkai, vellodá, elákai, chettu vittulu, etc.

Trade : EXPORTS : 1876-77 ; lbs. 172,000—Rs. 2,72,733 ; 1901-02 : lbs. 144,800—Rs. 2,25,493 ; 1946-47 : cwts. 13,270 —Rs. 41,92,567 ; 1954-55 ; cwts. 17,874—Rs. 1,53,74,220.

IMPORTS : 1901-02 : lbs. 199,100—Rs. 2,04,526 ; 1946-47 : cwts. 258—Rs. 37,343 ; 1951-52 : cwts. 258—Rs. 37,343 ; 1954-55 : nil.

CASHEW NUT

(Anacardium Occidentale)

[*Fruit*]

Indian Production : (Kernel) 30,000 tons

Chief Producers in the World : India ; East Africa ; Brazil ; Goa (India).

Principal Indian States :

MADRAS (49%) : South Kanara ; Malabar ; Tiruchirapalli ; South Arcot ; Tanjore ; Chingleput.

ANDHRA : Visakhapatnam ; East Godavari ; Guntur.

TRAVANCORE-COCHIN : Chirainkil ; Kottarakara ; Kunnathunad.

BOMBAY : Ratnagiri ; (Vengurla, Malvan) ; North Kanara.

WEST BENGAL ; Midnapore. ORISSA : Puri ; Ganjam ; Balasore.

Uses : FRUITS : *Apple* : curries, etc. : *Kernel* : Roasted, raw, curries, etc. ; *Oil* : Edible.

SHELL OIL : ("Cardole") for tanning and colouring boats, etc. waterproof and verminproof paints and varnishes ; insulating materials ; etc.

GUM : Insecticide.

SAP : Indelible marking ink.

TIMBER : Boat-building ; packing cases ; charcoal ; etc.

Vernacular names : Káju, hijli-bádám, káju-kaliyá, mundiri, kottai, jidi-mámide vittu, jiedi pundu, jidi vate, etc.

Trade : EXPORTS (Cashew Kernels) : 1936-37 : tons 12,745—Rs. 1,28,90,979 ; 1946-47 : tons 15,167—Rs. 5,56,10,389 ; 1954-55 : tons 33,444—Rs. 10,51,21,655.

IMPORTS : 1937-38 : tons 17,782 (of Cashew nuts)—Rs. 23,29,857 ; 1946-47 : tons 31,040—Rs. 1,20,63,313 ; 1954-55 : tons 83,271—Rs. 4,10,20,059.

(Tanner's) CASSIA

(Cassia auriculata)

[*Tanstuff*]

Chief Producers in the World : India ; Ceylon.

Occurrence in India : "A tall shrub found plentifully in

Central and South India as far north as Rajputana....." Madras ; Deccan ; Gujerat ; Kathiawar ; etc.

Uses : BARK : Tanning ; (used extensively by Madras tanners) ; used to modify dyes. SEEDS, LEAVES : Medicine.

Vernacular names : Tarwar, tarota, taravada, avari, avaram, ammera, verai, avirai, tangedu, thangedu, avareke, tengedu, etc.

CASSIA LIGNEA (Tejpat)
(Cinnamomum tamala)

[*Spices*]

Occurrence in India : "A moderate-sized evergreen tree of the Himalayas, rare from Indus to the Sutlej, but common then eastwards to East Bengal (East Pakistan), the Khasia Hills and Burma".—Watt.

Uses : LEAVES : As a condiment ; flavouring agent ; etc.

Vernacular names : Talispatra, tejpat, taj, dopatti, tamala, thit-kya-bo, talisha-pattri, lavanga patte, etc.

Other trade name : CASSIA CINNAMON.

CASTOR (seed)
(Ricinus communis)

[*Oilseed*]

World Production : 608,000 tons
Indian Production : 107,000 tons
Indian Acreage : 1,368,000 acres

Chief Producers in the World : BRAZIL (27%) : Sao Paulo ; Minas Geraes ; Pernambuco.

U. S. S. R. (21%) : Ukraine ; etc.

INDIA (18%) : See below.

U. S. A. : California ; Oklahoma ; Arizona ; Texas.

Br. East Africa : (Uganda, Kenya) ; Thailand ; South Africa ; Ecuador ; Indonesia ; Mexico ; Angola ; Argentina ; etc.

INDIA

Principal States :

HYDERABAD : Mahbubnagar ; Nalgonda ; Hyderabad ; Karimnagar ; etc.

ANDHRA : Anantapur ; Nellore ; Kurnool ; Guntur ; (Bellary).

MADRAS : Salem.

BOMBAY : Mehsana ; Ahmedabad ; Sabarkantha ; Surat ; Kaira ; Dharwar ; etc.

MYSORE : Chitaldrug ; Tumkur ; Mysore ; Bangalore ; etc.

BIHAR : Palamau ; Muzaffarpur ; Saran ; Monghyr ; etc.

ORISSA : Koraput ; Cuttack. ASSAM : Kamrup. RAJASTHAN.

Uses : SEEDS : Oil : lubricant (in extremely low temperature as in aeroplanes) ; illuminant ; medicine ; leather tanning ; mordant in dyeing ; in toilet as hair oil ; soap manufacture ; artificial leather, linoleum ; rubber substitute ; etc.

CAKE : Manure.

LEAVES : Food for *eri* worm.

Vernacular names : Erand, eranda, arand, eri, grundi, erendi, amanakkam, sittamunuk, amadam, amdi, eramudapu, etc.

Trade : SEED : EXPORTS : 1876-77 : cwts. 529—Rs. 2,297 ; 1901-02 : cwts. 1,323,896—Rs. 85,89,173 ; 1945-46 : tons 10,021—Rs. 26,43,224 ; 1952-53 : tons 4,311—Rs. 37,86,205, thereafter no exports.

IMPORTS : 1877-78 : cwts. 76—Rs. 550 ; 1901-02—cwts. 3—Rs. 19.

OIL : EXPORTS : 1876-77 ; gals. 1,399,000—Rs. 15,04,266 ; 1901-02 : gals. 2,020,000—Rs. 26,78,493 ; 1946-47 : cwts. 266,929 —Rs. 16,62,799 ; 1947-48 : gals. 5,640,035—Rs. 3,99,77,538 ; 1954-55 : gals. 7,158,798—Rs. 3,49,77,440.

IMFORTS : 1882-83 : gals. 125—Rs. 479 ; 1901-02 : gals. 442 —Rs. 581 ; 1946-47 : negligible.

CAKE : EXPORTS : 1912-13 : cwts. 140,179—Rs. 26,438 ; 1946-47 : nil ; 1954-55 : negligible.

CATECHU (Cutch)

(Acacia catechu)

[*Tan & Dyestuff*]

Occurrence in India : West Bengal (Cooch Behar) ; Assam ; Orissa ; Himachal Pradesh (Simla, Tehri Garhwal, Mussouri) ; Uttar Pradesh ; Punjab (Garhwal, Kangra) ; Madhya Bharat ; Bihar ; Kashmir ; etc.

Occurrence outside India : Burma.

Uses : GUM : Substitute for gum arabic (q. v.).

TIMBER : Agricultural implements ; wheelrights ; (very suitable for) sacrificial fire ; railway keys and brake blocks ; charcoal (for goldsmiths).

KATHA (EXTRACT) : In *pan* (betel) as masticatory ; dyeing ; tanning ; roof construction. Medicine.

Vernacular names : Khadir, kath, katha, khair, khoiru,kaderi, baga, sha, kati, kuti, kachu, kagh, kempu, shemi, karangalli, baga, banni, sandra.

Trade : EXPORTS : 1866-67 : Rs. 3,67,087 (for both Cutch and Gambier) ; 1867-68 : cwts. 85,317—Rs. 10,72,528 ; 1901-02 : (for cutch only) cwts. 60,162—Rs. 12,08,775 ; 1946-47 : cwts. : 1,931—Rs. 1,89,928 ; 1954-55 : cwts. 14,082—Rs. 11,20,874.

IMPORTS : 1867-68 : (Cutch and Gambier) : cwts. 24,453—Rs. 1,97,659 ; Cutch separated from "Gambier" in 1884-85 : cwts. 151—Rs. 1,039 and Gambier (1884-85) : cwts. 17,041—Rs. 2,62,420 ; 1901-02 : Cutch : cwts. 7—Rs. 137 and Gambier : cwts. 23,079—Rs. 4,04,956 ; 1946-47 : Cutch and Gambier : cwts. 13,992—Rs. 14,06,166 ; 1954-55 : cwts. 22,775—Rs. 26,50,391.

CATTLE

(Bos indicus)

[*Livestock*]

World Population :	795,000,000 heads
Indian Population :	155,099,000 heads
Pakistan Population :	24,100,000 heads

Chief Countries of the World : India (19%) ; U. S. A. (12%) ; U. S. S. R. (8%) ; Brazil (7%) ; Argentina (5%) ; Pakistan (3%) ; China ; Ethiopia ; France ; Australia ; etc.

Principal Indian States : Uttar Pradesh ; Madras ; Bihar ; Madhya Pradesh ; Bombay ; Rajasthan ; West Bengal ; Orissa.

Uses : For draft purposes ; (tillage, transport), drawing water ; turning ghanies ; gift in religious ceremonies ; "Sacred bulls". Milk ; meat (beef) ; hides and skins ; horns ; hoofs ; intestines (guts) ; manure (excreta) ; fuel (dung).

Vernacular names : Gau, brisha, boyel, gabhi, gai, dhur dhur danger (horned cattle), balad, sanr.

(White) CEDAR
(Dysoxylum binectariferum ; etc.)

[*Timber*]

Occurrence in India : West coast of India : Madras ; Coorg ; Travancore-Cochin ; etc.

Uses : Barrel making ; house construction ; furniture ; carriage and wagon bodies ; oil casks ; vats ; camp furniture ; slate frames ; ply-wood and lamin boards ; billiard table.

Vernacular names : Bili-devdari, agil, vellagi, etc.

CHAMP (Champa)
(Michelia champaca)

[*Timber*]

Occurrence in India : Assam ; Bengal (from Nepal eastwards).

Uses : Furniture ; bent-wood work ; coat hangars ; ceiling and floor boards ; scantlings ; etc.

Vernacular names : Tita sopa, champa, champaca, kud champa, shimbu, shempangam, chambagam, sampige, etc.

CHAPLASH
(Artocarpus chaplasha)

[*Timber*]

Occurrence in India : (Nepal) ; West Bengal ; Assam ; Andamans ; etc.

Occurrence outside India : Burma.

Uses : Suitable for woodwork in general, constructional work (both light and heavy) ; furniture ; ship-building ; carriage bodies ; etc.

Vernacular names : Sam, hebalsu, kanthal, dhau, bharas, pilavu, halasu

Other species : Aini (*A. hirsuta*) ; Jack (*A. integrifolia*) ; Lakooch (*A. lakoocha*).

CHAULMUGRA
(Taraktogenus kurzii and Gynocardia odorata)

[*Oilseed*]

Occurrence in India and Pakistan :

INDIA : Assam (Khasia Hills) ; Sikkim.

PAKISTAN : Sylhet ; Chittagong.

Uses : SEED : Oil : medicine.

Vernacular names : Kalawbin, kalawthee, toung pung, etc.

Trade : OIL : EXPORTS : 1954-54 : Rs 1,00,498.

(Indian) CHESTNUT

(Castanopsis hystrix)

[*Timber*]

Occurrence in and outside India : Pakistan (Chittagong). From Nepal eastwards ; Assam : Khasia Hills.

Uses : Domestic constructional wood ; shingles ; sleeper ; furniture ; etc.

Vernacular names : Katus, kingari, etc.

CHICKLING VETCH

(Lathyrus sativus)

[*Pulses*]

Indian Production : 600,000 tons
Indian Acreage : 2,900,000 acres

Principal Indian States : Uttar Pradesh ; Hyderabad ; Bihar ; Bombay ; Madhya Pradesh ; Madras ; West Bengal ; Vindhya Pradesh ; Bhopal.

Uses : Food (*da'hl*) ; flour ; cakes ; fodder (plant) ;

Vernacular names : Khesári, latri, teorá, tiurá, kisara, chural chapu, karail, mattar, triputi, etc.

Lakh and other Pulses :

Indian Production : 231,000 tons
Indian Acreage : 2,100,000 acres

CHIKRASSY

(Chukrasia tabularis)

[*Timber*]

Occurrence in India : Assam ; Bengal ; Madras ; Mysore ; etc.

Occurrence outside India : Pakistan (Chittagong).

Uses : House building ; beams, furniture ; scantlings ; plywood boards ; bobbins ; brushes ; parquets ; etc.

Vernacular names : Chikrassi, boga poma, madagari vemu, aglay, malei veppu, etc.

Other trade names : WHITE CEDAR ; CHITTAGONG WOOD.

CHILLIES (Red Pepper)

(Capsicum)

[*Spices*]

World Production : 12,000,000 cwts.
Indian Production : 7,120,000 cwts.
Indian Acreage : 1,742,000 acres

Chief Producers in the World : Grown all over the world. United States ; Japan ; East Africa ; Mexico ; India.

Principal Indian States :

WEST BENGAL : All districts ; PUNJAB ; MADHYA PRADESH (almost all districts) ; BIHAR (Patna, etc.) ; MADRAS (Malabar, South Canara, etc.) ; BOMBAY ; ORISSA ; etc.

Uses : In the preparation of curries ; chutnies, pickles and *morobbas* ; eaten raw ; medicine ; as counter-irritant.

Vernacular names : Lal mircha, mircha, lanka, mirappa kaya, milagay, mulaku, etc.

Other trade names : The GUINEA PEPPER ; POD PEPPER ; CAYENNE.

Trade : EXPORTS : 1889-90 : lbs. 7,026,000—Rs. 6,47,282 ; 1901-02 : lbs. 9,806,000—Rs. 9,58,719 ; 1946-47 : cwts. 189,702 —Rs. 1,29,63,605 ; 1954-55 ; cwts. 89,464—Rs. 98,57,337.

IMPORTS : 1891-92 : lbs. 44,500—Rs. 3,406 ; 1901-02 : lbs. 6,000—Rs. 568 ; 1946-47 : cwts. 671—Rs. 33,643 ; 1953-54 : negligible.

CHINA CLAY

(Kaolin)

[*Mineral*]

World Production : 3,500,000 tons
Indian Production : 146,144 tons

Chief Producers in the World :

U. S. A. (46%) : North Carolina ; Wyoming ; South Dakota ; Pennsylvania ; Ohio ; Kentucky ; Missouri ; Indiana ; Illinois ; Maryland ; New Jersey ; California ; Virginia ; Connecticut ; etc.

U. K. (23%) : Cornwall ; Devonshire ; etc.

GERMANY (7%) : Saxony ; Dresden ; Halle ; Chemnitz ; Bavaria : Arnberg ; Thuringia ; etc. AUSTRIA (5%) : FRANCE : Brittany ; Allier and Drome. CHINA : Kiangsi (Anhwei ; Chimen). Japan ; Czechoslovakia (Zettlitz, Pilsen). U.S.S.R. ; Italy ; etc.

Principal Indian States :

(Figures within brackets indicate production)

BIHAR (50,841 tons) : *Bhagalpur* : Patharghatta Hills ; Samukhia ; *Santhal Parganas* : Rajmahal Hills, Mangal Hat ; *Gaya* : Kowakola ; *Monghyr* : Nawadih, Pirpahar ; *Ranchi* : Serendag Plateau, Bargu Plateau ; *Singhbhum* : Hat-gamaria, Kashmandu, Karanjia. Katahpara, Kharhidungri, Dharadih, Madkumhatu, Mahuldiha, Majri, etc. ; *Seraikela* ; etc.

MADHYA PRADESH : (25,706 tons) : *Jabalpur* : Chhota Simla Hills, Satpal, Chanda ; *Durg* : Hitapahar, Bhandari-tola, Jungera-kalan.

DELHI : (21,878 tons) : Kusumpur.

SAURASHTRA : (11,000 tons) : Kathiawad ; Zalwad, etc.

MYSORE : (10,493 tons) : *Bangalore* : Hassan ; Tumkur.

MADRAS : (8,712 tons) : Chingleput ; Malabar ; Tanjore.

TRAVANCORE-COCHIN : (5,463 tons) : Quilon ; Kundara.

ORISSA : (4,958 tons) : Cuttack ; Koraput ; Ganjam ; Sambalpur ; Mayurbhanj.

ANDHRA (3,246 tons) : Godavari ; Rajahmundry.

BOMBAY (2,104 tons) : Belgaum ; Ratnagiri ; North Kanara.

VINDHYA PRADESH (1,366 tons) : Sohawal ; Gwalior (Madhya Bharat).

HYDERABAD (397 tons) : Nalgunda : Chintrala ; Bidar : Kamthana.

RAJASTHAN : Bundi ; Jaipur ; etc.

WEST BENGAL : Bankura (Makkiari).

KASHMIR : Jammu : Chakar, Sangarwarg ;

Uses :

Porcelain and earthenware ; paper and textile (finishing) ; filler in paint, rubber, linoleum, oil-cloth, gramophone records, etc. ; refractories ; manufacture of dyes such as lakes and ultramarine ; pigments ; in colour-washing ; soap, slate pencil, shoe polish, rollers for duplicators ; medicine ; etc.

Other Trade names :
ARGILLA ; PORCELAIN CLAY ; WHITE BOLE.

CHIR

(Pinus longifolia ; etc.)

[*Timber*]

Occurrence in India : Uttar Pradesh ; Punjab ; (NEPAL) etc.

Uses : Shingles, packing cases, (light) furniture ; patterns (for foundries) ; drawing board ; cores of lamin boards ; pens and pencils (*Pinus excelsa*).

Vernacular names : Chil, kail, partal, nishtar, etc.

CHROMITE (Chromium)

(Chrome iron ore)

[*Mineral*]

World Production :	3,480,000 tons
Indian Production :	64,770 tons
Pakistan Production :	23,439 tons

Chief Producers in the world :

UNION OF SOUTH AFRICA (20%) : Rustenberg and Lydenburg (Transvaal).

TURKEY (18%) : North-west : in the vicinity of Bursa, Kutahya, *Eskisehir*, *Ishaklar* ; West and South-west : around Aydin, *Denizli*, Burdur, Mugla, Marmaris, *Fethiye* and Antalya ; on the South coast : near Mersin ; East : around Erganimoden.

U.S.S.R. (17%) : *Urals* : (Sverdlovsk region) : Sarany, Kluchevskaya, Khabarnyi, Gora Verblyuzhaya ; *Turkestan* : Kazakhstan ; Kempirsai ; *Bashkir Republic* : Bashart ; *Transbaikal* Province ; *Kharkov* Province ; Lyuboten.

PHILIPPINES (16%) : *Luzon* : vicinity of Masinloc, in the *Zambales* Province, Camarines Sur, Santa Cruz (west coast of Luzon), Logony (Lingayen) ; *Camarines Norte* : Mambulao ; Diregat (Mindanao) ; etc.

SOUTH RHODESIA (10·2%) : Setukwe, Victoria, Lomagundi, Hartley (Gwelo District) ; Kildonan (Salisbury District).

YUGOSLAVIA (3·5%) : Drina and Vardar (south-east slope of Sar Planina) Provinces ; Morava ; Ostrovica (in the mountains of Ozren between Maglaj and Sprece) ; etc. ; Kukes (Albania).

NEW CALEDONIA (3·5%) : Tiebaghi Dome (on the North) near Paagoumene.

CUBA : Camaguey (Alta Gracia) ; Canasai (Matanzas) ; Oriente Province (Caledonia, Cayaguan and Potosi) ; etc.

JAPAN : *Hokkaido* : Kangsa, Nitto ; *Honshu* : Wakamatsu, Hino ; etc.

INDIA

Reserves :

MYSORE : 135,000 tons ; BOMBAY : 67,000 tons ; ORISSA : 200,000 tons ; MADRAS : 200,000 tons.

Chief Produciug Centres :

(Figures within brackets indicate production)

MYSORE : Hassan (20,271 tons) ; Mysore (9,508 tons).

ORISSA : Keonjhar (11,353 tons) ; Cuttack (2,662 tons).

BIHAR : Singhbhum (1,644 tons).

HYDERABAD : Khammameth (69 tons).

ANDHRA ; Krishna.

Occurrence in India :

MYSORE : Mysore ; Hassan ; Kadur ; Chitaldrug ; *Mysore District* : between Mysore and Nanjangud at Shinduvalli, Talur, Uradabur, Gunur and Woddarpalayam. *Hassan District* : Bhaktarpalli and Bairapur Hullenhalli.

BIHAR : *Singhbhum* (near Suru) ; Dohahatu : Kimsi Buru, Kitta Buru, Chittung Buru—Roro Buru ; *Seraikela* : Janoa Ranjrakocha : *Ranchi* : Hotag Hill ; *Bhagalpur* : Baidi chauk, five miles from Mandar Hill.

BOMBAY : *Ratnagiri* : Kankauli ; *Savantwadi* : Bhagda ; (Deccan trap) ; Idar.

MADRAS : *Salem* : Chalk Hills ; Kumarapalayam (Chetticha-vade jagir).

ANDHRA : *Tiruchirapalli* : Yedichicolum.

ANDAMAN ISLANDS : *Port Blair* : Chakargaon.

KASHMIR : *Ladakh* : Dras, Bembat, Tashgam.

PAKISTAN

BALCUHISTAN : Hindubagh (Zhob valley ; one of the largest deposits in the world) ; Khanozai (Pisin valley).

Trade : EXPORTS : 1904-05 (Chrome iron ore) : cwts. 55,826 Rs. 1,15,888 ; 1946-47 : tons 21,901—Rs 13,17,399 ; 1954-55 : tons 17,650—Rs 17,41,142.

CINCHONA

[*Drug*]

Indian Production : 80,000 lbs.

Chief Producers in the World : Java (almost a monopoly) ; Ceylon ; Jamaica ; India.

Principal Indian States :

WEST BENGAL : Darjeeling : Munsung, Mungpoo.

MADRAS : Coimbatore : (Anamalai) ; Nilgiris : Nadubattam, Dodabetta.

TRAVANCORE ; MYSORE ; COORG.

Uses : Medicine ; insecticide.

Other trade names : PERUVIAN BARK ; JESUIT'S BARK.

Trade : EXPORTS : 1875-76 : lbs. 26,992—Rs. 25,709 ; 1901-02 : lbs. 1,917,259—Rs. 4,63,390 ; 1946-47 : nil.

IMPORTS : *Quinine* : 1875-76 : lbs. 3,925—Rs. 1,91,619 ; 1901-02 : lbs. 43,298—Rs. 6,00,393 ; 1946-47 : lbs. 60,230—Rs. 24,84,815 ; 1954-55 : lbs. 9,340—Rs. 2,15,398.

CINNAMON

(Cinnamomum zeylanicum)

[*Spices*]

World Production : 1,000,000 cwts.

Chief Producers in the World : Ceylon is the only important producer ; Seychelles ; etc.

Principal Indian States : Western Ghats.

Uses : BARK : Flavouring agent ; spices and condiments ; germicide ; fungicide. Medicine. "The root yields camphor." BARK and LEAF : Oil : Flavouring agent ; germicide ; fungicide. Medicine. TIMBER : Furniture ; etc.

Vernacular names : Daruchini, dalchini, taj, karruwa, lavangapattai ; sanalinga ; etc.

Trade : EXPORTS : 1872-73 : cwts. 159—Rs. 3,348 ; 1901-02 : lbs. 22,900—Rs. 10,240 ; 1946-47 : cwts. 343—Rs. 55,019 ; 1951-52 : cwt. 1—Rs. 110 ; with no further export.

IMPORTS : 1875-56 : lbs. 728—Rs. 388 : 1901-02 : lbs. 4,700 —Rs. 806 ; 1946-47 : cwts. 467—Rs. 54,196. 1951-52 ; cwts. 92 —Rs. 9,577.

OIL : EXPORTS : 1920-21 : gals. 1,692—Rs. 49,950 ; from 1930-31 : extremely erratic and negligible.

CITRONELLA (Oil)

(Cymbopogon nardus)

[*Essential Oil*]

Chief Producers in the World : Java ; Sumatra ; Malaccas ; India ; Malaya ; Burma ; Fiji ; Tanganyika ; etc.

Principal Indian States : Travancore-Cochin ; Madras (Malabar) ; Uttar Pradesh ; East Punjab ; etc.

Uses : "The pale yellow oil is inexpensive and is much used for cheap soaps and perfumes and as an insect repellent. Important as a substitute for otto of roses." A source of geraniol and citronella. Medicine.

Vernacular names : Ganjini, ganjini-ka-ghas, kama-kher usadhan, kamakshi-kasuvan, kamachi-pullu, mandap-pullu, kamanchi-gaddi, khavai, etc.

Trade : There is a small export for which accounts are not available.

CLOVES

(Eugenia caryophyllata) [*Spices*]

World Production : 485,000 cwts.

Chief Producers in the World : Zanzibar ; Madagascar ; Mauritius ; Cameroon (W. Africa) ; Malaya ; Penang ; Sumatra ; Java.

Principal Indian States : Travancore-Cochin ; (Madras).

Uses : CALYX (dry) : Culinary spice ; flavouring agent ; cigarettes (Indonesia). Medicine.

OIL : Medicine ; counter-irritant ; in perfumery, soap ; in histological work ; (artificial) vanilla.

Vernacular names: Lavanga, lang, karanfal, kiramber, ila-vangap-pu, karuvap-pui crambu, lavangalu, etc.

Trade : EXPORTS : 1876-77 : lbs. 843—Rs. 533 ; 1901-02 : lbs. 3,329—Rs. 783 ; 1946-47 : cwts. 1,167—Rs. 87,932 ; 1951-52 : cwts. 729—Rs. 41,268.

Systematically imported from 1876-77. In 1946-47 : cwts. 144,126—Rs. 91,09,569 ; 1954-55 : cwts. 51,792—Rs. 1,56,65,127.

COAL

(Anthracite, Bituminous, Lignite)

[*Mineral*]

World Production : 1,915,000,000 tons
Indian Production : 36,881,000 tons
Pakistan Production : 583,727 tons

Chief Producers in the World :

U.S.A. (23%) : Pennsylvania ; *Appalachian* or The Alleghany : (Pennsylvania, Ohio, West Virginia, Maryland, Virginia, Kentucky, Tennessee, Alabama, Georgia). *Northern Field* or Northern Interior Basin (South Michigan) ; *Western* or Western Interior *Field* (From Iowa to middle of Texas, almost upto the border of Mexico ; covers Missouri, Kansas, Arkansas and Indiana Territory); *Rocky Mountains and Basin Field* : (California, Arizona, Colorado, Montana, Utah, Wyoming, Washington, etc.).

U. S. S. R. (16%) : *Ukraine and N. Caucasus* : Donetz Basin ; *Central Russia* : Moscow or Tula Busin ; *West of Urals* : Pechora Basin ; Plains of *Western Siberia* : Kuzmetsk Basin ; Tungusk Basin (West of Central Siberia) ; Lensk Basin (in the East) ; Minusinsk, Irkutsk and Kansk (in the South).

U. K. (12%) : Yorkshire, Nottinghamshire, Derbyshire ; Lancashire, Chesire ; Cumberland ; Nurthemberland and Durban, South Wales, Bristol, Somerset, Gloucestershire, Forest of Dean, Warwickshire, North and South Staffordshire, Shropshire, Worcestershire, (N. WALES) Flintshire and Denbigshire, etc. SCOTLAND : Midlothian, West Lothian, Fife, Linlithgow, Clackmannan, Lanark and Ayr.

W. GERMANY (10·9 %) : Rhineland and Westphalia : Cologne, Aachen ; Ruhr ; SAXONY : Lugan ; Chemnitz (Zwickau) ; Leipzig.

E. GERMANY (9 %) : Frankfurt.

POLAND (4·6 %) : Pologne ; Upper Silesian Coalfields ; Dombrovo (S.-W. Poland) ; etc.

JAPAN (2·3 %) : Kiusu (Nagasaki) ; Isikari (Yezo) ; Honsu (Fukusima) ; Hokkaido (Hakodate) ; etc.

CHINA : (Situated mostly in the eastern region of China) ; Posan field in Kaiping and Shantung, north of Hopei ; Fangshen-Hsien ; East and West Shansi, Shensi ; South-East Honan ; North and mid-Szechwan fields ; Yunnan ; etc.

INDIA : See below.

BELGIUM : (Extension of the Valenciennes Field of France upto Aachen with a width of five to seven miles) ; Mons and Charleroi in Hainault ; Campine (from Limburg to Antwerp).

UNION OF SOUTH AFRICA : *Transvaal* (Witbank Mine, Middleburg) ; *Natal* (New Castle, Dundee) ; Zululand ; Orange Free State ; Cape Province ; Basutoland ; etc.

FRANCE : Valenciennes ; Pas de Calais ; Bourbonnais in the Northern Provinces ; Loire, Burgundy, Nivernais, Gard, Blanzy, Tarn, etc.

AUSTRALIA : New South Wales ; Queensland (Ipswich) ; Victoria : Gippsland region.

CANADA : Nova Scotia ; Alberta ; Saskatchewan ; British Columbia ; New Brunswick ; Vancouver Island ; Queen Charlotte Islands.

MANCHURIA : Lingkiang.

SPAIN : Asturias : Oviedo ; Penarraya.

HUNGARY : Bakony Forest Area ; Pecs.

NEW ZEALAND ; CZECHOSLOVAKIA ; NETHERLAND ; ETC.

INDIA

Principal Indian States : Total Production : 36,881,000 tons. **Bihar** (48·0%) ; **West Bengal** (33·0%) ; **Madhya Pradesh** (9·8%) ; **Hyderabad** (4·0%) ; **Vindhya Pradesh** (2·5%) ; **Orissa** ; **Assam** ; **Rajasthan** ; **Kashmir** ; etc.

Chief Producing Centres :

(Figures in brackets indicate production in thousand tons)

Gondwana (35,462 or 98·56 % of total).

BIHAR : Jharia (13,258) ; Bokaro (2,377) ; Giridih or Karharbari (264), Karanpura (1,007); Palamau, Daltonganj, Auranga, Hutar (125) ; Ramgarh (446) ; Rampur (255).

WEST BENGAL : Raniganj (12,235) ; Darjeeling (29).

MADHYA PRADESH : Pench Valley (2,003) ; Korea (1,365) ; Ballarpur (204) ; Yeotmal (40) ; Raigarh ; etc.

HYDERABAD : Kothgodam, Sasti, Singareni, Tandur (1,501).

VINDHYA PRADESH : (951).

ORISSA : Talcher (272) ; Hingir (Gangpur).

Tertiary Fields : (525 or 1·44 % of total).

ASSAM : Khasia and Jaintia hills (107) ; Lakhimpur (340) ; Naga hills (19), Sibsagar (20), Mikir hills (9).

KASHMIR ; RAJASTHAN ; BIKANER (30).

COAL RESERVES OF INDIA

	million tons
Darjeeling and East Himalayan Region ...	150
Giridih, Deoghar, Rajmahal hills ...	350
Raniganj, Jharia, Bokaro, Karanpura ...	25,000
Sone Valley—from Auranga to Umaria and Sohagpur	10,000
Chhatisgarh and Mahanadi (Talcher) ...	5,000
Satpura region—from Mopani to Konhan and Pench Valley	1,500
Wardha-Godavari—from Wardha to Beddadanur (Beddadadanol)	18,000
	60,000

According to recent estimates (July, 1949) the known **reserve** of all grades of Indian coals is put at 67,402 million tons divided as follows :

Lignite and sub-bituminous : (Proven)	508	mill. tons
Bituminous and semi-bituminous : (Proven)	4,531	" "
(Probable)	62,636	" "
Semi-anthracite and Anthracite : (Proven)	27	" "

COAL RESERVES OF PAKISTAN

	000-tons
BALUCHISTAN :	
Khost-sharig	39,900
Sor-Range	17,990
Shirin ab Dighari	3,990
Mach	15,050
	76,930
WEST PUNJAB :	
Makarwal	6,270
(Trans Indus) Gullakhel	12,600
Dhak-Dandet	5,250
(Salt-Range) Pidh-Dando	10,500
Rakh Drengan and Rakh Dewan	13,800
Rakh Makiala	18,500
N. & W. of Ara	7,500
Dhak-katha	5,250
Dalwal	3,450
Chittidand	3,000
Nurpur	3,700
	89,820

EAST PAKISTAN :

(Lignite) Deposits in Mymensingh and Sylhet.

Natural Gas : Sui (Baluchistan) : 5 million cubic feet.

COAL AREAS OF INDIA

Gondwana

BIHAR & WEST BENGAL : Raniganj Fields : Barakar (66 sq. m.) and Raniganj (307 sq. m.).

BIHAR : Jharia (175 sq. m.) ; Rajmahal Fields (170 sq. m.) ; Deoghar Fields ; Giridih (11·5 sq. m.) and Karharbari Field (7 sq. m.) ; Bokaro and Ramgarh Fields (40 sq. m.) ; Karanpura Fields (550 sq. m.) ; Palamau Fields—Auranga (97 sq. m.), Hutar (57 sq. m.), Daltonganj (32 sq. m.).

ORISSA : Talcher (200 sq. m.) ; Rampur or Ib River Field ; Hingir in Gangpur (40 sq. m.).

CENTRAL INDIA : (Vindhya Pradesh) : *South Rewa* : Singrauli Field (900 sq. m.) ; Korar (9·5 sq. m.) ; Umaria (6 sq. m.) ; Johilla River Fields (15 sq. m.) ; Sohagpur (1,200 sq. m.). *Chhatisgarh Region* : Ramkola-Totapani (100 sq. m.), Jhilmili Field (40 sq. m.), Sanpat Field (40 sq. m.), Jhagrakhand Field of Korea State (22 sq. m.), Kurasia Field (48 sq. m.), Disrampur Field (400 sq. m.), Lakhanpur (135 sq. m.) and Sendurgar (20 sq. m.) and Fields of S.-W. Sirguja and N.-E. Bilaspur ; Hasdo-Arand or Rampur (Sirguja) Field (400 sq. m.) ; Korba and Mand River Field in Bilaspur (200 sq. m.) ; Raigarh Field (200 sq. m.) ; *Satpura Basin* : Mohpani, Shahpur or Betul Fields (26 sq. m.). Kanhan Valley Fields ; Chhindwara : Pench Valley (7·5 sq. m.). *Wardha Valley* : Bandar Field, Warora Field, Rajur or Wun Field in Yeotmal District, Ghugus, Telwasa Field, Chanda Field Ballarpur Field.

HYDERABAD and MADRAS : *Pranhita Godavari Area* : Sasti-Rajaura, Tandur (7 sq. m.), Singareni (19 sq. m.) ; *Other Areas* : Madhavaram or Damerchela (24 sq. m.), Kunnigiri, Kamaram, Sasti, Aksapur, Antargaon, Kothgodam, etc.

MADRAS : Malabar, Chingleput.

ANDHRA : Nellore, Cuddapah, Krishna, Beddadadanol.

Tertiary Fields

ASSAM : *Upper :* Namphuk-Namchik area ; Makum, Jaipur, Nazira fields ; *Mikir Hills :* Khasia and Jaintia Hills ; Garo Hills.

RAJASATHN : Bikaner ; Palana.

KASHMIR ; PUNJAB.

Utilization of Coal in India :

	000-tons	Per cent.
Railways	11,419	31·0
Iron, Steel and Brass Foundries, etc.	4,510	12·2
Steam, Electric, Gas concerns	2,837	7·6
Textiles : Cotton, Wool, Silk, etc.	1,887	5·1
Bricks, Tiles, Ceramics	1,785	4·9
Jute, Paper, Rubber, etc.	1,063	2·9
Bunker and Steamer Services	608	1·7

		000-tons	Per cent.
Ordnance Factories	125		
Oil mills	278		
Chemicals	245		
Sugar	144	1,302	3·6
Grinding	185		
Food Products	128		
Glass Factories	197		
Miscellaneous Industries		1,005	2·7
Export		1,969	5·3
Balance available for consumption for colliery, domestic and other purposes		8,496	23·0

Uses : FUEL : Coke ; crude oil power.

TAR : Black 'paint' road preparations (pitch) ; dyes ; pharmaceutical chemicals ; flavours and perfumes ; motor spirit ; explosives ; cleansing solvents ; saccharine ; insecticides, disinfectants ; phenyle, naphthalene, carbolic acid, iysol, timber preservative ; creosote oil ; photographic chemicals ; diesel oil ; lubricating oil ; refrigeration (ammonia gas) ; fertilisers ; smelling salts ; baking powder ; etc.

Vernacular names : Koylá. koelá, keolo, kolsa, kári, baggu, iddállin, misu-e, migu-yē, simai-kárri, sima-baggu ; mrtdangar, angar, etc.

Trade : EXPORTS : 1866-67 : valued at Rs. 17,865 ; 1867-68 : cwts. 11,372—Rs. 12,073 ; 1901-02 : tons 524,687—Rs. 56,39,080 ; 1946-47 : tons 543,550—Rs. 98,81,695 ; 1954-55 (by sea) : tons 11,85,335—Rs. 3,71,72,635 ; (by land) : tons 772,581—Rs. 2,20,56,194. IMPORTS : 1832-33 : mds. 64,642—Rs. 29,422 ; 1851-52 : Rs. 6,19,580 ; 1901-02 : (Coal and Coke) tons 230,017—Rs. 45,08,940 ; 1921-22 : tons 1,501,187—Rs. 5,85,04,742 ; 1954-55 : tons 1,001—Rs. 2,70,000.

COBALT

World Production : 220,000 cwts. [*Mineral*]

Chief Producers in the World :

BELGIAN CONGO (75%) : Katanga ; etc. NORTH RHODESIA (8%) : Nkana ; etc. FRENCH MOROCCO (5%) : Rabat (Bou Azzer).

U. S. A. (5%) : Pennsylvania (Cornwall) ; Idaho (Kellog) ; Vermont. CANADA (6%) : Ontario.

Occurrence in India : Rajasthan ; (Orissa ; Madhya Pradesh ; Madras). *Occurrence around India* : NEPAL ; BURMA.

Uses : In the manufacture of special steels ; (*Stellite* : Cobalt, Chromium, Tungsten, Molybdenum and Iron) : for cutting tools, jet engine parts ; surgical instruments. Cobalt Tungsten carbides ; in electroplating and their thermo-couples ; in ceramics : glass, earthen-ware and enamel industries as pigment (oxide and other compounds) ; in atomic weapons ; lamp filaments ; inks ; paints and varnishes ; coloured signs ; etc.

COCHINEAL

(Coccus cacti)

[*Dyestuff*]

Chief Producers in the World : America ; Mexico ; Peru · Canary Islands ; Java ; Spain ; West Indies ; etc.

Principal Indian States : South India : Tirunelveli, Madurai, Tanjore, South Arcot ; etc.

Uses : Red dye for wool, silk, cotton ; colouring material for drugs and confectionery ; artists' pigment ; etc.

Vernacular names : Kirmdana, kirmaz, kiranda, kirm, etc.

Trade : IMPORTS : 1890-91 : cwts. 2,293—Rs. 1,89,476 ; 1946-47 : cwts. 4,883—Rs. 8,49,901 ; 1954-55 : cwts. 54—Rs. 55,955.

COCONUT (Copra, Coir)

(Cocos nucifera)

[*Oilseed & Coir*]

World acreage : 8,000,000 acres
World Production : 13,500,000,000 nos.
Indian Acreage : 1,548,000 acres
Indian Production : 3,500,000,000 nos.
World Production (COPRA) : 2,692,000 tons
Indian Production (COPRA) : 210,000 tons

Chief Producers in the World :

PHILIPPINES ; Indonesia ; Ceylon ; INDIA : Malaya ; New Guinea and Papua ; Mexico ; Mozambique ; etc.

Principal Indian States :

MADRAS : Malabar ; South Kanara ; Tanjore ; Coimbatore ; North Arcot ; etc. ANDHRA : East Godavari ; Visakhapatnam ; West Godavari ; etc. TRAVANCORE-COCHIN : Quilon ; Trivandrum ; Kottayam ; Trichur. MYSORE : Tumkur ; Hassan ; Mysore ; Chikmagalur ; Chitaldrug ; etc. BOMBAY : Ratnagiri ; Kanara ; Kolaba ; etc. ORISSA : Puri ; Cuttack ; etc. WEST BENGAL : 24-Parganas ; Midnapore ; Howrah ; etc. Andaman and Nicobar ; etc. ASSAM : Kamrup ; etc.

Pakistan : EAST BENGAL : Bakarganj ; Noakhali, etc.

Uses :

KERNEL : Food (sweet-meat) ; curry ; etc.

CAKE (*Poonac*) : Cattle food ; 'milk' ; manure ; etc.

COPRA : Oil : Cooking, toilet ; "vegetable butter" ; candle ; (marine) soap ; etc.

COIR : Twine ; rope ; matting ; mattresses ; door tread ; stuffing material ; cushions ; etc.

SHELL : Charcoal for gas masks ; buttons ; smoking bowls ; toys ; covers ; etc.

GREEN COCONUT : (Milk of coconut) drink ; (interior pulp) food and curry ; etc. JUICE (TREE) : Toddy and jaggery (gur). LEAVES : Thatching material ; broomstick ; fuel ; etc. FLOWER, ROOT : Medicine.

Vernacular names : Náriyal, nárel, nárikel, maar, náril, narela, mad, máda, tenna, tenga, tennan-chedi, nari kadam, kobbari, taynga, ten kaya, gujju-narekadam, thenpinna, etc.

Trade :

Coir and Coir manufactures :

EXPORTS : 1862-63 : (Coir and manufactures) ; cwts. 108,713 —Rs. 11,40,180 ; 1875-76 : (Coir) : cwts. 15,623—Rs. 1,31,293 ; 1901-02 : cwts. 24,176—Rs. 2,18,657 ; 1946-47 : tons 621—Rs. 3,34, 334 ; 1954-55 : tons 536—Rs. 4,25,444.

Manufactures : 1875-76 : cwts. 95,487—Rs. 8,78,108 ; 1901-02 : cwts. 438,080—Rs. 40,17,414 ; 1946-47 : cwts. 1,060,638—Rs. 5,78,25,839 ; 1954-55 : cwts. 1,491,519—Rs. 8,24,30,557.

IMPORTS : 1946-47 : Coir : tons 409—Rs. 2,00,079 ; 1954-55 : tons 13—Rs. 2,650. Manufactures : 1946-47 : tons 409—Rs. 23,555 ; 1954-55 : tons 179—Rs. 45,840.

Copra : EXPORTS : 1880-81 : cwts. 51,153—Rs. 4,57,301 ; 1901-02 : cwts. 40,966—Rs. 4,99,525 ; 1946-47 : nil.

IMPORTS : 1880-81 : cwts. 51,236—Rs. 4,35,897 ; 1901-02 : cwts. 10,417—Rs. 1,26,661 ; 1945-46 : tons 35,305—Rs. 1,42,36,669 ; 1946-47 : tons 4,466—Rs. 23,91,818 ; 1954-55 : Edible Copra : tons 18,480—Rs. 2,14,02,043 and Milling Copra : tons 47,149—Rs. 4,90,46,407.

Coconuts : EXPORTS : 1866-67 : Rs. 400 ; from 1870-71 to 1879-80 : nil (except 1875-76 : Rs. 6,321) ; 1901-02 : Rs. 12,136 ; 1946-47 : nil ; 1954-55 : Rs. 1,895.

IMPORTS : 1866-67 : Rs. 8,01,379 ; 1901-02 : Rs. 5,81,606 ; 1946-47 : Rs. 12,21,596 ; 1954-55 : Rs. 2,21,384 and from Eastern Pakistan : Rs. 2,537.

Oil : EXPORTS : 1878-79 : gals. 726,000—Rs. 10,07,492 ; 1901-02 : gals. 852,000—Rs. 12,89,288 ; 1946-47 : gals. 110,363 —Rs. 5,19,364 ; 1954-55 : negligible.

IMPORTS : 1882-83 : gals. 534,000—Rs. 7,17,167 ; 1901-02 : gals. 1,716,525—Rs. 20,20,156 ; 1946-47 : gals. 4,029,616—Rs. 1,34,34,738 ; 1954-55 : gals. 5,888,621—Rs. 3,58,31,029.

Cake : EXPORTS : 1912-13 : cwts. 128,074—Rs. 41,463 ; 1946-47 : nil.

COFFEE

(Coffea arabica)

[*Beverage*]

World Production : 44,590,000 cwts.
Indian Production : 471,000 cwts.
Indian Acreage : 230,000 acres

Chief Producers in the World :

BRAZIL (49%) : Sao Paulo ; Rio de Janeiro ; Espirito Santo ; etc. COLOMBIA (17%) : Tolima : Antioquia (Medellin) ; Caldas (Manizales) ; etc. MEXICO (3·0%) : E. Mexico : Veracruz. EL SALVADOR (2%).

Guatemala ; Venezuela ; Angola ; Ethiopia ; Uganda ; Haiti ; Belgian Congo ; Dominican Republic ; Cuba ; Ecuador ; Costa Rica : Indonesia ; Tanganyika ; Kenya ; etc.

INDIA

MYSORE : Chikmagalur ; Hassan.

COORG : Slopes of the Western Ghats ; etc.

MADRAS : Nilgiris ; Malabar ; Madurai ; Salem ; Coimbatore ; Tirunelveli.

TRAVANCORE-COCHIN : Kottayam ; Trichur.

Uses : Beverage.

Vernacular names : Kawa, bun, kapi, kava, kapi-kattai, kapi-vittulu, kappi kura, kapi-bija, etc.

Trade : EXPORTS : 1807 : cwts. 2,721 ; 1849-50 : Rs. 7,31,000 ; 1901-02 : cwts. 255,042—Rs. 1,05,02,200 ; 1946-47 : cwts. 93,650—Rs. 93,35,227 ; 1954-55 : cwts. 188,063—Rs. 7,21,72,184, the highest ever recorded.

CONCH OR CHANK

(See "Shells")

COPPER (Ore)

(Cuprum)

[*Mineral*]

Metal Content

World Production : 2,750,000 tons

Indian Production : 7,161 tons

Chief Producers in the World :

U. S. A. (30%) : *Arizona* : Marcenci ; Globe-Miami ; Ajo ; Superior ; Ray ; Jerome ; Bisbee ; Bagdad ; Cochise ; *Utah* : Bingham ; *Montana* : Butte ; *Nevada* : Robinson ; Ely ; *New Mexico* : Central : Santa Rita ; Lordsburgh ; Burro Mountain ; *Michigan* : Lake Superior ; *Washington* : Chelan Lake ; *Missouri* : S.-E. Missouri ; *Colorado* : San Juan Mountains ; *Idaho* : Coeur d' Alene ; *Nevada* : Cope ; *California* : Ione ; Copperopolis ; Klamath River ; Flat Creek ; *Pennsylvania* : Lebanon ; Cornwall Mine ; *Tennessee* : Ducktown ; Vermont : Orange County ; *Alaska* : Kennecott.

NORTH RHODESIA (13%) : *The Copper Belt* : Roan Antelope, Rokana, Nkana, Nchanga ; Mufulira (around Ndola) ; Chambisi and Kitwe.

CHILE (13%) : *Antofagasta* : Chuquicamata ; *Atacama* : Petrerillos ; *O'Higgins* : El Teniente ; *Rancagua* : Braden Copper District.

U. S. S. R. (12%) : *Kazakh* : Mednogorsk, Leninogorsk, Dzhezkazgan ; Boschekul ; *Lake Balkash Region* : Kounrud ; Krasnoyarsk (*Central Siberia*) : Norlisk.

CANADA (7%) : *Ontario* : Sudbury ; *Quebec* : Rouyn District (Noranda) ; *British Columbia* : Britannia, Princeton ; *Yukon area* : *Manitoba* : Flin Flon, Sheridon ; *Saskatchewan* : On the shores of Arctic Ocean, near Coronation Gulf (mine of native Sulphur).

BELGIAN CONGO (6%) : Katanga.

MEXICO : Cananea, Elnora, Urlique,

PERU : Cerro de Pasco, Puno, Yauli, Quiruvilca, etc.

JAPAN : *Honsu* : Ashio, Hitachi, Kosaka ; *Shikoku* : Ikuno : Kyushu : Saganoseki ; etc.

BOLIVIA : Oruro, Potuso District.

SOUTH AFRICA : (South West Africa) Namaqualand : O'okiep ; Sumeb ; etc. Transvaal : Messina.

SOUTH RHODESIA : Umvuma : Falcon Mine.

SPAIN : Rio Tinto or Huelva District.

YUGOSLAVIA : Bor.

GERMANY : Mansfeld : Kupferschiefer.

PAKISTAN : Baluchistan : Chagai District.

INDIA

Copper Ore : **Reserve** : 3,448,800 tons

Copper Ore : *Production* : 342,750 tons

(Figures in brackets indicate production)

BIHAR : *Singhbhum* : Mosabani (255,029 tons) ; Badia (87,353 tons) ; Dhobani ; Rakha.

RAJASTHAN : (347 tons).

MADHYA PRADESH : Jabalpur (20 tons).

Uses : Electrical industries : motors, dynamos, electric locomotives ; switch-boards ; lightning fixers ; telephone, telegraph cables ; light and power lines ; conductors ; wire cloth ; rods ;

wireless transmitters ; radiators ; radio-receiving sets ; refrigerators, air-conditioning ; in breweries, distilleries, chemical plants ; ingredient of alloys : brass (copper and zinc : *muntz metal*) : propellers, propeller blades ; domestic engineering, electrical fittings, etc. ; bronze (copper and tin : *gun metal*) : castings ; steam and water fittings : tubes, valves, parts subject to corrosion ; *bell-metal* ; utensils, etc. ; *speculum metal* : mirrors, reflectors, etc. ; wrought bronze : coinage ; copper nickel alloys : condenser tubes, steam turbine blades, electric resistant elements ; aluminium-copper alloys : (for severe operating conditions) motor cars, compression ignition and aeroplane engines ; aluminium bronze : cheap jewellery ; copper, nickel, zinc : *"German silver"* ; as base of electroplated goods ; clocks and watches : condenser tubes ; seamless tubes ; flash light tubes ; utensils ; in electrotype work ; etching ; linotype matrices ; blasting caps ; water meters ; thermostats ; soldering caps ; spark plugs ; flash-light tubes ; electro types and half-tone plates ; pigments and paints ; in decorative and protective coatings ; inks for glass and metal surfaces ; mordant in dyeing ; insecticide ; in sizing leather ; in coloured lights, fireworks, pyrotechnics ; water-proofing compositions ; in dry batteries ; electrolite in making master records of phonographs ; reagent in making hair dyes, perfumes ; preservative of wood ; etc., etc.

Vernacular names : Támra, táma, tánbah, támbra, nohás, shenbá, rági, mis, kaiyeni.

Trade : EXPORTS : (1954-55) : ORE : cwts. 2,000—Rs. 1,69,830 ; COPPER : cwts. 4,800—Rs. 4,67,760.

IMPORTS : 1813-14 : (into Bengal) : Rs. 10,48,884 ; 1848-49 : Rs. 45,76,150 ; 1875-76 : cwts. 236,016—Rs. 1,02,75,000 ; 1901-02 : cwts. 193,822—Rs. 1,08,44,455 ; 1946-47 : cwts. 710,319—Rs. 4,33,30,347 ; 1954-55 : Copper : *Unwrought* : cwts. 394,757—Rs. 6,41,65,091 ; *Wrought* : cwts. 105,084—Rs. 1,75,73,075 ; *Total* : cwts. 5,39,551—Rs. 8,74,77,154.

CORALS

Occurrence in the World : (Indo-Pacific region) ; Mediterranean ; Japan ; Malay Archipelago ; Southern Indian Coast ; Andamans ; Ceylon ; Laccadive and Maldive Islands ; etc.

Uses : Beads, ornaments and decorations, hat pins ; medicine. [As protection against evil influences of stars.]

Vernacular names : Prabal, munga, pavalam, pagadam, etc.

Trade : EXPORTS : 1875-76 : lbs. 145—Rs. 900 ; very erratic all along. IMPORTS : 1866-67 : Rs. 4,94,573 ; 1901-02 ; lbs. 243,196—Rs. 7,67,655 ; 1946-47 ; lbs. 9,010—Rs. 23,577 ; 1954-55 : lbs. 17,976—Rs. 4,69,687.

CORAL (RED) WOOD

(Adenanthera pavonina)

[*Timber*]

Grows in sub-Himalayan tract ; Western Ghats ; In the Andamans.

Timber used for furniture, doors and windows, etc. ; imitation of red sandalwood.

Vernacular names : Kunchandana, rakta kambul, anikundumani, manjetti, etc.

CORIANDER

(Coriandrum sativum)

[*Essential oilseed*]

Chief Producers in the World : India ; U. S. S. R. ; Hungary ; Holland ; Morocco ; Asia Minor ; etc.

Principal Indian States : Almost in every state ;

MADRAS : Tiruchirapalli, Tirunelveli, etc. ANDHRA : Anantapur, Guntur, (Bellary). BOMBAY : East Khandesh, Satara, etc. PUNJAB ; ETC.

Uses : SEEDS : In confectionery ; condiment ; as flavouring agent. Medicine. LEAVES : Vegetable ; etc.

Vernacular names : Dhania, kothamira, dhaniyaly, kotamalli, kotimari, khotabir, etc.

Trade : EXPORTS : 1875-76 : cwts. 23,151—Rs. 1,09,112 ; 1901-02 : cwts. 59,222—Rs. 3,58,581 ; 1946-47 : cwts. 89,740—Rs. 42,20,023 ; 1954-55 : cwts. 36,740—Rs. 13,43,460.

IMPORTS : 1875-76 : cwts. 3—Rs. 14 ; neglible all along ; ceasing altogether from 1897-98.

CORUNDUM

[*Mineral*]

World Production : 25,000 tons
Indian Production : 4,701 tons

Chief Producers in the World :

South Africa ; U. S. A. ; Canada ; Burma ; India ; Madagascar ; U. S. S. R. ; [EMERY : Greece ; Turkey ; U. S. A. ; U. S. S. R.].

Occurrence in India :

MYSORE : Hassan (4,531 tons) ; Mysore (5 tons) ; Kolar ; Mandya.

VINDYA PRADESH : Rewa (165 tons) ; Pipra ; etc.

HYDERABAD : Mahabubnagar ; Gulbarga ; Nalgonda.

ASSAM : Khasia and Jaintia Hills.

MADRAS : Coimbatore ; South Kanara.

ANDHRA : Anantapur ; Salem ; Tiruchirapalli.

MADHYA PRADESH : Bhandara.

KASHMIR : Soomjam.

Uses :

Abrasive. Gems (ruby, sapphire) ; pivot support (in scientific instruments) ; jewel bearing in watches ; for polishing gems, for grinding and bevelling glass ; sharpening tools ; etc.

COTTON

(Gossypium)

[*Fibre*]

World Production : 46,300,000 bales
Indian Production : 4,298,000 bales
Indian Acreage : 18,346,000 acres

Pakistan : Acreage : 2,928,000 ; Production : 1,490,000 bales

Chief Producers in the World :

U. S. A. (30%) : Texas ; Mississippi ; Arkansas ; Alabama ; Georgia ; South Carolina ; North Carolina ; Louisiana ; Oklahoma ; etc.

CHINA (13%) : Hwangho and the Yangtse Valleys ; Shansu ; Shensu ; Honan ; Czechwan ; Hupeh ; Anhwei ; etc.

U.S.S.R. (12%) ; Soviet Central Asia (Turkestan) : Tadzhikistan ; (Ferghana) *Kirgiz* ; (Taskhent, Samarkand, Bokhara) *Uzbekistan* ; *Khiva* ; *Turkmenistan* ; etc. Stavropol ; Georgia ; Azerbaijan ; etc. ; etc.

INDIA (10%) : (See below).

MEXICO (4·6%) : Coahuila ; Durango ; Tamaulipas ; etc.

BRAZIL (4·0%) : Sao Paulo ; Parahyba ; Ceara ; Rio Grande do Norte ; Pernambuco ; Alagoas.

EGYPT (4·0%) : Nile Valley.

PAKISTAN : *West Punjab* : Montgomery ; Lyallpur ; Multan ; Lahore ; Shahpur ; etc. SIND : Shikarpur ; Sukkur (Barrage area) ; *Bahawalpur* ; *Khairpur* ; etc.

Argentina ; Turkey ; Peru ; Sudan ; Uganda ; Belgian Congo ; Nigeria ; Greece ; Spain ; etc.

INDIA

MADHYA PRADESH : Akola; Yeotmal ; Amravati ; Buldana ; Wardha ; Nimar ; Nagpur ; etc.

BOMBAY : Dharwar ; Broach ; Baroda ; Bijapur ; Surat ; Ahmedabad ; East Khandesh ; etc.

HYDERABAD : Raichur ; Parbhani ; Aurangabad ; Nander ; Adilabad ; Bidar ; Gulbarga ; Bir ; etc.

MADRAS : Coimbatore ; Tirunelveli ; Ramnad ; Madurai.

ANDHRA : Anantapur ; (Bellary) ; Kurnool ; etc.

MADHYA BHARAT : Nimar ; Ujjain ; Shajapur ; Mandsaur Dhar ; Rajgarh ; etc.

EAST PUNJAB : Ferozepur ; Amritsar ; Hissar ; Ludhiana ; Karnal ; Rohtak ; etc.

UTTAR PRADESH : Bulandshar ; Aligarh ; Meerut ; Bijnor ; Shaharanpur ; Muzaffarnagar ; Mathura ; etc.

PEPSU : Patiala ; etc.

RAJASTHAN : Bikaner ; Tonk ; Jaipur ; etc.

MYSORE : Chitaldrug ; (Bellary).

SAURASHTRA : Bhavnagar.

BIHAR : Saran ; Ranchi.

TRAVANCORE-COCHIN : Trichur.

Staple Length of Indian Cotton

(Figures in thousands)

Long staple ; 6,284 acres and 1,587 bales ; *Medium* : 8,269 acres and 1,886 bales ; *Short* : 3,793 acres and 825 bales ; *Total* : 18,346 acres and 4,298 bales.

Indian Cotton Crop Varieties (by Trade Names)

(Figures are in thousands and those within brackets stand for area in acres. Bales are of 392 lbs. each.)

The "Americans" has more acres and also production than any other kind with 1,014 bales (2,890 acres), followed by Dholleras : 502 bales (1,870) ; Jarilla : 488 bales (2,592) ; Oomras : 372 bales (2,339) ; Broach-Vijay : 359 bales (1,079) ; Southerns : 340 bales (2,210) ; Bengals : 295 bales (795) ; Malvi : 253 bales (1,202) ; Surti-Suyog : 165 bales (527) ; Hyderabad-Gaorani : 154 bales (1,153). Other varieties with lower acreage and output have been omitted.

Consumption in Indian Mills

The Indian Mills consume 84·3% (3·89 million bales) of indigenous cotton, 15·5% (720,000 bales) of foreign cotton and a very small quantity of Pakistan cotton in a year.

Uses : FLOSS (Lint) : Fibre : Twist and yarn ; thread ; textiles ; rope ; tape ; wicks ; canvas ; bags ; belt and beltings ; parachute ; tents ; hose ; straps and strappings ; mantle ; tyres surgical "wool", absorbent cotton, lint, gauze, wadding ; paper ; nitro-cellulose ; celluloid ; cellophane ; collodion ; packing ; upholstery ; pads ; gaskets ; garden hose ; gears ; etc. ; autostops ; insulators ; lacquers ; plastics ; rayon ; artificial leather ; linoleum ; lubrication plugs.

FUZZ ("Wool") : Pads, paddings, etc.

SEED : See "COTTON SEED".

PLANTS : Fuel.

Vernacular names : Karpas, kapas, deo-kapas, rui, manua, radhia, semparuthi, patti, etc.

Principal varieties of Cotton grown in India :

TREE COTTON : *Gossypium arboreum* : Nurma, manua, ram kapas, deo kapas, bajwara, red navasari, etc.

BENGAL COTTON : *Gossypium neglecta* : Belati-khandesh, vilayati-khandesh, kateli, mathi, jari, etc. *Okra.*

GARO COTTON : *Gossypium assamica* : Kil, borkapah, khungi deva, etc.

VARADI COTTON : *Gossypium rosea* : Nurdki, varadi, katil belati, nimai, bangai, etc.

COCONADA COTTON : *Gossypium nadam* : Yerra, paira, burada, roji.

HINGANGHAT COTTON : Oomras (Amraoti), Nagpur ; Bihar Cotton (*Gossypium Bani*) : jari, bani, jethi, desi, deshila, bhoglla, tidki, judi, mathio, tiffina, gangri, etc.

INDIAN LONG STAPLES : *Gossypium wightiana* ; kahnami (deshi), goghari, Lahio (deshi), kumpta (Coomptas), uppam, kanvi (Khanpuri), wagria (Common Cotton), tellapatti (jawari-hatti).

Trade : EXPORTS : 1883-84 : cwts. 121,076—Rs. 16,71,099 ; 1848-49 : Rs. 1,77,53,090 ; 1849-50 : Rs. 2,20,11,780 ; 1901-02 : cwts. 78,524,000—Rs. 14,42,60,940 ; 1946-47 : tons 162,130—Rs. 22,56,31,085 ; 1954-55 : tons 29,887—Rs. 10,18,60,848.

Remarkable Exports : 1923-24 : tons 673,628—Rs. 98·67 crores ; 1924-25 : tons 595,937—Rs. 91·47 crores ; 1925-26 : tons 747,334—Rs. 95·26 crores.

Cotton Waste : 1946-47 : cwts. 1,333,480—Rs. 5,41,14,306 ; 1954-55 : cwts. 1,189,777—Rs. 9,95,74,334.

IMPORTS : 1862-63 : tons 3,467 ; 1901-02 : lbs. 78,524,000 —Rs. 14,42,60,940 ; 1946-47 : tons 98,997—Rs. 25,91,67,100 ; 1954-55 : tons 120,853—Rs. 58,44,73,953.

Remarkable Imports ; 1951-52 : tons. 216,612—Rs. 138,98,87,624.

PAKISTAN

Production

000 bales (392 lbs. each)

1953-54

	Desi	American	Total	% of total
Punjab	91	618	709	49·44
Sind	33	462	495	34·52
Bahawalpur	31	155	186	12·97
Khairpur	2	22	24	1·67
East Bengal	17	...	17	1·19
N.-W. F. P.	3	...	3	0·21
Total...	177	1,257	1,434	100·00

Export of Raw Cotton by Countries

	000 bales		Rs. in crores	
	1952-53	1953-54 (6 months)	1952-53	1953-54 (6 months)
Japan	577	254	25·65	9·93
China	174	29	10·89	1·23
United Kingdom	119	54	4·96	2·18
Hong Kong	108	82	4·81	3·33
Germany	109	15	4·59	0·60
France	85	57	4·06	2·41
Italy	55	43	2·34	1·75
Spain	62	5	2·02	0·22
Belgium	39	8	1·34	0·31
Australia	27	20	1·27	0·87
All other countries	159	44	7·47	1·78
Total...	1 507	611	69·40	24·61

COTTON SEED

[*Oilseed*]

World Production : 15,121,000 tons
Indian Production : 1,504,000 tons
Pakistan Production : 505,000 tons

Chief Producers in the World : U.S.A. ; U.S.S.R. ; China ; India ; Brazil ; Pakistan ; Egypt ; Mexico ; Turkey ; etc.

Principal Indian States : See "COTTON".

Madhya Pradesh ; Bombay ; Hyderabad ; Madras ; Andhra ; Madhya Bharat ; East Punjab ; Uttar Pradesh ; PEPSU ; Rajasthan ; Mysore ; Saurashtra ; Bihar ; Travancore-Cochin.

Uses : Edible oil ; adulterant in olive oil ; ingredient of stearine, cottolene, butterine ; illuminant ; in the manufacture of soap, candles, etc. ; mordant in dyeing ; in steel tempering ; fish canning ; etc., *Cake* and *Husk* : Cattle food.

Trade : EXPORTS : 1888-89 : cwts. 135,582—Rs. 3,01,577 ; 1901-02 : cwts. 2,036,056—Rs. 46,38,153 ; 1946-47 : tons 70—Rs. 25,517 ; thereafter it has practically ceased.

COWRIES (Kauries)

[*Shell*]

Obtained from the Laccadive and Maldive Islands.

Uses : As currency ; decoration of animals ; artistic containers (*sindur chupri*—one of the ceremonial articles required in Hindu marriages) ; Medicine.

Trade : EXPORTS : 1866-67 : (Shells and Cowries)—Rs. 2,853 ; 1876-77 : (Cowries)—Rs. 2,844 ; very erratic thenceforward ; 1901-02 :—Rs. 2,375 ; almost ceased from 1919-20 : cwts. 330—Rs. 752.

IMPORTS : 1867-68 : (Shells and Cowries)—Rs. 1,32,971 ; 1875-76 : (Cowries)—Rs. 38,069 ; 1901-02 : cwts. 17,568—Rs. 56,896 ; 1919-20 : cwts. 10,757—Rs. 6,695 ; negligible thereafter.

CRAB'S EYE (Indian Liquorice)
(Abrus precatorius)

[*Drug*]

Occurrence in India : The Himalayas (upto 3,000 feet) ; throughout the plains of India.

Uses : SEEDS : (Medicinal properties—poison) ; in weight about 1·75 grains ; ornamental and decorative purposes. (Boiled)

as food during famines and severe scarcities. ROOTS : substitute for liquorice.

Vernacular names : Kunch, rati, gunjhá, gaungchi', etc.

CUMMIN (Other than Black)
(Cuminum Cyminum)

[*Essential oilseed*]

Occurrence in the World : South-eastern Europe ; North Africa (bordering the Mediterranean) ; etc.

Principal Indian States : Uttar Pradesh ; East Punjab ; Andhra ; Bombay ; Rajasthan ; etc.

Uses : Curry powder ; condiment ; in confectionery ; flavouring agent ; Medicine.

Vernacular names : Zirá, ziyá, jiraká, gire, ajaji, shirágam, jiringe, jirakam, etc.

Trade : EXPORTS : 1875-76 : cwts. 8,886—Rs. 90,702 ; 1901-02 : cwts. 17,394—Rs. 4,14,975 ; 1946-47 : cwts. 41,640—Rs. 29,70,210 ; 1954-55 : cwts. 5,440—Rs. 3,63,444.

IMPORTS are negligible and very erratic.

(Black) CUMMIN
(CARAWAY)
(Carum bulbocastanum or nigrum)

[*Essential oilseed*]

Chief Producers in the World : Morocco ; Holland ; Norway ; North America ; Afghanistan ; Pakistan (Hazara, Baluchistan).

Principal Indian States : North-eastern region (found in wild state) ; Bashahr ; Kashmir ; Uttar Pradesh (Garhwal, Kumaon) ; etc.

Uses : Condiment ; in confectionery ; perfumery ; beverages. Medicine. Carvone (essence).

Vernacular names : Shah zirah, shimai-shiragam, simaji-lakara, pilappu shiragam, etc.

Trade : EXPORTS : 1877-78 : cwts. 795—Rs. 7,460 ; 1901-02 : cwts. 1,290—Rs. 19,860 ; 1946-47 : cwts. 1,740—Rs.1,54,707 ; 1954-55 : cwts. 140—Rs. 13,622.

CUTCH (White)

(Acacia catechu)

(See "Catechu")

CYPERUS TEGETUM

[*Matting*]

Chief Producers in the World : Abyssinia : Egypt ; India.

Occurrence in India : Lower Bengal ; (throughout the plains), especially Midnapore ; Madras ; Assam.

Uses : Mats ; thatching ; fan-parts.

Vernacular names : Welta, korai, mandari yerkuti, madurkati, etc.

(Himalayan) CYPRESS

(Cupressus torulosa)

[*Timber*]

Occurrence in India : Uttar Pradesh (Kumaon Circle ; Chakrata Division) ; Nainital ; Jaunsur ; Dehra Dun ; Himachal Pradesh (Tehri-Garhwal ; Simla ; Chamba) ; Punjab (Kulu).

Occurrence outside India : NEPAL.

Uses : Bridge building ; house construction, window frames, panels of doors ; flooring ; furniture ; railway sleepers ; pen holders and pencils ; etc.

Vernacular names : Surai, devidar, leuri, etc.

DAMMAR

(Canarium resiniferum)

[*Resin*]

Occurrence in the World : (*Canarium*) : Madagascar ; Philippines ; Taiwan ; etc.

Occurrence in India : Assam (Khasia, Garo hills).

Uses : Incense ; "suitable for the preparation of a hard drying varnish, such as is required for enamel paints."

Vernacular names : Dhuna, dhua, tekreng, etc.

DAMMAR (Black)

(Canarium strictum)

[*Resin*

Chief Producers in the World : Malaya ; East Indies Thailand ; Cochin China ; etc.

Occurrence in India : Madras (Tirunelveli, Kanara) ; Coorg Mysore ; Travancore-Cochin ; etc.

Uses : GUM : Incense ; paints and varnish ; bottling wax nitro-cellulose lacquers ; varnishing of papers. (Dammar in general) : for caulking boats ; etc.

TIMBER : Veneers and panels ; match boxes and sticks ; etc.

Vernacular names : Kálá dammer, dhup, gugul, thelli, kunthirikham, kárapu-kongiliam, karapu dammar, nalla-rojan, etc.

Trade : EXPORTS : Negligible.

IMPORTS : Have been long and sytematic ; 1946-47 : cwts. 42,922—Rs. 16,62,048 ; 1954-55 : cwts. 44,775—Rs. 13,16,348.

DATES

(Phœnix dactylifera)

[*Food*]

World Production : 1,150,000 tons

Chief Producers in the World : Iraq (35%) ; Saudi Arabia (15%) ; Iran ; Egypt (14%) ; Morocco ; Algeria ; Tunisia ; U. S. A. ; Madeira ; etc.

Occurrence in India and Pakistan :

INDIA : Punjab ; Deccan (between Narbada and Krishna) ; Gujarat (Bombay States) ; etc.

PAKISTAN : Punjab (Dera Ghazi Khan ; Multan ; Muzaffargarh) ; Sind ; N.-W. F. Province.

Uses : JUICE : Source of *gur* ; delicious drink ; fermented juice (*tari* or toddy).

FRUIT : Food.

KERNEL : (Ground) food for camels, goats, etc.

LEAVES : Thatching material ; decorative goods ; mats, fans, baskets ; brooms ; etc.

TREE-TOP : Vegetable.

Vernacular names : Kharjúr, khejúr, mach, karmah, pind chirdi (*tree*) ; khejur, kharjur, khúrma, chúpara, kukyán, pind, chirwi, tamara, perich-chankay, somblon-zi, etc.

Phœnix Sylvestris : The common date palm of India and is one of the main sources of raw sugar or *gur*.

Trade : IMPORTS : Imports have been systematic and in fairly large quantity for a long time past. Before the World War I. 1938-39 : tons 65,346—Rs. 44,95,992 ; 1946-47 : tons 66,354—Rs. 2,26,98,369 ; 1954-55 : tons 75,466—Rs. 2,59,38,757.

DECCAN HEMP

(See **Hemp**)

DEODARA

(Cedrus deodara)

[*Timber*]

Occurrence in India : The outer Himalayas : hill slopes ; Kashmir ; Himachal Pradesh ; Uttar Pradesh ; East Punjab ; etc.

Uses : TIMBER : Railway sleepers ; bridge construction ; packing cases ; brush backs ; carvings ; floor boards ; beams ; shingles ; door and window frames ; posts ; etc. OIL : in veterinary practice. Medicine.

Vernacular names : Devadaru, deodar, paludar, diar, devidar, kalu, keori, giam, nakhtar, etc.

Other trade names : INDIAN CEDAR ; HIMALAYAN CEDAR.

DHUP

(Canarium strictum ; Ceuphyllum ; etc)

[*Timber*]

Occurrence in India : Andamans ; West Bengal ; Assam ; West Coast ; Coorg ; etc.

Uses : Match (all parts) ; packing case ; interiors and backings of furniture ; etc.

Vernacular names : Kunthirikkam, gogul-dhup, etc.

Other trade names : INDIAN WHITE MAHOGANY ; WHITE DHUP.

DIAMOND

[*Mineral*]

World Production : 20,166,000 carats
Indian Production : 2,207 carats

Chief Producers in the World :

UNION OF S. AFRICA (13·5%) : Cape Province ; BELGIAN CONGO (Industrial 60·5% ; Gem 3%) ; Kasai River Basin ; GOLD COAST (11·0%) : Birrim River and Bonsa Basin, Angola, Sierre Leone. S.-W. Africa. French West Africa, etc.

Occurrence in India :

VINDHYA PRADESH : Panna (almost the sole producer), Charkhari, Bijawar, Ajaigarh, Kothi, Bazaundha, Pahara, etc.

ANDHRA : Anantapur ; Cuddapah ; Godavari ; Guntur ; Krishna ; Kurnool.

Uses : Cutting, polishing, abrasive wheels ; core drilling ; wire drawing ; die making, crowns of diamond drills ; tools (for precision grinding, diamond-set shaping) ; sawing (blocks of marble) ; jewel bearings, etc.

Vernacular names : Hirak, hira, vajra, etc.

DILL or SAWA

(See **Sawa or Dill**)

DITA (BARK)
(Alstonia scholaris)

[*Timber*]

Occurrence in India : West Bengal and along the Western Coast of India.

Uses : BARK : Medicine. TIMBER : Furniture ; scabbard ; coffins ; blackboards ; etc.

Vernacular names : Chatwan, chatim, sátianá, pala, pala-garudu, etc.

DIVI-DIVI

(Cæsalpinia coriaria)

[*Tanstuff*]

Chief Producers in the World : Venezuela ; Jamaica ; Colombia ; New Granada ; Brazil ; Mexico ; etc.

Occurrence in India : BOMBAY : Dharwar, North Kanara, Bijapur, Khandesh, Belgaum. MADRAS : North Arcot, South Kanara, etc. ; Mysore ; Coorg ; etc.

Uses : PODS : For tanning (competitor of Indian myrobalans in U. S. A.). "Divi-divi is classified by dyers and tanners as a true astringent and is associated with oak-galls and myrobalans in affording a maximum amount of tanning with a minimum amount of colouring matter."

Vernacular names : Libi-dibi, shumak, vilayati-aldekeayi, etc.

DOLOMITE

(Pearl Spar)

[*Mineral*]

Indian Production : 50,000 tons

Occurrence in India : W. BENGAL : Darjeeling. BIHAR : Palamau, Singbhum, Shahabad. HYDERABAD : Warangal, Adilabad. MADHYA BHARAT : Indore. MADHYA PRADESH : Jabalpur, Nagpur, Bilaspur. ANDHRA : Anantapur, Kurnool, Cuddapah. MADRAS : Salem, Tirunelveli. MYSORE. ORISSA : Gangpur, Rourkela. PEPSU and PUNJAB : Mandi, Datla Hills. RAJASTHAN : Jaipur, Udaipur, Mewar. AJMER. UTTAR PRADESH ; Mirzapur ; etc.

Uses : Refractories ; pipe and boiler covering ; paints, varnishes, glass, ceramics ; printing inks ; in rubber chemicals, tanning, paper industry ; as blast furnace flux ; whiting and mortar in building ; road metal ; etc. ; etc.

EAGLE WOOD

(See Aloe Wood)

(Ceylon) EBONY

(Ebony persimmon ; Diospyros ebenum)

[*Timber*]

Occurrence in India : BOMBAY : Karnatak. MADRAS : Coimbatore, South Kanara, Malabar. Travancore-Cochin ; Coorg ; Orissa ; etc.

Uses : Decorative and ornamental wood ; furniture, veneer ; turnery (shuttles) ; carving ; musical instruments ; caskets ; umbrella handles ; brush backs ; picker arms ; railway keys and brake blocks.

Vernacular names : Tendu, ablush, abnus, kendu, karunkali, nallavalludu, tumbi, mendhu, etc.

ELEPHANT (Ivory)

[*Ivory*]

Occurrence in the World : Africa ; India ; Burma ; Siam ; Indo-China ; Borneo ; Sumatra ; Nepal.

Principal Indian States : (Dense forests of the Himalayas) Assam ; Western Ghats (Nilgiris) ; Travancore ; Mysore ; Coorg ; Madhya Pradesh ; Sikkim.

Uses : For lifting, dragging and carrying timber (in inaccessible regions) ; as beast of burden ; in State processions and in hunting.

TUSKS (and Teeth) : Ivory ; ivory fancy goods and ornaments ; thrones and chairs ; inlaying work ; etc.

LEGS and Trunks : "Boxes" or holders of umbrellas, sticks, etc.

Vernacular names : Gaja, hasti, hati, hathi, yenige, yanai.

Trade : (Relates to Ivory)

EXPORTS : *Ivory and Manufactures* : 1848-49 : Rs. 7,08,280 ; 1901-02 : Rs. 6,83,010. *Unmanufactured* : 1901-02 : lbs. 4,397

—Rs. 25,515 ; 1946-47 : lbs. 1,484—Rs. 49,400 ; 1954-55 : lbs. 3,227—Rs. 57,916. *Manufactures* : 1901-02 : Rs. 2,225 ; 1946-47 : Rs. 1,05,365 ; 1954-55 : Rs. 2,41,956.

IMPORTS : *Ivory and Manufactures* : 1866-67 : Rs. 10,36,605. *Unmanufactured* : 1901-02 : lbs. 258,585—Rs. 15,97,491 ; 1946-47 : lbs. 584,408—Rs. 42,80,422 ; 1954-55 : lbs. 309,503—Rs. 38,13,996. *Manufactures* : 1901-02 : Rs. 80,872 ; 1946-47 : negligible ; 1954-55 : Rs. 613.

EMERALD

(See **Beryl**)

[*Mineral*]

Indian Production : 550,940 carats

Principal Indian States :

AJMER : 155,562 carats : RAJASTHAN : (Udaipur) 395,376 carats.

Uses : "Precious" stones.

EUCALYPTUS

[*Drug*]

Chief Producers in the World : Australia ; Tasmania ; New Guinea ; Spain ; Portugal ; Brazil ; Columbia ; Mexico ; Belgian Congo ; Guatemala ; etc.

Occurrence in India : MADRAS : Nilgiris ; Annamalai and Pulni hills. ASSAM : Shillong. UTTAR PRADESH ; Raniket, Kangra, Kulu, Chamba. (Himachal Pradesh) ; etc.

Uses : BARK : Oil. LEAVES : Tannin ; Oil : Medicine ; in perfumery ; industrial, mosquito and vermin repellent. TIMBER : Bridges ; wharves, cask-staves, ply-wood, veneer ; fuel (charcoal) ; etc.

FEATHER

(See **Bird**)

FEL(D)SPAR

[*Mineral*]

World Production : 890,000 tons

Indian Production : 3,880 tons.

Chief Producers in the World : U. S. A. (50%) ; Germany (13%) ; France (9%) ; U. K. (7%) ; Sweden (5%) ; Italy ; Japan ; Manchuria ; Norway ; Canada ; etc.

Principal Indian States : MADHYA PRADESH (40%) : Chhindwara, Jabalpur, etc. AJMER : (37%). MYSORE (18%) : Bangalore. RAJASTHAN (4%) : Alwar. VINDHYA PRADESH : Rewa. MADRAS : Tiruchirapalli.

Uses : In porcelain enamel and glass industries ; abrasives ; soap ; artificial teeth ; etc.

FENNEL

(Fœniculum vulgare)

[*Essential oilseed*]

Chief Producers in the World : Malta ; India.

Principal Indian States : Uttar Pradesh ; Bengal ; (Bombay).

Uses : Condiment ; essential oil ; anethol ; anise camphor.

Vernacular names : Saunf, bari saunf, mauri, pan mouri, sohikire, peddajila-kura ; madhurika.

Trade : EXPORTS : 1875-76 : cwts. 2,417—Rs. 15,046 ; 1901-02 : cwts. 4,914—Rs. 47,039 ; 1946-47 : cwts. 24,520—Rs. 12,94,944 ; 1954-55 : cwts. 28,440—Rs. 10,80,074.

FENUGREEK

(Trigonella Frœnum-grœum)

[*Essential oilseed*]

Principal Indian States : Kashmir ; East Punjab ; Bombay ; etc.

Uses : Condiment ; essential oil ; medicine ; dyeing. "The extract is used with other aromatic substances in making an artificial maple flavouring."

Vernacular names : Methi, múthi, meturn, vendayam, ventayam, mentulu, menti, kúra, mentyya, etc.

Trade : EXPORTS : 1875-76 : cwts. 33—Rs. 615 ; 1901-02 : cwts. 372—Rs. 2,860 ; 1946-47 : cwts. 26,460—Rs. 5,20,895 ; 1954-55 : cwts. 18,200—Rs. 5,16,831.

F I R

(Abies pindrow)

[*Timber*]

Occurrence in India : In the outer Himalayas ; Kashmir ; Punjab (Garhwal) ; etc.

Uses : Suitable for packing cases ; crates, shingles, floor boards ; paper pulp ; water troughs ; sleeper ; suitable for aircraft ; foot-rules.

Vernacular names : Rewar, rewari, rai, tos, morinda, ragha, ransla, badar, tung, drewar, etc.

FIRE-CLAY

[*Mineral*]

Indian Production : 83,610 tons

Chief Producers in the World : U. S. A. ; Central Europe ; Japan ; etc.

Occurrence in India : ASSAM : Khasia and Jaintia hills.
WEST BENGAL : Barakar, Raniganj, Asansol.
BIHAR : Palamau, Monghyr.
SAURASHTRA : Lakhtar.
MADHYA PRADESH : Jabalpur, Nagpur, Chhindwara.
VINDHYA PRADESH : Rewa.
MADRAS : North and South Arcot.
ORISSA : Sambalpur, Cuttack.
RAJASTHAN : Bikaner (Palana), Kotah (Badara and Sirol).

Occurrence in Pakistan : PUNJAB : Salt Range ; SIND Tatta and Dadu districts.

Uses : Kilns, furnaces, firebricks, etc.

FISH

[*Food*]

Indian Production : 590,000 tons

Chief Producers in the World : Japan ; U. S. A. ; Korea ; Norway ; U. K. ; Germany ; Canada ; France ; Alaska ; Netherlands ; Portugal ; Sweden ; etc.

Indian Marine Fisheries : *Production* : 40,000 tons.

Gujarat ; Konkan ; North and South Kanara ; Malabar ; the Gulf of Mannar ; the Coromandel Coast ; the Telegu area ; the Deltaic area ; Cochin ; Travancore ; Madras coast ; Travancore-Cochin : 52% ; Bengal : 15% ; Bombay 12%.

Indian River or Lake Fisheries : *Production* : 550,000 tons (including 250,000 tons of *Hilsha* fish).

The Gangetic system of rivers ; the Indus system of rivers. [Bengal 50% ; Bihar 15·3% ; Assam 11·5%].

PAKISTAN

Production : *Marine* : 53,942 tons ; *Inland* : 115,230 tons.

Total : 169,172 tons

Marine : East Pakistan ; Baluchistan ; Sind and Khairpur.

Inland : East Pakistan (100,000 tons) ; Sind and Khairpur ; etc,

Uses : MEAT : Edible ; cooked, dry, salted, wet salted, (*ngapi*), smoked, pickled, canned, etc. Manure (*Indian Production : 25,000 tons*) ; guano from entire fish : residue after extraction of oil .

FISH MAWS, FISH MEAL : Food for poultry and cattle. FINS : Isinglass, glue. BONES AND SCALES : (Fish) glue ; ornamental models. OILS : See "Oils—Animal." SKINS : Abrasives (crude) ; covering of sword handles, scabbards ; covering of boxes ; etc.

Vernacular names : Matsya, mach, machli, etc.

Trade : REGULAR EXPORTS : from 1907-08 : under different heads (*i*) *dry unsalted*, (*ii*) *dry salted* and (*iii*) *wet salted* (*ngapi*), the respective figures being (*i*) lbs. 4,347,000—Rs. 3,61,395, (*ii*) lbs. 14,789,000—Rs. 13,71,230, and (*iii*) lbs. 154,800—Rs. 4,290 ; 1946-47 : (*i*) cwts. 274,574—Rs. 1,86,12,493, (*ii*) cwts. 224,984—Rs. 1,16,64,719 and (*iii*) cwts. 57,809—Rs. 10,34,892 ; 1954-55 : (*i*) cwts. 276,154—Rs. 2,61,70,236, (*ii*) cwts. 147,445—Rs. 1,28,76,216, and (*iii*) cwts. 14,164—Rs. 4,38,046.

Fish maws and shark fins : 1907-08 : lbs. 549,100—Rs. 5,26,260 ; 1946-47 : cwts. 8,117—Rs. 10,68,983 ; 1954-55 : cwts. 4,187—Rs. 11,22,365.

IMPORTS: *Dry salted fish* : 1875-76 : lbs. 3,615,000—Rs. 2,33,908 ; *dry unsalted* : 1889-90 : lbs. 1,361,000——Rs. 65,115. *Fish maws* and *shark fins* : 1875-76 : lbs. 877,000—Rs. 2,51,603. 1946-47 : *Dry unsalted* : cwts. 5,951—Rs. 68,927 ; *dry salted* : cwts. 274—Rs. 3,711 ; *wet salted* (*ngapi*) : cwts. 24,562—Rs. 4,67,973 ; *Fish maws* and *shark fins* : cwts. 690—Rs. 8,707. 1954-55 : *Dry salted* : cwts. 11,044—Rs. 2,47,534 ; *dry unsalted* : cwts. 20,711—Rs. 3,90,583 ; *wet salted* (*ngapi*) : cwts. 23,745—Rs. 5,11,561. *Fish maws* and *shark fins* : cwts. 334—Rs. 18,220.

FLAX

(Linum usitatissimum)

[*Fibre*]

World Production : 765,000 tons

World Acreage : 5,369,000 acres

Chief Producers in the World : U. S. S. R. ; Poland ; France ; Belgium ; Czechoslovakia ; Netherlands ; etc.

"The linum fibre is cultivated either for fibre or for seed. In certain countries it is grown primarily for the production of *linseed*, although appreciable quantities of fibre can be obtained as a by-product at considerably increased labour cost." In India true flax is not cultivated ; the substitute is linseed fibre and the plant is grown almost exclusively for seed.

Uses : Yarn, twines and rope ; canvas, carpet, linoleum ; hose (pipe) ; fishing nets ; paper ; insulating material ; etc.

(See Linseed)

FLAX and LINSEED FIBRE

(Linum usitatissimum)

[*Fibre*]

(In India true flax is not cultivated ; the substitute is linseed fibre which plant is grown for the seed.)

World Production (Flax) : 900,000 tons.

Chief Producers in the World : U. S. S. R. ; Poland ; Lithuania ; Latvia ; Estonia ; Belgium (best quality) ; North East Ireland ; etc.

Uses : Yarn, twine and rope ; canvas ; carpets ; linoleum fishing nets ; paper manufacture ; insulating material ; etc.

(See "Linseed)"

Trade : EXPORTS : 1907-08 : lbs. 56,544—Rs. 11,070 ; have all along been erratic and negligible ; *Manufactures* : 1946-47 : Rs. 81,453 ; 1954-55 : Rs. 24,38,532. IMPORTS have been very irregular ; 1872 73 : Rs. 7,528 ; 1901-02 : *Manufactures* : Rs. 18,82,335 ; *Twist* Rs. 10,938 ; *Raw* : lbs. 21,543—Rs. 7,884 ; 1954-55 : *Raw* : lbs. 415,854—Rs. 6,45,153. *Manufactures* : Rs. 13,09245.

FLUORITE (Fluorspar)

[*Mineral*]

World Production : 1,170,000 tons

Chief Producers in the World : U. S. A. (24%) : Illinois, Montana, Texas, (Illinois-Kentucky) ; MEXICO (13%) ; GERMANY (14%) : Harz mountains, Anhalt, Baden, Bavaria, Saxony, Thuringia ; U. K. (7%) : Derbyshire, Durham ; CANADA (7%) : Ontario ; SPAIN (6·3%) : Gerona, Asturias, Corodoba ; ITALY (8%) : Bolzano ; FRANCE (4·7%) : Var, Puy-de-Dome, Saone-et-Loire ; U. S. S. R. : Kara Sea ; area beyond Baikal, etc. ; UNION OF S. AFRICA : Transvaal : Zeerust, Waterberg ; NEWFOUNDLAND : St. Lawrence ; CHINA : Fengtien, Shantung, Chekiana.

Principal Indian States : MADHYA PRADESH : Khairagarh ; Nandgaon.

Uses : In metallurgy (as flux) ; manufacture of hydro-flouric acid ; enamel and glass industries ; calcium carbide ; carbon electrodes ; rock wool ; dentrifices ; binder for abrasives ; paint pigment ; catalyst ; wood preservative ; in optical instruments.

FULLER'S EARTH
(Bleaching Clay)

[*Mineral*]

World Production : 500,000 tons
Indian Production : 4,870 tons

Chief Producers in the World : U. S. A. (Florida, Georgia, Texas) ; U. K. ; Germany ; U. S. S. R. ; France ; Japan ; etc.

Principal Indian States : RAJASTHAN : Bikaner, Jodhpur ; MADHYA PRADESH : Jabalpur ; BIHAR : Bhagalpur.

Uses : As holder of drugs ; for absorbing grease and oil ; for decolouring and filtering oils, fats and greases ; as detergent agent for washing clothes, etc.

Vernacular names : Multáni mátti.

GAB

(Diospyros embryopteris or peregrina)

[*Dyestuff*]

Occurs all over India and Burma.

Uses : PULP OF FRUIT : Dyeing of fishing nets and lines with an infusion of the unripe fruits ; "it is also used as a tar in caulking the seams of fishing boats." Medicine.

Vernacular names : Gab, makur kendi, tendu, krishnasara, kendu, timbori, kusi, tumbika, kalatendu, kattatti, tumil, etc.

GAMARI (Gumhar)

(Gmelina arborea)

[*Timber*]

Occurrence in India : West Bengal ; Assam ; (Orissa ; Bombay) ; Madhya Pradesh ; Madras ; Coorg ; Travancore ; Mysore ; etc.

Occurrence outside India : Burma.

Uses : For general construction ; furniture ; domestic articles ; panelling ; boat building, camp furniture ; boxes ; drums ; musical instruments ; boot and shoe lasts ; bent wood articles ; oil casks ; ply-wood ; drawing boards ; plane tables ; etc.

Vernacular names : Gamari, gambari, gumbar ; shiwan, kooli ; kumher, sewan, gumar tek, summadi, kumbalam, kumulu.

GAMBIER

[*Dyestuff*]

In the seventeenth century GAMBIER found its way to Europe and was designated *Terra Japanica* indiscriminately with *Catechu* (q.v.).

GARDENIA

(Gardenia turgida ; G. latifolia)

[*Timber*]

Occurrence in India : Madhya Pradesh ; Bombay ; Uttar Pradesh ; Bihar ; etc.

Uses : Combs ; toys ; rulers ; shuttles ; turnery articles ; (substitute for boxwood) ; shoe lasts ; shoe heels ; mathematical instruments ; etc.

Vernacular names : Papra, dudri, pendra, koinnori, etc.

GARLIC

(Allium sativum)

[*Vegetable*]

Occurrence : All over India.

Uses : Food ; flavouring of curry, etc. ; medicine.

Vernacular names : Lasun, rasun, lasan, naharu, lasunas, vallaipúndu, vellulli tella-gadda, etc.

GARNET

[*Mineral*]

World Production : 15,000 tons
Indian Production : 200 tons

Chief Producers in the World : U. S. A. (New York Japan ; Canada (Ontario) ; India ; Madagascar ; Spain (Almeira).

Principal Indian States : Madras ; Rajasthan ; Bihar ; etc

Uses : Abrasive (particularly suited where Corundum Emery is too hard for the purpose) ; gem stone ; etc.

GINGER

(Zingiber officinale)

[*Spices*]

World Production : 550,000 cwts.
Indian Production : 300,000 cwts.

Chief Producers in the World : China ; India ; Jamaica ; Sierra Leone ; Nigeria ; etc.

Principal Indian States : UTTAR PRADESH (Kumaon) ; MADRAS (Malabar, South Kanara) ; WEST BENGAL (24-Parganas) ; BOMBAY (Surat, Thana, Kaira) ; East Punjab ; etc.

Uses : Food ; pickles ; condiment ; oil (essential) ; manufacture of liqueurs. Medicine.

Vernacular names : Ádark, sonth, ádá, ádu, inji, shukku, allam, hasi-sunthi, chukka, etc.

Trade : EXPORTS : 1875-76 : lbs. 6,334,000—Rs. 10,09,398 ; 1901-02 : lbs. 5,759,000—Rs. 13,02,323 ; 1946-47 : cwts. 43,063—24,14,592 ; 1954-55 : cwts. 56,444—Rs. 68,85,566.

IMPORTS are quite negligible.

GOATS

(Capra)

[*Livestock*]

Indian Population : 47,077,000 heads
Pakistan Population : 10,100,000 heads

Principal Indian States : Madras ; Bihar ; Rajasthan ; Uttar Pradesh ; etc.

Uses : Meat ; milk (q. v.) ; skins ; wool and hair ; horns, hoofs ; intestines ; etc.

Vernacular names : Chhág, chagal, aja, pasang, box, kayik, thar, sair, sarah, chank, etc.

GOLD

(Aurum)

[*Mineral*]

World Production : 24,200,000 ozs.
Indian Production : 223,375 ozs.

Chief Producers in the World :

UN. OF SOUTH AFRICA (54%) : *Transvaal* (Witwatersrand, Lydenburg) ; *Orange Free State* (Odendaalsrus).

CANADA and NEWFOUNDLAND (17%) : *Ontario* (Kirkland, Porcupine) ; *Quebec* (Noranda, Rouyn) ; etc. *British Columbia* (Nickel Plate) ; etc.

U. S. A. (8%) : *Homestake at Lead* : South Dakota ; *Mother Lode* of California ; *Grass Valley* : Nevada City ; *California* ; *Sierra Nevada* ; *Klamath Mountain* : California from Redding to Coos Bay, Oregon ; *Nevada Gold Province* : Nevada, Arizona, California, Utah and Idaho ; *Goldfield District* : Nevada ; *Oatman* : Arizona ; *Aurora* and *Tuocarora* : Nevada ; *Cripple Creek* : Colorado ; *San Juan Region* : Colorado (Ouray District).

ALASKA : Fairbanks Region, the Upper Ukon and the Seaward Peninsula (Fairbanks, the most important, Junean and Willow in Creek districts).

AUSTRALIA : *Victoria* : (Bendigo, Ballarat, Geelong, Sheparton) ; *Western Australia* : (Kalgoorlie, Coolgardie).

GOLD COAST : Nsuta.

SOUTH RHODESIA ; MEXICO (Zacatecas, Hidlago, El Oro) ; PHILIPPINES (Luzon, Calagua, Mindanao, Benguet) ; U. S. S. R. : TRANSBAIKAL (Belei, Darasun, Titagara, Minusinsk districts, Verkhoyanski, Vitim, Yablonvy) ; URALS (Bainak-Tanalyk) ; TURKESTAN (Dzhetygara) ; BRAZIL (Morro Vehlo) ; COLOMBIA ; CHILE ; NEW GUINEA (Bulolo) etc.

INDIA

MYSORE (95·5%) : Mysore, Tumkur, Kolar, Champion Reef, Ooregum, Nundydrug.

HYDERABAD : Hutti (5%) ; Madras ; Uttar Pradesh ; Madhya-Pradesh ; etc.

Uses : Coins (currency) ; art products, ornaments, jewellery ; watches and wares ; adornment of buildings ; wire (Zari and other products, *Benarasi saris*, etc.) ; kinkhabs or gold brocades, etc. ; chemicals as a gilding agent, colouring agent, in making ruby glass in gold-platin in dentistry ; medicine ; photography ; etc.

Vernacular names : Swarna, subarna, soná, pwon, ponnu, bungaru, mas, kánchana, shwal, zahab, tilla, zir, etc.

GOLPÁTTA

(Nipa fruticans)

[*Thatch*]

Occurrence in and around India :

WEST BENGAL (Sunderbans) ; Andamans ; PAKISTAN (East Bengal) ; *Burma.*

Uses : LEAVES : For thatching and making mats.

LEAF-STALKS : As floats.

SPATHE : Toddy (intoxicating liquor).

Vernacular names : Gúlga, dani, etc.

(BENGAL) GRAM

(Cicer arietinum)

[*Pulses*]

Indian Production : 5,125,000 tons
Indian Acreage : 20,991,000 acres

Chief Producers in the World :

Southern Europe ; Spain ; North Africa.

Principal Indian States :

UTTAR PRADESH : Banda ; Hamirpura ; Jalaun ; Jhansi ; Allahabad ; Agra ; Kanpur ; Mathura ; Meerut ; Hardoi ; Bundelkhand ; Bareilly ; Barabanki ; Moradabad ; Budaon ; Shahjahanpur ; Fatehpur ; Saharanpur ; Sitapur ; Muzaffarnagar ; Aligarh ; Faizabad ; etc. ; etc.

PUNJAB : Hissar ; Rohtak ; Ferozepur ; Gurgaon ; Karnal ; Ludhiana ; Hoshiarpur ; Ambala ; Amirtsar ; etc.

MADHYA PRADESH : Hasangabad ; Sagar ; Jabalpur ; Chhindwara ; Durg ; Betul ; etc.

BIHAR : Shahabad ; Monghyr ; Gaya ; Patna ; Muzaffarpur.

MADHYA BHARAT : Morena ; Bhind ; Gird ; Bhilsa ; Shivpuri ; etc.

RAJASTHAN : Ganganagar ; Bharatpur ; Alwar ; Bikaner ; Kotah ; Jaipur ; Tonk ; etc.

PEPSU : Bhatinda ; Sangarur ; Barnala ; Patiala ; etc.

HYDERABAD : Gulbarga ; Osmanabad ; Aurangabad ; Bidar ; Parbhani ; etc.

BOMBAY : Ahmednagar ; Nasik ; Dharwar ; Satara ; Poona ; Bijapur ; Sholapur ; etc.

W. BENGAL : Murshidabad ; Nadia ; Malda.

SAURASHTRA : Bhavnagar.

Uses : SEED : Food : Eaten raw or germinated, parched, powdered, roasted, cooked, soaked, etc, ; sweetmeat ; fodder ; adhesive (ply-wood) ; etc.

PLANT & LEAVES : Vegetable ; cattle food ; medicine ; etc.

Vernacular names : Chana, bút, chano, harbara, kadolai, chanaka, chola, bút kalai, etc.

Trade Name : CHICK PEA.

Trade :

EXPORTS : 1870-71 : cwts. 23,171 ; 1901-02 cwts. 320,000—Rs. 13,30,820 ; 1946-47 : negligible ; 1954-55 (Gram and gram products) tons 2,536—Rs. 9,76,886. "Dals" other than gram 1954-55 : tons 9,115—Rs. 38,45,473.

IMPORTS : 1875-76 : cwts. 2,581—Rs. 10,336 ; 1901-02 : cwts. 7,669—Rs. 40,438 ; 1946-47 : (Pulses) tons 16,817—Rs. 70,21,678 ; 1954-55 : (Gram and gram products) Rs. 4,85,152.

(Horse) GRAM

(Dolichus biflorus)

[*Pulses*]

Indian Production : 450,000 tons
Indian Acreage : 3,675,000 acres

Occurrence in the World : "Throughout the tropical regions of the old world."

Principal Indian States :

ANDHRA : Anantapur ; Visakhapatnam ; Nellore.

MADRAS : Salem ; Coimbatore.

MYSORE : Mysore ; Chitaldrug ; Mandya ; Tumkur ; Bangalore ; Hassan.

HYDERABAD : Aurangabad ; Bir ; Raichur ; Gulbarga ; Mahbubnagar.

BOMBAY : Ahmednagar ; Nasik ; Khandesh East and West Dharwar ; Belgaum.

HIMACHAL PRADESH ; UTTAR PRADESH ; BIHAR ; ASSAM.

Uses : SEED : Food ; cattle food.

PLANT : Fodder.

Vernacular names : Kulthi, kurthi, kulai, kudke, kulaththa, kulathi, kulat, barat, ulavalu, gagli, kallú, burali, mash, maskalai, urid, etc.

Other forms : Cow Pea (*Vigna catajang*)—Bátbati.

Green (*Phaseolus radiatus*) : Mung.

GRAPE

(Vitis vinifera)

[*Fruit*]

World Production : 33,962,000 tons
Indian Production : 6,000 tons
Pakistan Production : 10,000 tons

Raisins

World Production : 600,000 tons

Chief Producers in the World : France (23%) ; Italy (22%) ; Spain (10%) ; Algeria ; U. S. A. ; Argentina ; Turkey ; etc.

Principal Indian States :

BOMBAY : Nasik. MADRAS : Madura ; Salem. ANDHRA : Anantapur. MYSORE : Bangalore. HYDERABAD. Etc.

Pakistan : Baluchistan : Quetta-Pishin. N.-W. F. P. : Peshawar. SIND : Karachi ; Sukkur.

Uses : FRUIT : Food ; wine.

RAISINS : Food ; in curries, *chutnies*, *polao*, etc., in cakes and sweetmeats.

SEED : Oil : Illuminant ; lubricant ; edible ; soap ; oleo-margarine ; etc.

Vernacular names : Drakshá, angur, buri, tanaur, newala, mámre, gandeli, láning, kwar, drakshá-pondu, sabisi, etc.

RAISINS : Kismish, munakka, zirishk, mitha, kurk uzum, kisunmisuchettu. zabib. etc.

GRAPHITE

(Plumbago ; Blacklead)

[*Mineral*]

World Production : 130,000 tons
Indian Production : 1,479 tons

Chief Producers in the World :

MEXICO (23%) : Sonora ; KOREA (16%) ; AUSTRIA : Styria, Mahren ; MADAGASCAR (10%) ; GERMANY (7%) : BAVARIA : Passau ; CEYLON (7%) ; U.S.A. : Alabama, New York, Pennsylvania, Texas, etc. ; ITALY ; CANADA : Ontaroi, Quebec ; U. S. S. R. : SIBERIA : Irktusk, Turukhansk, Yeinisi.

Principal Indian States :

(Figures in brackets represent production in tons)

ORISSA : Balangir (293) ; Sambalpur (246) ; Dhenkanal (56) ; Koraput (131) ; Patna (Daramgarh : Domaipati) ; Athmalik ; Kalahandi ; etc.

BIHAR : Palamau (320) ; Monghyr.

MADRAS : Chingleput ; etc.

MADHYA PRADESH : Betul (205) ; Chhatishgarh.

MYSORE : Kolar ; Hassan.

ANDHRA : West Godavari (100) ; Visakhapatnam (100).

HYDERABAD : Warangal ; Khammameth (28).

RAJASTHAN ; COORG ; TRAVANCORE ; SIKKIM ; etc.

Uses : Facing agent for foundry moulds ; in the manufacture of (refractory) crucibles, retorts, bricks, lubricants, fertilisers, printing ink, core of lead pencils, paint and varnish (as a pigment) ; in electrotyping, arc light carbons, battery fittings ; raw material for making electrodes, anodes for electrical cells, carbon brushes, generator parts, etc. ; glazing agent for blasting powders, for coffee, beans and tea leaves ; in composition for coating pipe joints ; in repairing stoves, boilers, etc. ; as protecting surface to the interior of blowing cylinders in blast furnaces ; etc.

Trade :

EXPORTS : 1906-07 : cwts. 35,946—Rs. 1,87,739 ; almost ceased from 1913-14 ; 1954-55 : cwts. 26—Rs. 1,692.

IMPORTS : 1918-19 : cwts. 6,313—Rs. 88,260 ; 1933-34 : cwts. 9,804—Rs. 1,24,412 ; 1946-47 : cwts. 11,156—Rs. 2,76,788 ; 1954-55 : cwts. 9,156—Rs. 3,83,137.

GROUNDNUT

(Arachis hypogœa)

[*Oilseed*]

World Production : 10,890,000 tons
Indian Production : 3,832,000 tons
Indian Acreage : 12,647,000 acres

Chief Producers in the World : INDIA (36%) : See below.

CHINA (20%) : Shantung ; Kiangsi ; Anhwei ; Hopeh ; Chekiang ; Hupeh ; etc.

FR. WEST AFRICA (9%) : French Sudan ; Ivory Coast ; Niger Colony ; Senegal ; etc.

U. S. A. (7%) : Georgia ; North Carolina ; Texas ; etc. ; TANGANYIKA. ARGENTINA.

NIGERIA : Bornu ; Kano ; Sakato ; Katsina ; Adamawa.

INDONESIA : Java ; N. Sumatra.

BURMA : Central Burma (between Chindwin and Irrawaddy).

Gambia ; Belgian Congo ; South Rhodesia ; Uganda ; Brazil ; etc.

INDIA

MADRAS : South Arcot ; North Arcot ; Salem ; Coimbatore ; Tiruchirapalli ; Madurai ; etc.

ANDHRA : Anantapur ; Kurnool ; Visakhapatnam ; Chittoor ; Cuddapah ; Guntur ; Krishna.

BOMBAY : Bijapur ; East Khandesh ; West Khandesh ; Belgaum ; Sholapur ; Satara ; Baroda ; Kohlapur ; Panch Mahals.

HYDERABAD : Raichur ; Gulbarga ; Mahbubnagar ; Osmanabad ; Warangal ; Bidar ; Nanded ; Bir ; Aurangabad ; etc.

MADHYA PRADESH :- Akola ; Buldana ; Yeotmal ; Amravati ; Nimar ; Jhabua ; Mandsaur ; etc.

UTTAR PRADESH : Hardoi ; Moradabad ; Budaun ; Farrukhabad ; Bareilly ; etc.

MYSORE : Chitaldrug ; Kolar ; Tumkur ; etc.

SAURASHTRA : Bhavnagar.

PEPSU : Patiala.

Uses : SEED : Eaten raw or fried (baked).

OIL : Margarine ; vegetable "ghee" ; "textile" soap manufacture ; lubricant ; adulterant in salad oil ; mordant in dyeing ; fish canning ; etc.

CAKE : Food (biscuits, etc.).

Vernacular names : Mát-kalai, chiner-badam, mumphali, mungphuli, bhoya-chena, bhui-chane, verk-kadalai, nilak-kadalai, verk-kálá, etc.

Trade : EXPORTS : 1878-79 : cwts. 25,472—Rs. 1,68,420 ; 1901-02 : cwts. 1,085,415—Rs. 78,74,223 ; 1946-47 : negligible (but in 1945-46 : tons 196,690—Rs. 6,07,81,553) ; 1954-55 : tons 22,802—Rs. 2,51,14,090.

Remarkable Export : 1928-29 : tons 788,407—Rs. 19,36,85,142.

IMPORTS : 1878-79 : cwts. 19—Rs. 143 (chiefly from Mozambique) ; 1901-02 : cwts. 4,238—Rs. 34,520 ; 1946-47 : nil.

Oil : EXPORTS : 1880-81 : gals. 2,788—Rs. 2,759 ; 1901-02 : gals. 73,079—Rs. 1,17,640 ; 1946-47 : gals. 4,314,822—Rs. 1,84,41,292 ; 1954-55 : gals. 22,693,605 (cwts. 1,837,714) —Rs. 11,87,96,164.

IMPORTS : 1885-86 : gals. 166,342—Rs. 2,13,694 ; 1901-02 : gals. 3,797—Rs. 4,934. Negligible thereafter.

Cake : EXPORTS : 1912-13 : cwt. 1,247,900—Rs. 2,65,385 ; 1946-47 : nil.

GUANO

[*Manure*]

Collected from habitations of wild birds (from caves near Kurnool in Andhra and Andaman and Nicobar Islands).

Uses : Manure.

Trade : Both EXPORTS and IMPORTS : negligible.

GUM ARABIC

(Arabic Senegal)

[*Gum and Resin*]

It is the *true Gum Arabic* of European Commerce and is known as *Kimta* in Rajasthan, *Kher* or *Khor* (Sind) and *Khor-ka-khor* (Las Bela).

This is a product of Senegal (on the west coast of Africa). Indian Gum Arabic is known as *gum ghati*.

Trade : EXPORTS : 1848-49 : Rs. 4,06,670 ; from 1865-66 changed into "Gums and Resins" : Rs. 4,64,560 ; 1901-02 : cwts. 58,580—Rs. 8,26,980 ; 1946-47 : cwts. 2,550—Rs. 2,42,289 ; 1954-55 : 'Karaya gum' (q. v.) separately recorded ; Arabic : cwts. 2,582—Rs. 1,91,555.

IMPORTS : 1867-68 : cwts. 472,855 ; "Resin" was separated in 1872-73 : cwts. 2,605 – Rs. 1,50,819 ; 1901-02 : cwts. 149,449—Rs. 14,30,496 ; 1946-47 : cwts. 89,204—Rs. 36,66,573 ; 1954-55 : cwts. 63,891—Rs. 42,28,954.

GURJAN

(Dipterocarpus turbinatus)

[*Timber*]

Occurrence in India : Assam ; Bengal ; Andamans ; (Burma).

Uses : Constructional wood ; house building ; railway sleepers ; racks and furniture ; planking and flooring ; ceiling boards ; ply-wood.

TREE : Oil : for preserving bamboo wickerwork ; varnish ; ingredient in lithographic ink ; etc.

BARK : Tanning (*Rhizophora mucronata*).

Vernacular names : Dulia gurjan, hollong, callene, kanyin ni, etc.

GYPSUM

(Hydrated Calcium Sulphate)

[*Mineral*]

World Production : 21,700,000 tons
Indian Production : 612,120 tons
Pakistan Production : 27,155 tons

Chief Producers in the World : U. S. A. (34%) : New York ; Washington ; Wyoming ; Arizona. CANADA (16%) : Nova Scotia ; Victoria ; Hants ; Ontario. FRANCE (12%) ; U. K. (12%) ; SPAIN ; GERMANY ; JAMAICA (Kingston) ; ITALY ; NEW CALEDONIA ; UNION OF S. AFRICA.

Principal Indian States :

(Figures in brackets represent production in tons)

RAJASTHAN : Bikaner (320,815) ; Jodhpur (224,254) ; Barmer ; etc.

MADRAS : Tiruchirapalli (58,529) ; Coimbatore (2,017) ; Ramanathapuram (1,439).

U. P. : (3,639).

SAURASHTRA : Kutch ; Lakhpat (1,404).

KASHMIR : (23).

Reserves in India : (Est.) : 74,000,000 tons ; MADRAS : 16·3 million tons ; RAJASTHAN : 51 million tons ; SAURASHTRA, KUTCH, HIMACHAL PRADESH : 6·6 million tons ; etc.

Reserves in Pakistan : PUNJAB : 25 million tons ; all-Pakistan : 250 million tons ; N.-W. F. P. ; Baluchistan.

Uses : Plaster of Paris ; portland cement ; as a flux ; in the manufacture of calcium sulphate ; lath, wall-board, sheathing ; etc. ; as a filler in paints, paper and cotton ; baking powders ; *Alabaster* : a natural opaque form of hydrated calcium sulphate : for decorative purposes ; *Selenite* : a clear, well crystallised gypsum : in optical instruments.

Trade : 1954-55 (Imported by land) : Rs. 1,810.

HALDU

(Adina cordifolia)

[*Timber*]

Occurrence in India : Uttar Pradesh (Gonda and Bahraich) ; West Bengal ; Assam ; Bihar ; Orissa ; Madhya Pradesh ; Madras ; Mysore ; Bombay.

Uses : Bobbins, furniture, brushbacks ; fiorings ; roof boards ; panelling ; "Other uses are for canoes, dugouts, packing cases, cigar boxes, sieve frames, snuff boxes, fretsaw work, combs, yokes, drums and shingles ;" mathematical instruments ; plywood boards ; etc.

Vernacular names : Bonglong, tarachapa, phurkona, roghu, petpuria, da-kom, kalamb, heddi, kaddam, hardu, karam, kurmi, kem, manjakodambe, bandaru, kamada, rudrakadapu, tekoe, holonda, etc.

(Deccan) HEMP or MESTA-PAT

(Hibiscus cannabinus)

[*Fibre*]

Indian Production : 137,000 tons
Indian Acreage : 473,000 acres

Occurrence in India : Bihar ; Bombay ; Andhra ; Orissa ; Assam ; Vindhya Pradesh ; Mysore ; Madras ; Madhya Pradesh ; Punjab ; West Bengal ; Hyderabad ; Madhya Bharat.

PAKISTAN : N.-W. F. P. ; Punjab.

Uses : Yarn, ropes, cordage ; sackcloth, coarse canvas ; fishing nets ; paper ; etc.

Vernacular names : Pat san, dare kudrum, ambáre, kanuriya, sankokla, pulimanji, pulichi, gongurá, gaynara. holoda, nali, etc.

(Indian) HEMP

(Cannabis sativa)

[*Fibre*]

Occurrence in the World : China ; Japan ; Eastern Europe ; U. S. A. (*all for fibres*).

PAKISTAN : Sind.

INDIA : The whole of Northern India : at the foothills of the Himalayas. Cultivated in : UTTAR PRADESH : Almora, Garhwal, Nainital. HIMACHAL PRADESH : Simla, Kumaon, Kangra. Cochin (Travancore) ; etc.

Uses : FIBRE : Twine, rope, carpet yarn ; canvas, tarpaulin, sail cloth ; for caulking boats ; etc.

LEAVES : (dried) and Flowering shoots : Bhang (siddhi, sabji, patti, vijaya, etc.)

FLOWERING and Fruiting Tops (of the female plant) : Ganja.

LEAVES, Inflorescence, Stems : exudations of : Charas.

SEEDS : Edible ; bird and poultry feed.

OIL : Paints and varnish ; etc.

Vernacular names : Gange-ka-per, kinnab, gulu, bhangacha-jhada, ganja-chedi, korkkarmuli, kalpam, ganjari-chettu, bangitaku, bangi-giday, vijaya, etc.

(Manila or Abaca) HEMP
(Musa textilis)

[*Fibre*]

World Production : 113,000 tons

Chief Producers in the World : North Borneo ; Philippines ; Indonesia ; Costa Rica ; Guatemala ; Panama ; Honduras ; etc.

Occurrence in India : Travancore-Cochin ; Madras : Malabar Coast ; Bengal ; Assam ; etc.

Uses : Cordage (exceptionally strong), marine cables , binder twine, riggings ; paper ; *papier maché* ; hats ; etc.

(Perennial) HEMP
(Abroma augusta)

[*Fibre*]

Occurrence in India : "Throughout the hot moist tracts of India." U. P. ; Assam : Khasia Hills ; Sikkim.

Uses : Bark : Fibre for rope. *Root bark* for medicinal purposes.

Vernacular names : Ulatkambal, olak-tambol, kumal, etc.

(Sisal) HEMP
(Agave sisalana)

[*Fibre*]

World Production : 411,000 tons

Chief Producers in the World : East Africa : (Tanganyika, Kenya, Uganda) ; Brazil ; Indonesia ; Angola ; Haiti ; Mozambique ; Venezuela ; etc.

Principal Indian States :

Mysore ; Bombay ; Central India ; Travancore-Cochin ; Bihar ; Orissa. "Agaves flourish in dry parts of the country where few fibre-yielding plants succeed so well."

PAKISTAN : Cachar ; Sylhet.

Uses : LEAVES : Cordage and ropes ; matting ; fancy goods ; pressed boards ; covering of cables ; paper manufacture (waste) ; brushes and brooms ; woven goods ; manure ; medicine ; fodder.

SAP (of the central bud) : Fermented liquor ; substitute for soap.

Other trade names : ALOE FIBRE ; VEGETABLE SILK ; AMERICAN ALOE ; CENTURY PLANT ; CARATA ; WHITE ROPE FIBRE ; etc.

Vernacular name : Pita.

(Sann) HEMP

(Crotalaria juncea)

World Production : 572,000 tons
Indian Production : 116,000 tons

Chief Producers in the World : U. S. S. R. (48%) : Ukraine, White-Russia, Smolensk, Kalinin, Yaroslav ; etc. India (20%) ; Italy (14%) ; Veneto ; Yugoslavia (10%) ; Rumania ; Korea ; Hungary ; Poland ; China ; Spain ; etc.

PAKISTAN : East Pakistan : Rajshahi ; Pabna ; Faridpur ; Bakarganj.

Principal Indian States :

UTTAR PRADESH (38%) : Pilibhit ; Partapgarh ; Banaras ; Jaunpur ; Allahabad ; Azamgarh ; Mordabad.

ANDHRA (13·5%) : Guntur ; Krishna ; East Godavari.

MADHYA PRADESH (11%) : Chhindwara ; Mandla ; Jabalpur ; Seoni ; Betul ; Hosangabad.

HYDERABAD : Gulbarga ; Warangal.

PUNJAB : Ambala ; Kangra ; Karnal ; Gurdaspur ; Ferozepur ; Rohtak ; Hoshiarpur ; Jullunder.

WEST BENGAL : Burdwan ; 24-Parganas ; Bankura.

BOMBAY : Ahmednagar ; Belgaum ; Panch Mahals ; Ratnagiri.

BIHAR : Monghyr ; Bhagalpur ; Darbhanga ; Muzaffarpur ; Saran ; Purnea.

ORISSA : Balasore ; Cuttack ; Ganjam ; Sambalpur.

MADHYA BHARAT ; RAJASTHAN ; PEPSU ; VINDHYA PRADESH ; etc.

Uses : Yarn and cordage ; canvas, matting, sacking, tarpaulin ; carpets ; fire-hose ; paper manufacture ; for caulking boats : etc.

Vernacular names : San, sanai, ausá, suila, santág, sini, jenappa, janapa, januma, etc.

Trade : EXPORTS : 1866-67 : Rs. 1,47,389 ; 1901-02 : cwts. 386,966—Rs. 38,45,295 ; 1946-47 : cwts. 458,624—Rs. 1,44,27,921 ; 1954-55 : cwts. 425,864—Rs. 1,84,40,820. *Manufactures* : 1946-47 : Rs. 56,004 ; 1954-55 : Rs. 10,63,555.

IMPORTS : *'Hemp and mnnufactures'* 1867-68 : cwts. 256,401 ; 1870-71 : *Hemp, raw* was shown as cwts. 971—Rs. 26,434 ; 1901-02 : *Raw* : cwts. 10,585—Rs. 3,28,775 ; *Manufactures* : Rs. 1,33,953 ; 1946-47 : *Raw* : cwts. 11,000— Rs. 2,51,597 ; *Manufactures* : Rs. 54,656 ; 1954-55 : *Raw* : cwts. 81,300— Rs. 44,18,410 ; *Manufactures* : Rs. 11,370.

HENNA

(Lawsonia alba)

[*Dyestuff*]

Occurrence : Egypt ; Arabia ; Persia ; common all over India as a hedge plant. Wild in Baluchistan and the Coromandel Coast.

Uses : LEAVES, etc. : Dyeing of palms, hair, eye-brows and finger nails ; "Henna is a very fast dye and is used chiefly for fabrics and leather." (Hill).

TIMBER : Tool handles ; tent pegs, etc.

Vernacular names : Mehedi, mehndi, hena, manghati, panwar, marithondi, marutonri, goranta, iveni, etc.

HIDES and SKINS

[*Leather*]

World Production :	Hides :	108,000,000 pieces
	Skins :	205,500,000 pieces
Indian Production :	Hides :	21,700,000 pieces
	Skins :	37,100,000 pieces
Pakistan Production :	Hides :	5,361,000 pieces
	Skins :	7,700,000 pieces

Chief Producers in the World :

HIDES : India ; Argentina ; Pakistan ; U. S. A. ; U. S. S. R. ; U. K. ; Brazil ; etc.

SKINS : China ; India ; U. K. ; Australia ; New Zealand ; etc.

Principal Indian States : UTTAR PRADESH ; PUNJAB ; MADRAS ; W. BENGAL ; etc.

Uses : Leather goods : shoes, gloves, suit cases, etc. ; saddlery ; straps ; belts ; beltings ; upholstery ; washers ; scabbard ; sheets and table cloths ; etc. ; *pakhal, mashak, doles* ; gelatine ; glue ; etc.

Vernacular names : Charma, cham, chamra, etc.

Trade : EXPORTS : 1848-49 : Rs. 19,37,650 ; 1866-67 : *Hides and Skins* : Nos. 9,060,000—Rs. 65,93,420 ; 1875-76 : cwts. 686,715—Rs. 2,94,49,330 ; *Raw* : 1901-02 : cwts. 949,706—Rs. 5,57,66,385 ; 1946-47 : tons 25,301—Rs. 8,49,35,052 ; 1954-55 : tons 283,471—Rs. 7,13,27,745. *Dressed and Tanned* : 1901-02 : cwts. 266,442—Rs. 2,65,41,615 ; 1946-47 : tons 24,511—Rs. 17,97,06,585 ; 1954-55 : cwts. 392,859—Rs. 18,68,43,482. *Leather unwrought* : 1946-47 : cwts. 4,973—Rs. 37,62,582 ; 1954-55 : cwts. 9,513—Rs. 16,20,532. *Leather manufactures* : Rs. 18,83,745.

IMPORTS : 1866-67 ; *'Leather manufactures'* : Rs. 7,09,407 ; 1901-02 : *Leather manufactures* : Rs. 14,83,700 and *'Unwrought'* : Rs. 4,18,384 ; 1946-47 : *Hides and Skins* : *Raw* : tons 1,394—Rs. 16,43,305 and *Leather* : Rs. 77,00,914 ; 1954-55 : *Hides and Skins* : cwts. 36,151—Rs. 43,15,400. (*By land*) cwts. 98,876—Rs. 84,94,380 ; *Leather* : Rs. 34,07,521.

HIJAL
(Barringtonia acutangula)

[*Timber*]

Occurrence in India : Bihar ; Orissa ; Assam ; Bengal ; Madhya Pradesh ; Bombay ; etc. (Very common in India).

Uses : TIMBER : Boat-building ; cheap furniture. LEAVES : (young) edible. Medicine (in very small doses).

Vernacular names : Ingar, kadapa, hole kauva, kyeni, etc.

HOLLOCK
(Terminalia myriocarpa)

[*Timber*]

Occurrence in India : Assam ; West Bengal ; etc.

Uses : Building construction, beams, rafters, etc. ; furniture ; tea boxes ; general purposes wood ; etc.

Vernacular names : Pansaj, etc.

HONEY

(See **Wax**)

[*Food*]

World Production : 400,000,000 lbs.
Indian Production : 12,000,000 lbs.

Chief Producers in the World :

U. S. A. : (200,000,000 lbs) ; Canada : (42,000,000 lbs).

Occurrence in India and around : "Bees exist plentifully here and there all over India and Burma, in a wild and semi-domesticated condition, and supplies of both honey and wax are plentiful and of fair quality."

PAKISTAN : Sunderbans ; Chittagong ; N.-W. F. Province. Bhutan ; Nepal ; Burma ; etc.

Principal Indian Sources of Supply :

W. BENGAL : Sunderbans, Darjeeling. ASSAM : Khasia Hills. BIHAR : Chota Nagpur. UTTAR PRADESH : Eastern Doon Forests ; etc. MADHYA PRADESH : Betul, Chanda, Chhindwara, Hosangabad, Jabalpur, Mandla, Nimar, Raipur, Wardha ; Berar. PUNJAB : Kangra, Simla, Jhelum. HIMACHAL PRADESH : Chamba, Bashahr, Kulla. BOMBAY : Satpura Hills, Khandesh, Belgaum, Dharwar, Kanara, Panch Mahals, Ratnagiri. MADRAS : Coimbatore, Madurai, Malabar, etc. ANDHRA : Bellary, Cuddapah, Godavri, Krishna, Kurnool, Nellore, etc.

Uses : HONEY : Food ; preservative of fruits (and dead bodies) ; substitute for sugar, jaggery ; medicine.

Vernacular names : Madhu, madh, mau, shahad, sahut, saht, polu, ten, jenu, piyaye, makaranda, etc.

HOPEA

(Hopea odorata ; H. parviflora)

[*Timber*]

Occurrence in India : Bengal ; Bombay ; Andamans. Burma.

Uses : Boat and cart building ; bridge work, beams, rafters,

masts, railway sleepers, piling posts, shuttles ; cart hubs ; poles (electric transmission) ; picker arms ; railway key and brake blocks ; etc.

Vernacular names : Thingan, irubagam, kongu, hegge, irupu, telsur, etc.

HORN

[*Horn*]

Chief Producers in the World : India ; U. S. S. R. ; China.

Principal Indian States : United Provinces ; Punjab ; Madras ; W. Bengal ; etc.

Uses : Buttons ; toys ; handles ; decorative articles ; manure ; glue, gelatine ; hornmeal ; trumpets.

Vernacular names : Sringa, sing, kombu, kommu, etc.

Trade : EXPORTS : 1861-62 : Rs. 6,39,053 ; 1901-02 (Horns and hornmeal) : cwts. 62,944—Rs. 13,35,765 ; 1946-47 : cwts. 33,612—Rs. 59,91,499 ; 1954-55 : (Hoofs, horns, tips, pieces of horn) : cwts. 44,498—Rs. 15,89,759.

IMPORTS : 1868-69 : Rs. 21,756 ; 1901-02 : cwts. 409—Rs. 24, 765 ; 1946-47 : Rs. 27 only ; 1954-55 : Nil.

HORSES & PONIES

World Population :	75,700,000 heads
Indian Population :	1,514,000 heads
Pakistan Population :	494,000 heads

Chief Countries in the World : U. S. S. R. (18%) ; Argentina (11%) ; Brazil (9%) ; U. S. A. (9%) ; Mexico ; Poland ; Germany ; etc. ; etc.

Principal Indian States : Uttar Pradesh ; Bihar ; Bombay ; Rajasthan ; Hyderabad ; etc.

Uses : Draft purposes ; in warfare (cavalry) ; hides and skins ; meat ; hair (stringed instruments ; surgical purposes ; etc.), bones (q. v.)

ILMENITE (RUTILE)

(Titanium minerals)

[*Mineral*]

World Production : 1,000,000 tons (*Titanium*)
Indian Production : 240,513 tons (»)

Chief Producers in the World : U. S. A. (42%) : N. Carolina (Caldwell) ; New York (Essex) ; Virginia (Nelson, Amherst) ; Florida (Starke, Trial Ridge).

INDIA : Travancore-Cochin ; Bombay ; Patiala (Narnaul esp. Rutile).

NORWAY : West Agder ; Ragaland. (Blaafjeldite, Sogndal).

CANADA : Quebec, near Allard Lake.

AUSTRALIA : Byron Bay (beach sands).

BRAZIL : Minaes Geraes. AFRICA : Fr. Cameroons (Rutile). MALAY : Selagnor ; Pahang. FINLAND.

Principal Indian States :

(Figures in brackets represent production in tons)

TRAVANCORE-COCHIN : Quilon (232,089) to Cape Comorin Quilon-Koilthottum area ; Trivandrum (6,924) ; *Rutile* : (147).

BOMBAY : Ratnagiri (1,500).

Uses : Source of titanium ; pigment in paint, rubber, linoleum, leather, plastics, soap, printing ink, paper, textiles, ceramics ; in the manufacture of alloy steels ; welding rods, filaments of electric lamps ; refractory vessels ; enamels and glazes ; water-proofing composition.

Trade : EXPORTS : 1953-54 : tons 208,731—Rs. 1,19,12,784 ; 1954-55 : tons 255,233—Rs. 1,54,57,512.

INDIAN HEMP

(See **Hemp**)

INDIGO

(Indigofera tinctoria)

[*Dyestuff*]

Indian Production : 53 tons
Indian Acreage : 9,979 acres

Chief Producers in the World : India ; Java ; Natal.

Principal Indian States :

ANDHRA : Cuddapah ; Nellore ; etc.

MADRAS : South Arcot ; North Arcot ; Ramnathapuram.

HYDERABAD : Raichur ; Nander ; Bidar.

UTTAR PRADESH : Etawah ; Bulandshar ; Aligarh ; etc.

RAJASTHAN : Kotah ; Bundi ; Alwar.

BIHAR : Darbhanga.

MADHYA PRADESH ; MADHYA BHARAT ; BOMBAY.

Uses : Dye ; medicine.

Vernacular names : Nil ; jil, nila, guli, gali, tuli, kala, dala, tuttah, ranjani, etc.

Trade : EXPORTS : (First available account) : 1790 : cwts. 9,000 ; systematic records from 1813-14 : (from Bengal) : Rs. 97,79,194 ; 1848-49 : (all-India) Rs. 2,09,34,740 ; 1901-02 : cwts. 89,750—Rs. 1,85,23,000 ; 1946-47 : cwts. 1,004—Rs. 6,84,123 ; 1954-55 : cwts. 29—Rs. 5,069.

IMPORTS : 1876-77 : cwts. 1,327—Rs. 15,567 ; 1901-02 : cwts. 421—Rs. 62,794 ; 1946-47—nil.

IRON (Ore)

(Ferrum)

[*Mineral*]

World Production : 337,000,000 tons
Indian Production : 4,308,273 tons

Chief Producers in the World :

U.S.A. (35%) : The Lake Superior Region : *Minnesota* (Mesabi Range, the Cuyuna, the Vermillion Range) ; *Michigan* (the Marquette, Gogebic, Menominee) ; *Wisconsin* (Gogebic) ; *Alabama* (Birmingham, Russelville, Red Mountain) ; *Pennsylvania* (Cornwall) ; *New York* (Adirondack) ; *Texas* (East Texas) ; *Wyoming* (Hartville) ; *Utah* (Iron Mountain) ; *California* (Eagle Mountain) ; *New Jersey* (New Jersey and South-East New York) ; etc.

U. S. S. R. (18%) : *Ukraine* (Krivoi Rog, Kerch) ; *Central* (Tula, Letneva, Omutnisk, Lipetsk) ; *Urals* (Tagil-Kushva, Alapayevsk, Bakal, Magnitogorsk, Komarevo-Zigazinsk, Khali-

lovo) ; *West Siberia* (Telbess) ; *East Siberia* (Balyaga) ; *Transcaucasus* (Dashkesan).

FRANCE (12%) : Lorraine-Luxembourg ; Moselle Basin, Nancy ; Longwei ; the Pyrenees ; Normandy, Brittany, Anjou ; etc.

SWEDEN (5%) : *Lapland* (Kiruna, Gellivare-Luossavare, Tuolluvare) ; *Bergslagen* (Grangesburg, Dannemora) ; Taberg ; etc.

U. K. (5%) : Lincolnshire ; Yorkshire ; Licestershire ; Oxfordshire ; Cleveland Hill ; Rutland ; etc.

GERMANY : Siegerland (Rurh Region) ; Peinesalzgitter, Lahndill, Weser ; Coblenz (Iderwald) ; etc.

LUXEMBURG.

AUSTRIA : Styria (Erzberg) ; (Carinthia ; Huttenberg) ; etc.

CANADA : Ontario ; Quebec (Ungava) ; British Columbia ; St. Lawrence ; etc.

MEXICO : Cerra del Mercado, Las Truchas, El Mamey ; etc.

ARGENTINA : Rio Negro ; Cordoba ; Santiago del Estro ; etc.

NEWFOUNDLAND : Bell Island (Wabana) ; etc.

BRAZIL : Minas Geraes (Itabira) ; Bahia ; Matto Grosso ; etc.

UN. OF S. AFRICA : Transvaal (Potchefshock, Pretoria) ; etc.

SPAIN : *North* (near Bilbao, Gijon, Salamander) ; etc. *South* (Almeria ; Mercia) ; etc.

MALAYA : Johore ; Trengganu ; Kelantan.

PHILIPPINES : Suriago ; Larap Peninsula ; Calambayungan ; Camarines Norte ; etc.

INDIA (Reserves)

Estimated : 5,008 million tons

BIHAR : Singhbhum : 1,047 m. tons (*Kalhan* : Gua, Noamudi, Pansira Buru, Buda Buru).

MADHYA PRADESH : *Bastar* : 610 m. tons ; *Rowghat* : 880 m. tons ; *Chanda* : 21·9 m. tons (Pipalgaon, Ogulpet, Metapur, Lohara, Bhanapur, Menda-gunjahi) ; *Jabalpur* ; *Mandla* (Ramgarh) ; *Bilaspur* (Ratanpur) ; *Durg* : 120 m. tons (Dhalli-Lohara) ; *Raipur* ; *Bhandara* (Chandpur, Tirora) ; *Balaghat* ; *Banda* ; *Narsingpur* (Tendukhera), Dewargaon (Khandeswar) ; etc.

ORISSA : *Bonai* : 648 m. tons ; *Keonjhar* ; 988 m. tons ; *Mayurbhanj* : 18 m. tons ; Bamanghati Sub-division ; Gurumahishani, near Bandgaon in Sarandapir ; Okampad or Sulaipet Badampahar Range from Kondadera to Jaidhanposi ; Panchpir sub-division from Kamdabedi and Kantikua to Thakurmunda ; *Mayurbhanj proper* : Simlipahar Range and the sub-montane tract to the east (Gurguria, Kendia, Baldia) ; *Cuttack* (Temaka, Kansa) ; *Bamra* ; *Dhenkanal* ; *Rairakhol* ; *Talcher* ; *Angul* ; *Balasore.*

MADRAS : *Salem* ; *Tiruchirapalli* ; 304·65 m. tons. *Madurai* (Kottampatti, Sivagangei, Tenkarei) ; North and South Arcot (Trinomalai, Kairayana Hills, Panparappi, Ravantnalur) ; *Malabar* (Bepur) ; *Nilgiris* (Karrachola, Dodabetta) ; Chingleput ; Pudukotai ; etc.

ANDHRA : *Cuddapah* : 304 m. tons ; *Kurnool* : 3·7 m. tons ; *Chittoor* ; *Krishna* (Nandigama Taluk) ; *Godavari* ; *Visakhapatnam.*

MYSORE : *Kemmangundi* : 105 m. tons ; *Kadur* or Chickmaglur : Baba Budan : 200 m. tons ; *Sundar* : 130 m. tons ; *Mysore* (Malvilli), Sraban Hills, Shimago : (Kodaichhatri) ; *Chitaldrug* ; *Bellary* : Sandur ; *Tumkur* (Chickayakanhalli).

BOMBAY and GOA : 6 m. tons. *Ratnagiri* ; *Satara* ; *Panch Mahals* (Palanpur, Godhra) ; *Kohlapur.*

PEPSU : *Patiala* : 5 m. tons.

MADHYA BHARAT : *Gird* ; Bundelkhand ; Nimar ; Malwa ; Dhar ; Guna ; the Narbada Valley (Chandgarh, Powasa, Barwai, Kandikot, Bagh) ; *Bijawar* (Hirapur) ; *Gwalior* (par Hills, Mangor, Santo) ; etc.

RAJASTHAN : *Alwar* (Aravalli Hills near Bhangarh) ; *Jaipur* (Karwar) ; *Udaipur* (Gangpur) ; *Kishangarh* ; *Kotah* ; *Jhalwar.*

AJMER : Ajmer.

HYDERABAD : Kondarpur, Mitrapalli.

Production

(Figures within brackets represent production in thousand tons)

BIHAR : Singhbhum (1,947·6) ; Manbhum (·135) ; Shahabad ; Palamau ; Hazaribagh.

ORISSA : Mayurbhanj (1,064) ; Keonjhar (679) ; Cuttack (51) ;

MYSORE : Bellary : Sandur (169) ; Chitaldrug (11) ; Chickmaglur (63).

ANDHRA : Krishna (167·2) ; Kurnool (54·8) ; Chittoor (20) ; Cuddapah (6·6).

HYDERABAD : Khammameth (39) ; Warangal (·8).

MADHYA PRADESH : Chanda (7) ; Jabalpur ; Bilaspur ; Mandla ; Durg.

BOMBAY : Ratnagiri (10) ; North Kanara (2) ; Baroda.

RAJASTHAN : Jaipur (17) ; Sikar.

MADHYA BHARAT : Gird.

Uses : "It (iron) is capable of being cast into moulds of any form, drawn into wire of any desired length and fineness, extended into plates and sheets, bent into every direction, sharpened and hardened, or softened at pleasure. Iron accommodates itself to all our wants and desires, and even to our caprices ; it is equally serviceable to the arts, the sciences, to agriculture and war ; the same ore furnishes the sword, the ploughshare, the scythe, the pruning hook, the graver, the spring of a watch or of a carriage, the chisel, the chain, the anchor, the compass, the cannon and the bomb. It is a medicine of much virtue and the only metal friendly to the human frame."—Dr. Ure.

In engineering and building construction ; beams, rivets, girders, channels, bolts, nuts, rods, hinges, screws, nails, fittings, etc. ; machinery, tools, implements, apparatuses ; transport services, rails, engines, boilers, lines, tyres, poles, axles, signalling apparatus ; fencing materials, etc. ; ships and parts ; motor chassis and parts ; cycles, chains, rims, spokes and parts ; armaments, mines, tanks, submarines, fighters, bombers, etc. ; sheets, corrugated and plain, plates, wires, pipes, expanded metal, household utensils, carrying containers and canisters, drums and tanks ; furniture ; cutlery, agricultural implements ; etc.

Paints and pigments (ferric oxide), dye ; catalytic agent ; abraisives. Medicine

SLAG : In road making ; as ballast, etc.

Vernacular names : Ayas, louha, loha, lokhanda, inumu, irumbu, irumba, kabina, etc. Kheri (*steel*), giri (*bloom*) ; khit (*slag*).

Trade : EXPORTS : ORE : 1875-76 : tons 50—Rs. 100 ; 1901-02 : tons 305—Rs. 468 ; 1938-39 : (before World War II) tons 400, 388—Rs. 27,20,709 ; 1946-47 : tons 20—Rs. 500 ; 1954-55 : tons 908,499—Rs. 3,83,15,465 (Japan 47% and Czechoslovakia 29%).

IRON and STEEL : First recorded export : "*Old iron for remanufacture*" : Cast pig ; wrought : nails, screws, rivets, etc. 1875-76 : cwts. 4,385—Rs. 46,704 ; 1901-02 : cwts. 35,770—Rs. 1,80,821 ; 1946-47 : tons 45—Rs. 50,903 ; 1954-55 : tons 118,700—Rs. 1,70,97,359. These exclude export of Iron, Iron or Steel, Pig, etc.

For Trade in Iron and Steel manufactures, see "Iron and Steel" Industry.

IRUL

(Xylia xylocarpa)

[*Timber*]

Occurrence in India : Madras ; Bombay ; Coorg ; Orissa ; Uttar Pradesh ; etc.

Uses : Constructional work ; railway sleepers ; planks, piles and pit props ; floorings (of railways) ; etc.

Vernacular names : Surya, suria, irul, etc.

IVORY

(See ELEPHANT)

JACK (FRUIT) TREE

(Artocarpus integrifolia)

[*Fruit and Timber*]

Chief Producers in the World : India ; Ceylon ; Burma ; Mexico ; Brazil ; etc.

Occurrence in India : Bengal ; Assam ; and other warmer parts of India. In wild state in the Western Ghats ; etc.

Uses : TIMBER : General carpentry, panelling, furniture (for high polish), etc. Indigenous dye.

FRUIT : (or fruitescence, *i.e.*, growing from an aggregation or assemblage of flowers) : eaten ripe or unripe (cooked).

SEEDS : Eaten baked or parched, (rich in starch). BARK : Cordage ; for caulking boats.

Vernacular names : Kanthal, kantal, kathal, panasa, panas, phanas, pilá, piláپazham, panasa-pandu, veru-panasa, halsu, etc.

JAMAN

(Eugenia jambolana ; etc.)

[*Timber*]

Occurrence in India : Almost in every State : Assam ; West Bengal ; Bombay ; Madhya Pradesh ; Bihar ; Orissa ; Uttar Pradesh ; etc.

Uses : FRUIT : Food ; vinegar. TIMBER : Building construction ; agricultural implements ; well-work ; sleeper ; fuel : etc. SEED : Medicine. LEAVES : Medicine.

Vernacular names : Jambu, jam, jambul, kuda, zebri, thabjeju, nir naval, neralu, etc.

JARUL

(Lagerstroemia flos-reginæ)

[*Timber*]

Occurrence in India : Assam ; West Bengal ; Madras ; Bombay ; (West Coast) ; Travancore.

Occurrence outside India : Burma.

Uses : Building purposes ; door and window frames ; plankings ; centering ; scantlings ; etc. ; boat and wagon building ; boot lasts, floorings ; etc,

Vernacular names : Pyinma, ajhan, bondara, taman, gara, sekre, kadali, pu maruthu, mani maruthu, etc.

JHINGAN

(Lannea grandis)

[*Timber*]

Occurrence of India : Uttar Pradesh ; Madhya Pradesh ; West Bengal ; Bihar ; Orissa ; Madras ; etc.

Uses : Agricultural implements, troughs, dugouts ; furniture ; boat and building construction ; turnery, bobbins, shoe lasts ; etc

Vernacular names : Loka, mohin, godda, etc.

JOWAR

(Sorghum vulgare)

[*Foodgrain*]

Indian Production : 9,092,000 tons
Indian Acreage : 43,456,000 acres
Pakistan Acreage : 1,504,500 acres
Pakistan Production : 280,000 tons

Chief Producers in the World : U. S. A. (for green fodder) ; North Africa ; South Western Asia ; India ; China.

Principal Indian States :

BOMBAY : Sholapur ; Bijapur ; Ahmadnagar ; Poona ; Belgaum ; Dharwar ; Satara (South) ; Meshana ; East Khandesh ; West Khandesh ; Satara (North) ; Surat ; Broach ; Nasik ; etc.

HYDERABAD : Gulbarga ; Raichur ; Parbhani ; Aurangabad ; Osmanabad ; Nander ; Bir ; Adilabad ; Mahbubnagar ; Nalgonda ; Bidar ; etc.

MADHYA PRADESH : Nagpur ; Yeotmal ; Akola ; Buldana ; Amraoti ; Chhindwara ; Wardha ; Nimar ; Saugor ; Betul ; etc.

MADRAS : Coimbatore ; Tiruchirapalli ; Salem ; Madurai.

ANDHRA : Kurnool ; Cuddapah ; Guntur ; Nellore ; Anantapur ; Krishna ; etc.

MADHYA BHARAT : Nimar ; Mandsaur ; Ujjain ; Shajapur ; Rajghar ; etc.

UTTAR PRADESH : Jhansi ; Hamirpur ; Kanpur ; Bulandshar ; Furrakhabad ; Mathura ; Fatehpur ; Jalaun ; etc.

SAURASHTRA : Bhavnagar. PUNJAB : Rohtak ; Gurgaon ; Karnal ; etc. AJMER : Ajmer ; Kheri. BIHAR : Shahabad ; Saran ; etc.

Uses : Food ; forage ; etc.

Vernacular names : Juar, joar, joari, jondla, kurbi, phag, thuthera, junri, jondla, karbi, cholam, talla, jonna, tella-janular ; etc.

Other trade names : GUINEA CORN ; (INDIAN GREAT) MILLET ; TURKISH MILLET.

Trade : See "Bajra".

JUTE

(Corchorus)

[*Fibre*]

World Production : 6,059,000 bales
Indian Production : 3,153,000 bales
Indian Acreage : 1,273,000 acres
Pakistan Acreage : 1,150,000 acres
Pakistan Production : 2,708,000 bales
(Bales are of 400 lbs. each)

Chief Producers in the World : Pakistan ; India ; (Brazil ; Formosa ; Nepal).

Principal Indian States :

WEST BENGAL : Murshidabad ; 24-Parganas ; Nadia ; Hooghly ; Cooch Behar ; Jalpaiguri ; Malda ; W. Dinajpur ; Midnapore ; Howrah ; etc.

BIHAR : Purnea ; Saharsa ; Muzaffarpur ; Champaran ; etc.

ASSAM : Goalpara ; Nowgong ; Kamrup ; Darrang ; etc.

HYDERABAD : Aurangabad ; Bidar ; Parbhani.

MADHYA BHARAT : Morena ; Guna ; Ratlam ; Dhar ; etc.

ANDHRA : Guntur ; Visakhapatnam.

ORISSA : Cuttack ; etc.

Pakistan : E. PAKISTAN : Mymensingh ; Rangpur ; Dacca ; Faridpur ; Rajshahi ; Pabna ; Jessore ; Dinajpur ; Kusthia ; Bakarganj ; Noakhali ; etc.

Uses : FIBRE : Twist, rope, hessian, sacking cloth and bags ; packing ; road making ; building construction ; paper and board manufacture ; etc.

STICKS : Fuel ; fencing (for *pán* vine) ; thatching material ; float ; etc.

LEAVES : Pot herb ; medicine.

Vernacular names : Pát, patta, singin janascha, kostha, perattikirai, punaku cheddy, parinta, perinta kurá.

Trade : EXPORTS : *Raw* : 1848-49 : Rs. 6,87,170 (whereas of *gunny bags*, etc. from 1818-19 : Rs. 1,52,007) ; 1901-02 : cwts. 14,755,000—Rs. 11,79,72,720 ; 1946-47 : tons 306,485—Rs. 19,13,46,603 ; 1954-55 : nil.

IMPORTS : 1868-69 : Rs. 175. Imports were very erratic. 1866-67 : cwts. 1,171—Rs. 76,687 ; 1946-47 : tons 21—Rs. 3,068 ; 1947-48 : tons 2,653—Rs. 23,81,354 ; 1954-55 : (by *Sea*) tons 808—Rs. 2,99,853 and (by *Land)* tons 217,568—Rs. 12,97,27,128.

For Trade in "Manufactures"—See "Jute" Industry.

KADAM

(Anthocephalus cadamba)

[*Timber*]

Occurrence in India : Nepal ; Bengal (Darjeeling) ; Assam ; Bihar ; Orissa ; Madras ; Coorg ; Mysore ; Travancore.

Uses : Boarding, packing case, tea-box ; spools ; match making ; splints ; dug-outs ; canoes ; bobbins ; etc.

Vernacular names : Raghu, karam, bol-kadam, kadwal, vella-cadama, kadambe, rudruk shamba, atta vanji, etc.

KAIM

(Mitragyna parvifolia)

[*Timber*]

Occurrence in India : Uttar Pradesh ; Bihar ; (Bombay ; Madras ; Orissa ; etc).

Uses : Turnery ; bobbins ; shuttles ; combs ; platters, bowls, toys, handles (of walking sticks) ; picture frames ; shoe heels ; (printing) blocks ; etc.

Vernacular names : Kalikadamba, amsabita, hedu, etc.

KANJU

(Holoptelia integrifolia)

[*Timber*]

Occurrence in India : Uttar Pradesh ; West coastal regions (Malabar) ; Bihar ; Orissa ; Madhya Pradesh ; etc.

Uses : Boxes ; box shooks ; bobbins ; cotton reels ; slate frames ; furniture ; brush handles and backs, match boards ; domestic articles ; shoe heels ; mathematical instruments ; etc.

Vernacular names : Papri, chilbil, etc.

KAPOK (Semul)

(Bombax malabricum)

(Silk Cotton Tree)

[*Floss and Timber*]

Exports : 31,265,000 lbs.

Chief Producers in the World : Indonesia (Java) ; India ; Indo-China ; Pakistan ; Ceylon ; Br. East Africa ; Ecuador.

Principal Indian States :

Almost all parts of India, especially West Bengal. BIHAR : Santhal Pargana. ASSAM : Brahmaputra Valley. UTTAR PRADESH : Ramnagar, Haldwani, Lansdowne, Siwalik, Kheri. BOMBAY : Panch Mahals, Kanara forests. MADRAS : West Coast. MADHYA PRADESH : Chanda, Raipur, Balaghat, etc. ANDHRA : Godavari. ORISSA : Ganjam, etc.. COORG ; TRAVANCORE-COCHIN ; etc.

Uses : COTTON : Bedding : pillows, mattresses ; upholstery ; stuffing, packing material ; "filling" for life preserves, life cushions ; etc. ; paper material.

TIMBER : Match-boxes and sticks ; packing boxes (tea and rubber boxes) ; ceiling board ; plywood ; shingles and toys ; splints ; fishing floats ; water troughs ; oil casks, pens and pencils ; insulating material ; etc..

SEED : Oil : Semi-drying oil ; oleo-margarine ; soap making ; illuminant ; etc.

BARK : Cordage, fibre.

GUM : (*Mocha ras*) as Katira gum (see *Karaya Gum*). Medicine.

BUDS : Vegetable (as pot herb).

Vernacular names : Semali, sembal ; pagun simuri, bouro, saur, saer, savara, simlo, samar, mundla-buraga-chettu, pula, etc.

Kapok (Ceiba petandra)

This species originally confined to the American tropics is now found in Asia and Africa as well.

Kapok (Eriodendrun anfractusum)
(White Silk Cotton Tree)

Chief Producers of the world : Java ; Philippines ; Ceylon.

The fibre has a very low specific gravity and is impervious to water.

Trade : EXPORTS : 1919-20 : cwts. 27,363—Rs 16,05,840 ; 1946-47 : cwts. 33,597—Rs 36,35,420 ; 1954-55 : cwts. 58,278—Rs 92,43,102.

KARAYA (Gum)
(Sterculia urens)

[*Gum and Resin*]

Occurrence in India : In the dry forests of Northern India ; Madhya Bharat ; Bombay ; Western Coast (Konkan and Kanara).

Uses : GUM : Substitute for tragacanth ; pharmaceuticals (emulsifier and adhesive agent for pills and tablets) ; composition building material ; sizing (textile) ; adhesive ; leather dressing ; calico printing ; food preservative ; cosmetic preparation (tragacanth) ; etc.

BARK : Fibre (ropes and coarse cloth). GUM, Bark, Leaves : Medicine (of local importance). LEAVES : Cattle fodder. SEEDS : Edible (when roasted). TIMBER : Toys; musical instruments (guitars, etc).

Vernacular names : Katila, katira, gútú, gabiná, kom, kóu, tábsu, vellay pútali, odla. pandruk, etc.

Trade : Because of its growing importance it was first separately recorded from the comprehensive trade group "*Gums and Resins*" from 1st April, 1951.

Exports	Quantity cwts.	Value Rs. '000
1951-52	78,022	1,23,01
1952-53	79,686	59,83
1953-54	68,922	48,66
1954-55	62,347	64,72

The principal buyers are U.S.A., U.K. and Western Germany.

Note : Chief sources of supply of Bassora Gum : *Cochlospermum gossypium, Salmalia malabrica* and *Sterculia urens.*

Other trade names : INDIAN TRAGAKANTH ; BASSORA or HOG-GUMS ; KADAYA, KATILA, KATERA GUM (*Astragalus heratensis*).

KHARI
(Glauber's salt or Sodium sulphate)

[*Alkaline earth*]

India Production : 15,000 tons

Occurrence in India : "Recovered in various saltpetre areas as well as in association with the brine in Sambhar Lake and other places in Rajputana (Rajasthan)." Bihar ; Uttar Pradesh.

Uses : For preserving hides ; veterinary medicine. In the manufacture of carbonate of soda ; etc.

Vernacular names : Kshari lavan, Patna khari, etc.

(See **Reh**)

KHAS-KHAS
(Vetiveria zizanioides or Andropogon muricatus)

[*Matting*]

Occurs almost in every part of India ; especially in Bombay and Punjab.

Uses : Mats, fans, ornamental works ; tatties or screens (wet) used as protection against hot winds and high temperature. (ROOTS : Vetiver oil : perfume ; medicine.)

Vernacular names : Khus, bena, panni, balé-ká-ghâns, sirom, tin, valo, lávanchá, etc.

KINDAL
(Terminalia paniculata)

[*Timber*]

Occurrence in India : Bombay ; Madras ; etc.

Uses : General constructional wood, furniture, boat, railway carriage and wagon building ; etc.

Vernacular names : Pillamarudu, uluve, etc.

KUTHAN
(Hymenodictyon excelsum)

[*Timber*]

Occurrence in India : Assam ; West Bengal ; Bihar ; Orissa ; Uttar Pradesh ; etc.

Uses : Brush backs and handles ; bobbins ; matches ; toys ; cooperage, drums ; scabbards ; brushes ; drawing boards ; plane tables ; pens and pencils.

Vernacular names : Baurang, bhorsal, doddi, bhurkhund, latikarun, bhaulan, etc.

KYANITE

[*Mineral*]

Indian Production : 42,330 tons

Chief Producers in the World : U. S. A. : Virginia, Montana ; India ; Canada ; Switzerland ; Sweden ; Brazil.

Indian Reserve (Est.) : 300,000 tons

(Lapsa Buru of Kharsawan : 200,000 tons) ; Besides the areas actually under mining, the other known reserves are : BIHAR : Dhalbhum : Rakha mines, Badia, Mushabani, Kanyaluka, Shirhai. PATIALA : Narnaul. MHYSORE : Mavinkere Taluk. HYDERABAD : Warangal : Charribpet. HIMACHAL PRADESH : Bashahr ; etc.

Principal Indian States : BIHAR : Kharsawan (70·5%), Singhbhum, Manbhum, Seraikela. ANDHRA : Nellore. MYSORE : Chikmangalore, Hassan. ORISSA : Mayurbhanj.

Uses : Refractory bricks ; high quality porcelains such as used in sparking plugs ; etc.

Trade : EXPORTS : 1951-52 : tons 22,592—Rs. 49,24,896 ; 1954-55 : tons 24,214—Rs. 59,30,841.

(Indian) LABURNAM

(Cassia Fistula)

[*Tanning Bark*]

Occurrence in India : The tree grows all over India, Burma, Ceylon, (in South India and at random in Bengal) ; bears yellow flowers and very long pods.

Uses : BARK : Dye and tan. TIMBER : House and bridge posts, stocks and shafts of carts, etc. PULP of fruit and root bark : Medicine.

Vernacular names : Sondal, sundali, amaltás, alash, sunaru, sandari, sunari, báhavá, konraih-káy, kone, reylu, rela-rálá, subarnaka, rájataru, etc.

LAC

(Tachardia lacca)

[*Resin*]

World Production : 2,000,000 mds.

Indian Production : 1,152,000 mds.

Chief Producers in the World : India ; Straits Settlements ; Siam ; Java ; Ceylon ; Indo-China.

Principal Indian States :

BIHAR : Manbhum ; Ranchi ; Singhbum ; Palamau ; Gaya ; Hazaribagh ; Santhal Pargana ; etc.

MADHYA PRADESH : Bilaspur ; Bhandara ; Surguja ; Balaghat ; Raipur ; Jabalpur ; Chhindwara ; Mandla ; etc.

WEST BENGAL : Murshidabad ; Bankura ; etc.

Vindhya Pradesh ; Assam ; Uttar Pradesh ; Orissa ; Bombay.

Uses : Gramophone records ; lac and lacquer wares ; mouldings of ornaments ; paints and varnishes ; electrical appliances (insulating materal) ; sealing wax ; stiffening material (in hats) ; in leather dressing ; etc.

Vernacular names : Laksha, lákh, gala, komburruki, kommolaka, chanch gala, etc.

Other trade names : SEED LAC ; STICK LAC ; BUTTON LAC ; etc.

Trade : EXPORTS (*from Bengal*) : 1814-15 : '*Lac Lake*' Rs. 1,94,733 and *Shell Lac*, etc. Rs. 1,26,796. (*All India*) 1848-49 : Rs. 8,24,530. Quantity first recorded in 1862-63 : cwts. 56,429—Rs. 23,50,900 ; 1901-02 : cwts. 157,071—Rs. 96,05,280 ; 1946-47 : cwts. 676,808—Rs. 11,18,23,825 ; 1954-55 : cwts. 536,007—Rs. 10,61,56,491.

Started recording under the name *Lac Dye* in 1867-68 ; cwts. 12,004—6,33,962 ; exports continued till it stopped in 1901-02.

IMPORTS : 1868-69 : cwts. 1,233—Rs. 19,814 ; 1901-02 : (*Stick*) : cwts. 14,695—Rs. 3,30,880 ; (*Button*, first recorded) 1902-03 : cwts. 117—Rs. 9,600 ; 1946-47 : cwts. 37,163—16,65,306 ; 1954-55 : cwts. 104,772—Rs. 89,03,790.

LAC TREE (Kosumba)
(Schleichera trijuga)

[*Timber*]

Occurrence in India : Bombay ; Orissa ; United Provinces ; (throughout the dry forests of India).

Uses : TIMBER : In oil and sugar mills ; "hubs of wheels, mortars, bearings and tool handles. It is also used in mines as a pit prop and for gallery structures".—Trotter

Vernacular Names : Kusumb, kosum, koon, kohan, kusamo, rusam, puvan, pava, puva, paka, pusku, may, roatonga, gausam, gosum, kusam, sagdi, chendala, gyo, etc.

Other trade name : CEYLON OAK.

LARD
(Pig fat)

Collection is limited to West Bengal, particularly near about Calcutta.

Uses : Food ; soap ; lubricant ; candle, illuminant ; adulterant of butter ; etc.

Vernacular names : Charbi, suar or sukar charbi.

Trade : EXPORTS : 1907-08 : lbs. 69,400—Rs. 1 244 ; 1946-47 : nil.

IMPORTS : 1897-98 : lbs. 199,821—Rs. 38,152 ; 1901-02 : lbs. 226,665—Rs. 51,037 ; 1946-47 : cwts. 21—Rs. 2,832 ; 1954-55 : cwts. 372—Rs. 36,172.

LAUREL (Saj or Asan)
(Terminalia tomentosa)

[*Timber*]

Occurrence in India : Almost everywhere in India : West Bengal ; Bihar ; Uttar Pradesh ; Bombay ; Madras ; Madhya Pradesh ; etc.

Uses : Constructional wood ; carts ; agricultural implements ; tool handles ; planks, boards, floorings ; electrical casing ; etc.

Vernacular names : Asna, sain, mutti, sajar, karimaddu, pucca saj, etc.

LEAD

(Plumbum)

[*Mineral*]

(*In terms of Metal*)

World Production : 2,110,000 tons

Indian Production : 1,791 tons

Chief Producers in the World : U. S. A. (16%) : *Missouri* : S.-E. Missouri ; St. Francois ; Madison ; etc. *Idaho* : Couer d' Alene ; Warm Springs ; Lelande ; Hunter. *Utah* : Bingham ; Tintic ; Uintah ; Rush Valley. *Tri-State* : S.-W. Missouri-Kansas. *Oklahoma* : Joplin. *Arizona* : Bisbee ; Old Hat ; Pima. *Montana* : Butte ; Heddleston. *Nevada* : Pioche ; Battle Mountain. *Colorado* : Upper San Miguel ; Ten Mile ; Pioneer ; Leadville. *California* : Resting Springs ; Cose ; Darwen. *Washington* : Metaline ; North Port. *Virginia* : Austinville. *Kentucky* ; *New Mexico* : Iowa. *New York* : St. Lawrence ; etc.

AUSTRALIA (12%) : *New South Wales* : Broken Hill ; Captain's Flat. *Tasmania* : Red Rosebery.

U. S. S. R. (12%) : *Turkestan* : E. Kazakhstan (Rider Group) ; S. Kazakhstan (Turlan Group). *E. Siberia* : Transbaikal. *N. Caucasus* ; *Far East* : Tetyukhe ; *W. Siberia* : Zmeinogorsk.

MEXICO (11%) : Chihuahua ; Durango ; Zacatecas ; San Luis Potosi ; etc.

CANADA : Quebec ; British Columbia (Kimberley).

PERU : Cerro de Pasco ; Huanuco ; Junin.

YUGOSLAVIA : Serbia near Belgrade and Ljubljana.

Fr. MOROCCO : Oujda-Bou Beker.

GREECE : Chios (Samothrake, Thasos).

BURMA : Shan State (Badwin). Germany ; S.-W, Africa ; Tunis ; etc.

Principal Indian States : RAJASTHAN : Udaipur (Zawar). Bihar ; Punjab.

Reserves : Mochi Mogra in Zawar area : 200,000 tons.

Uses : Water pipes ; batteries ; cable sheathing (alloy with calcium) ; lining of chemical apparatuses (sulphuric acid plant,

etc.) ; roofing, ornamental castings ; (tetraethyl lead : in internal combustion engines) ; in sinkers, plummets and shots ; alloy in bearing (Babbit) metals, solders, printing materials (esp. types matrices) ; foil, fusible metals ; pigments (litharge and minium) ; chemicals : ingredient of ferrite cement ; dye ; printing inks ; insecticide ; as a drier in paint and varnish ; perfumery ; refining molasses and sugar ; detonating compound ; etc.

Trade : EXPORTS : 1875-76 : cwts. 685—Rs. 8,754 ; 1889-90 : cwts. 4,675—Rs. 37,787 ; suspended recording separately ; 1933-34 : cwts. (pig) 1,302,260—Rs. 1,51,74,360 ; 1946-47 : cwts. 65—Rs. 17,100 ; 1954-55 : cwts. 2,048—Rs. 80,133. IMPORTS : 1848-49 : Rs. 3,18,040 ; 1867-68 : cwts. 13,545—Rs. 2,20,600 ; 1901-02 : cwts. 151,548—Rs. 22,40,280 ; 1946-47 : cwts. 132,443—Rs. 43,61,465 ; 1954-55 : cwts. 202,526—Rs. 1,41,49,369.

LEMONS

(Citrus acida, etc.)

[*Fruit*]

World Production : 1,225,000 tons
Indian Production : 543,000 tons

Chief Producers in the World : U. S. A. ; Italy ; Chile ; Greece ; Fr. North Africa ; Turkey ; Lebanon ; Australia ; India ; Israel ; Pakistan ; etc.

Principal Indian States : Madras ; Travancore-Cochin ; W. Bengal ; Assam ; Uttar Pradesh ; Madhya Pradesh ; Himachal Pradesh ; foot of the Himalayas.

Uses : JUICE : For flavouring soups, curries, etc. ; medicine ; cleansing of metal utensils ; for *Sherbet* ; source of citric acid ; etc. FRUIT : Fresh fruit (sweet type) ; etc.

Vernacular names : (*Kagazi* or *pâti*) nebu, nimbu, libu, jambira, limpaka, vijápura, vijaka, etc. (*Sweet type*) Santara nibu, mitha nebu, amritphal, thanbaya, madhukarkatia, turanj beg-pura, housa nebu, balânk, mavalung, etc.

LEMON GRASS

(West Indian Lemon Grass)

(Cymbopogon citratus)

[*Oil*]

Occurrence : Straits Settlements ; Madagascar ; Mauritius ; India ; Ceylon ; U. S. A. (Florida) ; etc.

Principal Indian States : (Southern India) ; Travancore-Cochin ; Mysore ; Punjab ; Bombay ; etc.

Uses : OIL : The oil is used in artificial perfumes and scenting of soaps ; extensively used for cooking and flavouring in confectionery and toilet ; (also for obtaining "ionone, from which synthetic violet is made"). GRASS : Beverage.

Vernacular names : Gandha-bena, gandha-trina, hirvacha, lilicha, vashanup-pulla, kurpura-pulla, nimma-gaddi, chippa-gaddi, bhústrina, dhanwantari (grass), etc.

Trade : EXPORTS : OIL : 'Essential oil' : 1868-69—Rs. 12,052 ; of *Lemon grass oil* : 1917-18 : gals. 27,009—Rs. 3,89,160 ; 1946-47 : gals. 132,290—Rs. 1,46,32,394 ; 1954-55 : gals. 169,157—Rs. 1,14,91,680.

(East Indian) LEMON GRASS

(Malabar or Cochin Lemon Grass)

(Cymbopagon flexuosus)

[*Oil*]

Occurrence in the World : Guatemala ; Honduras ; Haiti ; etc.

Occurrence in India : South India : Madras (Tirunelveli) ; Travancore-Cochin ; etc.

Uses : OIL : Flavouring agents ; perfumery ; soap, toilet (perfume) ; mosquito repellent (in ointment).

Vernacular names : Kadi-pullu (mostly the same as "Lemon grass.")

Trade : See "Lemon Grass".

LENDI

(Lagerstrœmia parviflora)

[*Timber*]

Occurrence in India : West Bengal ; Assam ; Uttar Pradesh ; Madhya Pradesh ; Bihar ; Orissa ; Bombay ; Coorg ; etc.

Uses : Constructional work, posts, beams and rafters, bridges ; boards and cooperage ; cart building ; etc.

Vernacular names : Nandi, dauri, sidha, sidak, chennagi, lendia, etc.

LENTIL

(Lens esculenta)

[*Pulses*]

Indian Production : 191,000 tons
Indian Acreage : 1,099,000 acres

Principal Indian States : Bihar ; Uttar Pradesh ; West Bengal ; Madhya Pradesh ; Bhopal ; Punjab ; Vindhya Pradesh ; Hyderabad ; PEPSU ; Bombay ; etc.

Uses : Food and diet ; young pods eaten raw ; fodder (plants).

Vernacular names : Masur, misurpurpur, etc.

Trade : EXPORTS : First separately recorded (from 'pulses') 1917-18 : tons 29,773—Rs. 49,55,000 ; 1946-47 : negligible till 1953-54 ; 1954-55 ; tons 4,577—Rs. 19,89,748.

LIME (Lemon)

(Citrus aurantifolia)

[*Fruit*]

Occurrence in the World : In most of the tropics.

Principal Indian States : Madras ; Bombay (Baroda) ; West Bengal ; Punjab ; Madhya Pradesh ; Hyderabad ; Delhi ; Patiala ; Uttar Pradesh ; Mysore.

Uses : FRUIT : (juice) savouring agent ; in the manufacture of jellies, jams ; (salted) preserved (*achâr*) fruit ; in flavouring food and preparing beverages (*Sherbat*) ; calcium citrate ; medicine ; in removing marks of (writing) ink ; etc.

PEEL : Cleansing metalware ; medicine ; etc.

Vernacular names : Kagazi-nimbu, pati-nebu, kagzi-nebu, elumichai, nimma, etc.

LIMESTONE
(Calcium carbonate)

[*Mineral*]

World Production : 710,000,000 tons
Indian Production : 6,000,000 tons

Principal Indian States :

ORISSA : *Sundargarh* : Birmitrapur. *Rajgangpur* : Lanjiberna, Hathibari. *Koraput* : Kotamatta near Sabarai River. *Sambalpur* : Dungri ; etc.

BIHAR : *Shahabad* : Rohtasgarh : Chunhattar. *Hazaribagh* : Bandu Basaria. *Palamau* : Khalari. *Singhbhum* : Kalhan ; etc.

ASSAM : *Garo* : Siju. *Khasia Hills* : from Lamgao to the Shella River, Langrin. Jaintia Hills ; Mikir Hills ; Sylhet (from Therriaghat to Charigaon).

BOMBAY : *Bijapur* between Kaladgi and Bagalkot. *Mudhol* : Lokapur. *Banaskantha* : Khunia ; Kopa, Pasuval. *Kaira* : Balasinor. *Surat* : Tarkeshwar. *Broach* : Vanji, Gora.

MADHYA PRADESH : *Jabalpur* : Katni-Murwara (Tikaria, Barapara, Tikuri, Murwara). *Jukehi Kaimur region* : Khalwara, Mehgaon, Katni, Kaimur. *Amraoti* between Belkher and Bairam Ghat. *Chanda* : Kandara. *Durg* : between Barondha and Sukhari : Kumari, Nandgaon. *Bilaspur* between Darrabhata and Akaltara (Champa, Mohtara, Baraduar).

ANDHRA : Visakhapatnam ; Nellore ; *Kurnool* : Owkavuku, Betamchir, Palkur, Koilkuntta, Banganpalle, Dhone, Kurnool, Nandikotkur. *Cuddapah* : Kamalapuram, Jammalamadugu. *Anantapur* : Rameswar-swami. *Godavari East* : Bhadrachalam. *Guntur* : Pidugurala—Sitarampuram, Zulakallu.

MADRAS : *Tiruchirapalli* : Lalgudi, Perambalur. *Salem* : Nadanadai, Coimbatore. Madurai ; Tirunelveli (Talaiyuttu) ; *Ramnathapuram* : Pandalkudi.

MADHYA BHARAT : Mandasor : (Kesharpura). *Morena* : Kailaras. Nimar ; Dhar ; Jhabua.

VINDHYA PRADESH : *Sohawal* : Satna. *Mahiwa* : Amelia.

RAJASTHAN : between Chitor in Udaipur and Nimbahera in Tonk. *Bundi* : Lakheri. *Jodhpur* : Sojat, Gotan, Sarangwa.

MYSORE : *Shimoga* : Bhadigund. *Chitaldrug* : Hosdurga. *Tumkur* : Voblapur. Mysore.

SAURASHTRA : *Porbandar* : Aditania, Bharwada, Bakharla ; Zalwad ; Junagadh (Gorakundi).

PUNJAB : *Ambala* : Narayangarh, Dabsu, Tundapathar, Sherla.

HYDERABAD : Raichur ; Gulbarga ; (Shahabad) ; Nalgonda.

UTTAR PRADESH : *Mussoorie* : Bhatta. *Dehra Dun* : Doiwalla. *Mirzapur* : Markundi.

HIMACHAL PRADESH : *Kulu* : Larji area. *Sirmur* : Lower Giri Valley.

PEPSU : PATIALA : Malla.

Occurrence in Pakistan : PUNJAB : From Baghanwala in Jhelum to Mianwali (Ara—Dandot—Sakesar Nammal) ; the Salt Range (Basharat, Dandot, Mari Indus, Khairabad) ; Trans-Indus Salt Range (Makarwal, Malla Khel, Sheik Budin) ; from Khata to Daud Khel.

N.-W. F. P. : Dera Ismail Khan (Mughal Kot) ; Swat (Buner) ; Waziristan (Spli Toi, Isha Fort) ; Sind (Sukkur).

Uses : Building material ; cement ; disinfectant (chloride of lime or bleaching powder) ; as flux in metallurgy ; in iron smelting ; refractories ; crucibles ; in tanning ; white washing ; whiting (filler in textile, soap, rubber, paper, paint manufacture) ; in glass industries, sugar refining ; in calico printing, dyeing ; in the production of limelight, fertiliser, caustic soda, calcium carbonate ; calcium (for the reduction of refractory metallic oxides) ; medicine ; in *pán* (betel leaf) chewing ; rolum (adhesive or cement in conjunction with flour gluten or other materials) ; (chalk) writing material (crayons) ; putty making ; in ceramics ; in chemical processes ; etc.

Other Forms of Limestone : Marble, chalk, marl, tufa, *kankar*.

Vernacular names : Chun, chunam, chunaka pathar, chunaka patthal, etc.

LINSEED
(Linum utitatissimum)

[*Oilseed*]

World Production : 3,035,000 tons
Indian Production : 388,000 tons
Indian acreage : 3,290,000 acres

Pakistan : *Acres* 74,000 ; *Production* : 12,000 tons

Chief Producers in the World : U. S. A. (30%) : North Dakota ; South Dakota ; Iwoa ; Montana ; Minnesota ; etc.

U. S. S. R. (20%) : Ukraine ; White Russia ; Kalinin ; Leningrad ; Smolensk ; Vologda ; Yaroslavl ; Gorki ; Moscow ; Ivanovo ; etc.

ARGENTINA (13%) : Buenos Aires ; Cordoba ; Santa Fe : Entre Rios ; etc.

INDIA (11%) : See below.

CANADA (8%) : South Saskatchewan ; Manitoba ; Alberta.

Urugay ; Mexico ; Turkey ; Fr. Morocco ; Netherland ; Belgium ; France ; Pakistan ; Italy ; Sweden ; etc.

INDIA

MADHYA PRADESH : Durg ; Raipur ; Saugor ; Bhandara ; Bilaspur ; Balaghat ; Hosangabad ; Nagpur ; Chanda ; etc.

BIHAR : Gaya ; Shahabad ; Champaran ; Bhagalpur ; Saran ; Santhal Pargana ; Monghyr ; Patna ; Darbhanga ; etc.

HYDERABAD : Gulbarga ; Aurangabad ; Parbhani ; Bir ; Osmanabad ; etc.

MADHYA BHARAT : Ujjain ; Dhar ; Bhilsa ; Guna ; Mandsaur ; Marena ; etc.

RAJASTHAN : Kotah ; Bundi ; Jhalwar ; Chittorgarh ; Tonk.

UTTAR PRADESH : Mirzapur ; Hamirpurá ; Gonda ; Jalaun ; Allahabad ; Banda ; Bahraich ; etc.

BOMBAY : Bijapur ; Dharwar ; etc.

WEST BENGAL : Murshidabad ; Nadia ; etc.

Pakistan : East Pakistan.

Uses : SEED : Edible ; medicine (poultices).

OIL : Drying oil in paints and varnishes ; soft soap ; printing ink ; oilcloth, waterproof, linoleum manufacture ; patent leather ; rubber substitute ; edible ; etc.

CAKE : Cattle food.

FIBRE (*Flax*) : Ropes, cordage, string, twine, packing material.

Vernacular names : Alsi, tisi, masini, masina, chikna, pesu, bijri, alási, javosa, alshi-virai, atasi, ullú, súlú, etc.

Trade : SEED : EXPORTS : 1866-67 :—Rs. 75,04,615. Quantity of export available from 1867-68 : cwts. 2,490 933—Rs. 1,24,68,339 ; 1901-02 : cwts. 7,327,869—Rs. 6,76,37,941 ; 1946-47 : tons 51,922—Rs. 2,54,56,369 ; (last) 1952-53 : tons 68 —Rs. 52,760.

IMPORTS : 1875-76 : cwts. 113—Rs. 651 ; 1901-02 : cwts. 4,995—Rs. 38,646 ; (last) 1932-33 : tons 23—Rs 1,806.

OIL : EXPORTS : 1888-89 : gals. 3,070—Rs. 4,643 ; 1901-02 : gals . 138,409—Rs. 3,57,740 ; 1946-47 : gals. 303,292—Rs. 17,84,409 ; 1954-55 : gals. 2,399,557—Rs. 1,12,55,218.

IMPORTS : 1885-86 : gals. 297,185—Rs. 4,48,826 ; 1901-02 : gals. 244,391—Rs. 5,30,782 ; 1946-47 : gals 21—Rs. 180 ; 1954-55 : gals. 136—Rs. 1,219.

OILCAKE EXPORTS : Combined with 'Mustard and Rape' 1912-13 : cwts. 1,440,000—Rs. 63,34,275 ; 1946-47—nil.

LITHIUM (Lepidolite)

[*Mineral*]

Chief Producers in the World : U. S. A. : South Dakota (Black Hills), California (Searles Lake) ; Canada (Manitoba) ; S.-W. Africa ; France.

Principal Indian States : (for Lepidolite)

BIHAR : Hazaribagh. MADHYA PRADESH : Bastar (Mundaval).

Uses : Alloy for increasing hardness of aluminium and magnesium. *Chemicals* : in photography ; in tanning compositions and as a delustring agent ; (bromide) : in making 'mineral' waters, synthetic aquamarine and emeralds ; luminiscent paints and varnishes ; (citrate) : effervescent beverages ; (chloride) : in electrical welding of light metals ; in Edison storage batteries ; in flares, fireworks and signet rockets ; dental cement ; degassing, deoxidising and purifying agent in metal refining ; in porcelain and special enamels ; in tough glasses ; etc.

MADAR
(Calotropis gigantea)

[*Floss*]

Chief Producers in the World : China ; Ceylon ; Malay ; Singapore ; Persia ; Pakistan (Sind) ; etc.

Principal Indian States : Rajputana ; Bengal ; Assam ; (almost every part of India).

Uses : (Silk) COTTON : Floss : (for stuffing pillows, mattresses). BARK : Fibre : paper material, twine-rope (very suitable for use in water) ; fishing nets, fishing lines, etc., Tan and dye ; guttapercha (from SAP). LEAVES in particular : medicine.

Vernacular names : Mádar, ák, árk, ákan, ákand, átauna, akra, rui, akado, yercum, erukkam, filledu, jilleru, yekka, mandara, etc.

MADDER (and Munjeet)
(Rubia cordifolia)

[*Dye*]

Chief Producers in the World : Italy ; Levant ; Greece ; Asia Minor ; Caucasus.

Occurrence in India : "Throughout the hilly districts of India from the North-West Himalayas eastward and southward to Ceylon."

Uses : Artists' paints, pigment in printing wall paper, etc., Dye : "Turkey red" colour for calicoes, wool ; etc.

Vernacular names : Manjit, manjistha, majathi, kúkarphali, tiúrú, madar, manjitti, shevelli, támravalli, tige.

Trade : EXPORTS : 1875-76 : cwts. 101—Rs. 1,968 ; exports very erratic ; 1901-02 ; cwts. 6—Rs. 60 ; 1946-47 : nil.

IMPORTS : 1866-67 : cwts. 7,723—Rs. 1,01,163 ; 1901-02 : cwts. 686—Rs. 6,994 ; 1946-47 : nil.

MAGNESITE

[*Mineral*]

World Production : 1,950,000 tons
Indian Production : 70,507 tons

Chief Producers in the World : AUSTRIA : *Styria* : Gr. Veitsch ; Trieben ; Breitenau ; Kraubath ; Oberdorf. *Carinthia* :

Rodenthein. *Salzburg* : Leogang. *Tyrol* : Mayrhopen, Fieberbrunn ; etc.

U. S. A. : *Texas*. *Ohio* : Luckey. *Connecticut* : Cannan. *California* : Manteca. *New-York* : Wingdale. *Washington* : Spokane ; etc.

GREECE : Mytilini ; Salonika ; Eubocu.

S. RHODESIA : Beitbridge, Satka. Yugoslavia ; U. S. S. R. : Urals ; U. K. ; Australia ; Spain ; Manchukuo ; etc.

Principal Indian States : MADRAS : Salem (Chalk Hills) : Production : 66,603 tons.

MYSORE : Mysore (3,904 tons) ; Hassan.

U. P. (Almora) ; Coorg ; Bombay (Idar) ; Rajasthan (Dungarpur) ; Bihar (Singhbhum) ; etc.

Reserves in India : Salem 90 million tons ; Almora 20 million tons ; etc.

Uses : Refractory bricks ; linings of furnaces ; in the manufacture of flooring cement ; artificial building stone, plaster tiles, etc. ; ceramics ; substitute for dolomite in making iron and steel ; fertilizer ; (Pyrex) glass ; in filtering of fats and oils ; inks, printing, writing ; filler and pigment in lacquer paints, in linoleum and oil cloth compositions, accelerator in rubber ; heat insulating, fire-proofing, polishing (of metal) composition ; filler in making cigarette paper and paper of high quality, in textile fabrics ; stabilizer in making celluloid ; source of carbon dioxide ; reagent in making vat dyestuff ; for making type-writer ribbons ; ingredient of face powder, dentrifices, shaving creams, toilet powders ; disinfectants and insecticides ; artificial leather ; ingredient of stock-feeds ; explosive composition, match ; explosion proof lubricants for oxygen cylinders ; medicine. Source of MAGNESIUM metal : Incendiary bombs ; (metal and alloys chiefly aluminium) in automobile and aircraft industries ; etc.

MAHUA (Indian Butter Tree)
(Bassia latifolia)

[*Oilseed*]

Indian Production (Seed) : 50,000 tons

Occurrence in India : Bihar (Hazaribagh, Palamau, Chota Nagpur) ; Uttar Pradesh ; Saurashtra ; Madras (S. Canara,

Malabar); Vindhya Pradesh; Hyderabad; Madhya Bharat; Madhya Pradesh; etc.

Uses: FLOWERS: Food (fresh or dried); cooked; powder (when dry), baked into cakes; sugar; spirit (on distillation), vinegar; etc.

SEED: Oil: (Mahua Butter) Adulterant of ghee; edible; soap; margarine.

OIL CAKE: Manure; for washing hair; etc.

BARK: Dye; cordage; for caulking boats; etc.

TIMBER; General use.

FLOWER, Seeds and Bark: Medicine.

Vernacular names: Madhuka, phulwárá. chiura, chára, cheuli, chúre, yel, etc.

Trade: EXPORTS: *Mowa or mowra Seeds:* 1886-87: cwt. 77,791—Rs. 275, 545; 1901-02: cwts. 613,549—Rs. 29,28,753; 1946-47: tons 29—Rs. 27,284; 1954-55: Rs. 40. 1891-92: cwt. 20,770—Rs. 31,106. *Flowers*: 1883-84: cwts. 269,329—Rs. 6,70,664; 1886-87: cwts. 9—Rs. 20; 1897-98: cwts. 84—Rs. 275; 1898-99: nil; 1899-1900: cwt. 1—Rs. 10; erratic thereafter.

MAIZE (Indian Corn)
(Zea Mays)

[*Foodgrain*]

World Production: 130,400,000 tons
Indian Production: 2,944,000 tons
Indian Acreage: 9,325,000 acres

Pakistan: *Acres*: 1,067,000; *Production*: 437,000 tons

Chief Producers in the World: U. S. A. (55·3%): Iowa; Illinois; Indiana; Ohio; Nebraska; South Dakota; North Dakota; Minnesota; Wisconsin; Kansas; Missouri; Kentucky; Tennesse; Virginia; etc.; etc.

CHINA (8%): Shantung,; Chihli; Shansi; Honan; Anhwei; Hupeh; Kiangsi; etc.

U. S. S. R. (6%): Transcaucasia: Georgia; Azerbaijan; Ukraine; White Russia; etc.

BRAZIL (5%): Rio Grande du Sul; Santa Catharina; Parana; Sao Paulo; Rio de Janeiro; Espirilo Santo; etc.

ARGENTINA (4%) : The Parana Basin ; Buenos Aires ; Cordoba ; Santa Fe ; etc.

Rumania ; Yugoslavia ; Mexico ; Italy ; Egypt ; India ; France ; Spain ; etc.

UTTAR PRADESH : Bahraich ; Gonda ; Bulandshar ; Jaunpur ; Meerut ; Kheri ; Saharanpur ; Furrakhabad ; Etah ; Mainpuri ; etc.

INDIA

BIHAR : Monghyr ; Saran ; Champaran ; Bhagalpur ; Santhal Pargana ; Purnea ; etc.

PUNJAB : Kangra ; Hoshiarpur ; Ludhiana ; Ambala ; Amritsar ; Jullundar ; Gurdaspur ; etc.

RAJASTHAN : Bhilwara ; Banswara ; etc.

JAMMU & KASHMIR : Resai ; Muzaffarabad ; Udhampur ; etc.

HYDERABAD : Karimnagar ; Adilabad ; Warangal ; etc.

MADHYA PRADESH : Surguja ; Mandla ; Chhindwara ; Bastar ; etc.

WEST BENGAL : Darjeeling ; Maldah.

PAKISTAN

N.-W. F. PROVINCE : Hajara ; Peshawar ; etc. WEST PUNJAB.

Uses : SEED : Food ; patent food (Maizena, Maizeka, Hominy, etc.) ; porridge : starch : starch products : glucose ; malt ; dextrose ; baking powder ; sizing material ; adhesive paste ; alcohol ; etc.

OIL : (Maize oil, corn oil) ; salad oil ; substitute for olive oil ; for lighting, lubrication, leather dressing, soap making ; etc.

CAKE : Cattle feed.

STEMS, LEAVES, SPATHES : Fodder ; paper manufacture ; packing material, stuffing material (spathes) ; fuel ; for thatching.

Vernacular names : Bhuttá, makká, makai, bara juár. makki, makka sholam, mokkajonna, etc.

Other trade names : CORN ; MEALIES ; etc.

Trade : EXPORTS : 1912-13 : tons 26,531—Rs. 20,53,000 ; 1933-34 : tons 125—Rs. 6,000 ; (Negligible thereafter).

(Indian) MALLOW

(*The American Jute*)

[*Fibre*]

Occurrence in India (and Pakistan) :

Kashmir ; (N.-W. F. Province ; Sind).

Uses: BARK: Fibre (superior to jute); LEAVES, etc.: Medicine.

Vernacular names: Jhampi, kangi, patari, etc.

MANGANESE (Ore)

[*Mineral*]

World Production: 9,140,000 tons
Indian Production: 1,413,847 tons

Chief Producers in the World: U. S. S. R. (33%): *Transcaucasus* (Chitaurá). *Ukraine*: Nikopal. *Northern Urals*: Polunochnoye, Marsyaty. *Kazakhstan*: Dzhezdy, Kara Dzhal, Shiontas. *Eastern Siberia*: Mazulskoye.

INDIA (15%) (See below).

UNION OF SOUTH AFRICA (9%): *Cape Province*: Postamburg. *Transvaal*: Krugersdorf deposit. *Natal*: Bellevue, Kranskop, Goedegeloof.

GOLD COAST (8%): *Nsuta-Dagwin*: near Tarkwa. *Dixcove-Butre*: Sekondi, Bopun, Yakan, Jimra Bippo, Bokro Hill.

MOROCCO (4%): *Nothern Axis*: Dujda, Chiker, Narguechoun, Tinguelaouen, Metsila, Aourir, Mahseur. *Southern Axis*: Bachkoun, Tiouine, Taoousdremt, Imini, etc.

CUBA (4%): *Oriente Province*: Sierra Maestrah Range; Santiago; Bayamo; Baire; Caribbean Coast between Torquino Peak and Portillo.

MEXICO: *Lower California*: Lucifer. *San Luis Potosi*: Montana de Manganeso; Durango (Cuencame); Allende in Chihuahua; etc.

JAPAN: Hokkaido; Kyoto; Gifu; Aomori; Oita; Tochigi; Nagano; Shidzuoka; etc.

PHILIPPINES: Ilocos Norte; Busuanga Is.; Siquijor Is.

TURKEY: *Izmir*: Suyzna; Fethiye; Canakkale; Trabzon (Trebizond); Bolu; etc.

BRAZIL: *Minas Geraes*: Lafiete, Morro de Mina; Alvoso; Queluz; etc. *Matto Grosso*: Corumba (Urucum; Bahia); etc.

U. S. A.: *Montana*: Philipsburg, Butte. *Georgia*: Cavespring; Casterville. *Virginia*: Blue Ridge, James River Valley. *Arkansas*: Batesville; Tennessee; California; Minnesota Alabama; etc.

CZECHOSLOVAKIA : Eastern Slovakia ; Russian sub-Carpathia ; Bohemia ; Moravia ; Silesia.

ITALY : Genoa (Carrara) ; Cagliari (Iglesias) ; Civita Vecchia (Montecucco, Paradiso, Montecucchetto) ; etc.

POLAND : East Galician Carpathians.

MALAY : *Trengganu* : Kemaman, *Kelantan* : Pasir mas ; etc.

Queensland ; South Australia ; France (Hautes Pyrenees, Saone-et-Loire) ; Greece (Milos, Andros, Marathon) ; Hungary (Bakony Forest : Urukut) ; Chile (Coquimbo, Atacama, Santiago) ; China (Kiangsi ; Hunan : Hsiang Valley ; Kwangtung : Chiangchow, Kuangsi).

INDIA

Principal States :

(Figures in brackets indicate production in tons)

MADHYA PRADESH (50·5%) : Balaghat (396,007) ; Bhandara (181,782) ; Nagpur (111,140) ; Chhindwara (24,902) ; Jabalpur (805) ; Bilaspur.

ORISSA (24·6%) : Keonjhar (261,116) ; Bonai or Sundargarh (75,273) ; Koraput (8,711) ; Balangir (1,774).

BOMBAY : (11·5%) : Panch Mahals (107,361) ; North Kanara (55,353) ; Belgaum (550) ; Baroda.

MYSORE (6%) : Tumkur (37,272) ; Bellary (Sandur : 29,166) ; Chitaldrug (13,868) ; Shimoga (6,591) ; Chikmaglur (330).

ANDHRA (4%) : Srikakulam (58,494) ; Visakhapatnam.

BIHAR (2%) : Singhbhum (35,262) ; Manbhum, Ranchi.

MADHYA BHARAT : Jhabua (5,085).

RAJASTHAN : Banswara (1,515) ; Udaipur (643).

Reserve : 80,000,000 tons.

MANGANESE AREAS IN INDIA

MADHYA PRADESH : *Balaghat* : Deposits "to the west of the Wainganga including those in the southern fringe of the range of hills north of Ratangi." These are Chandadoh, Garaghat, Thirori, Ponia and Jamarpani ; Sonegdon, Arjoni and Jam ; Nandgaon, Ramrama, Katanjheri, Shodan Hurki, etc., etc.

Deposits to the west of Wainganga, near the base of the Chipi Ghat series : Bharwell, Hirapur, Manegaon, Laugur, Ghondi, Gudma, Ukuma and Samnarpur, Dharampur, Kamaridha, Jairasi, Kurthi-tola, Dharpiwara, Parsatola, Bodroghat, etc.

Bhandara : Deposits to the north of Bhawanthari River and North-west of the Chandpur-Rampaili quartzite range : Kosumba, Sitapathur, Sukli, Hatora, Miragpur, Mohugaon Ghat, Pandarwani, Salebaddi, Chikhla, etc. Deposits to the south of Bhawanthari : Kurmura, Sitasaongi, Asalpani.

Deposits to the south of the quartzite range : Pachara.

Chhindwara : Kachi Dhána, Lakhanwara, Gaimukh, Sitapur, Bichua, Alesur, Debi, Ghoti, Wagora, Gawari Warhoma, Dudhara.

Jabalpur : Sleemanabad Group ; Sihora Group ; Gōsulpur Group and Panagarh Group. Others : Nousar, Gangai, etc.

From Dumri Kalan to Khandala : (Beldongri, Lohdongri, Kacharwali, Waregaon).

Nagpur : Kodegaon, etc, ; Rishara, etc. ; Kandri, etc.; Parsioni and Bansinghi, etc.; Mandri, etc. ; Mohugaon, Pali, etc ; Nimar, Seoni, Wun district.

ORISSA : Keonjhar ; Bonai ; Koraput ; Balangir ; Gangpur.; Kalahandi ; Mayurbhanj.

ANDHRA : *Visakhapatnam* : Chirupupalli, Vizianagram, Gajapatinagaram, Palkonda, Bobbili, Salur.

BOMBAY : *Panch Mahals* : Baman Kuan Hill. *North Kanara* : North of Supa : Virkhol, Konada, Kalavahal ; Aveda, Badgund, Konada ; Puseli ; Shingargaon. *Belgaum* : Kaladgi rocks ; Dharwar rocks. *Sangli* : Kappat Gudda, Chick-Vadvati. *Satara* : Mahabaleswar plateau.

MYSORE : *Tumkur* : Chiknayakanhalli Group ; Karekurchi Group ; Kondli Group ; *Bellary :* Ramandrug, Kannevihalli, Kumaraswami and the Kammathuruvu deposits ; Dharwar-Shimoga band ; Dambal Chiknayakanhalli band. *Chitaldrug* : Sandarhalli, Dod Kittadhalli, Madadkere, Nirguda Hills, Iplara Hills, Bodimarudi. *Chikmaglur :* Urbani, Kannikalmati. *Shimoga :* Shikarpur Group ; Ayanur Group ; Shankargudda Group ; Channagiri Group ; Shiddarhalli Group.

BIHAR ; Chaibassa and E.-N.-E. of Purana - Chaibassa (Purana Chaibassa, Kamarhatu, Matkamhatu, Tekrasai, Gitilpi, Kabudu, Tutugutu, Bistampur, Lagia, Leda Hill).

MADHYA BHARAT : *Jhabua :* Kaljidongri, Rambhapur, Amlamal. Talai. Tumdia. Pitol. Nagaakheri-Mandli.

Occurrence in Pakistan : BALUCHISTAN : Kalat, Las Bela (Pab Hills).

Uses : Mostly in the metallurgical industries ; ferro-manganese ; duralumin ; special bronzes and brasses ; stainless steel ; stainless silver ; for parts exposed to severe mechanical conditions ; as oxidising agent ; in the manufacture of chlorine, sulphuric acid ; in dry batteries ; dye ; colouring material for glass batches, enamels, ceramics ; pigment in cement, concrete, enamels, lacquers, paints, varnishes ; drier in paints, varnishes, enamels ; in printing and dyeing textiles ; mordant ; fertiliser ; tanning and finishing of leather ; in matches, explosives, pyrotechnic compositions, signal flares ; adhesive compositions ; plastics, films ; in fire extinguisher, anti-leak, arc-welding compositions ; insecticide ; adhesives ; medicine ; etc.

Vernacular names : Kolsa-ka-pathar, ingani, missisiyá, nijni, jungi, iddali-kalu, etc.

Trade : EXPORTS : 1892-93 : cwts. 20,000—Rs. 8,000 ; 1901-02 : cwts. 2,663,405—Rs. 14,37,858 ; 1946-47 : tons 461,500—Rs. 1,84,14,344 ; 1953-54 : tons 1,567,949—Rs. 24,23,16,573 ; 1954-55 : tons 944,877—Rs. 12,43,67,566.

MANGO

(Mangifera indica)

[*Fruit and Timber*]

"Occurs in India ; Malay ; Philippines ; Africa and tropical America including Florida and California."

Indian Acreage : 1,100,000 acres (distributed over all the States).

Uses : TIMBER : Panelling ; planking, crates and packing boxes ; carts and cooperage ; shoe heels, brushes ; casks (for transportation of molasses) ; slate frames ; etc.

FRUITS : Eaten raw and in curry ; in jams and pickles ; ripe : (luscious food). *Amsath* from pulp ; etc.

STONE : Kernel food during scarcity ; (village) flute ; etc.

Vernacular names : Amra, am, amb, mawashi, maa, mangas mam-marum, elamavi, mamadi, makan-damu, mava, etc.

MANGROVE

(Ceriops Roxburghiana)

[*Tanning bark*]

Principally a West Bengal (and East Pakistan) product, the trees growing in the swamps of the Sunderbans. (Chittagong to Tenasserim).

Uses : "The greatest economic role which the plants of this family perform is the soil building and soil building qualities of various species of the tribe Rhizophoræ. These offer a bulwark along the coasts against the inroads of the ocean and create zones of vegetation free from wave action, thus encouraging the deposition of silt and the building up of terrain which is eventually occupied by more valuable trees."—Pearson and Brown.

BARK : Tan ; dye. TIMBER : Fencing, fuel and good charcoal ; knees of boats.

Vernacular names : Garan, goran, kirrari, kiri, chauri, mádá, tengah, kabaing, etc.

MANGROVE

(Rhizophora mucronata)

[*Tanning bark*]

Chief Producers in the World : Australia ; East Africa ; Malay ; (East Indies ; Central America).

Chief Producing Areas in India : Sunderbans (Bengal) ; East and West Coast ; "and the tidal creeks of India, Burma and the Andamans."

Uses : BARK : Dye and tan.

Vernacular names : Khamo, bhora, bhara, rai, kunro, upupoma, adavi ponna, byu, bakan, etc.

MAST WOOD

(Calophyllum inophyllum)

[*Timber*]

Occurrence in and outside India : Bombay ; Travancore-Cochin ; Madras ; Coorg ; Orissa ; Andamans. Ceylon ; Burma.

Uses : SEED : Oil (Pinnay or Domba oil) for lighting. Medicine. TIMBER : Cabinet work ; structural work ; veneers panels : masts : spars ; railway sleepers ; boat-building ; etc.

Vernacular names : Punnaga, sultana-champa, surangi, surpan, pinnay, undi, ponyet, kamdeb, etc.

MERCURY (Quicksilver)
(Hydrargyrum)

[*Mineral*]

India has no deposit of mercury worth the name. Specimens of Cinnabar and Calomel obtained from Assam suggest the presence of the mineral in workable quantities.

World Production in 1953 was 11,600,000 lbs. ; obtained chiefly from ITALY (Monte Amiata in Tuscany, and Idria in Trieste) : 36% ; SPAIN (Almaden) : 30% ; U. S. A. (California) : 10·5% ; YUGOSLAVIA : (10%) ; MEXICO : (8%) : JAPAN : (4%).

Mercury is chiefly **used** in thermometers, barometers, hydrometers and other scientific apparatus ; amalgam used in dentistry ; in silvering of glass (for mirrors and reflectors) ; in the extraction of gold and silver from their ores, in the arc lamps of the mercury type, ultraviolet ray equipment ; in making wet and dry batteries ; electrode in electroplating processes ; insecticide and disinfectants ; medicines, etc.

Vernacular names : Parad, para.

Trade : IMPORTS : A systematic import from the earliest international trade ; 1813-14 (*Bengal*) : Rs. 1,34,745 ; (*India*) 1866-67 : Rs. 3,73,710 ; 1867-68 : bs. 223,820—Rs. 2,23,820 ; 1901-02—lbs. 261,956—Rs. 4,79,514 ; 1946-47 : lbs. 505,589—Rs. 18,79,771 ; 1954-56 : lbs. 30—Rs. 762.

MICA
(Silicate of aluminium and potassium)

[*Mineral*]

World Production : 1,720,000 cwts.
Indian Production : 103,381 cwts.

Chief Producers in the World : India. *Un. of S. Africa* : Transvaal ; Klein Letaba River area. *Canada* : Lower St. Lawrence Valley. *Tanganyika :* East of Lake Tanganyika. *Argentina* : Catamarca, Cordoba, San Juan, San Luis. *Austria* : Hart Range ; Plenty River area. *U. S. A. :* North and South Carolina ; South Dakota. Madagascar. South Rhodesia.

Principal Indian States :

(Figures in brackets indicate production in cwts.)

BIHAR (70·9%) : Hazaribagh (Kodarma 56,096) ; Gaya (10,581) ; Bhagalpur (4,899) ; Monghyr (1,460).

RAJASTHAN : (16%) : Pali (16,237) ; Jaipur (435) ; Tonk (56) ; Bharatpur (7) ; Mewar including Shahpura ; Udaipur ; Bhilwara ; etc.

ANDHRA (11%) : Nellore (11,496).

AJMER : (1,725).

MADRAS : Nilgiris (359) ; Salem.

MADHYA PRADESH : Surguja (30).

MYSORE : Mysore ; Mandya ; Hassan. PEPSU : Narnaul ; Mahendragarh. HYDERABAD : Warangal. BOMBAY : North Kanara.

Uses : Electrical (coverings of dynamos, etc.) ; condenser of magnetos and wireless apparatus ; sound boxes of gramophones ; mirrors in delicate physical instruments ; coverings for pictures ; glass substitute ; chimneys for stoves and lanterns ; facings for moulds ; micanite : in the manufacture of silver corrosive resisting paints and in laggings for boilers and steam pipes ; lubricants ; fertiliser ; decorative purposes in paints ; in heat insulation ; filler for rubber goods and plastics : calico printing ; medicine.

Vernacular names : Abhra, abhrak, abrak, apparacum, kokabalarz, etc.

Trade : EXPORTS : 1881-82 : cwts. 284—Rs. 27,573 ; 1901-02 : cwts. 16,298—Rs. 10,50,511 ; 1946-47 : cwts. 185,278—Rs. 3,00,08,940 ; 1954-55 : cwts. 356,505—Rs. 6,59,30,961.

IMPORTS : Neglible on the whole. 1933-34 : cwts. 385—Rs. 28,586 ; 1946-47 cwts. 115—Rs. 20,617 ; 1954-55 : cwts. 1,227—Rs. 5,66,354.

MILK

(See **Livestock**)

[*Food*]

World Production : 180,000,000 tons
Indian Production : 17,076,000 tons
Pakistan Production : 9,000 tons

Chief Producers in the World : U. S. A. ; Germany ; U. S. S. R. ; India : France ; Poland ; U. K. ; Denmark ; Netherlands ; Czechoslovakia ; Italy ; etc.

Principal Indian States : U. P. ; Punjab ; Bihar ; Madras ; Rajasthan ; etc.

Uses : Milk ; milk products : butter, ghee, *dahi* (curdled milk), *khir* (preserved milk) ; cream, milk powder, etc. ; casein ; milk wool ; condensed milk ; sugar of milk ; etc.

Vernacular names : Dugdha : (Milk products) : dahi, dadhi, takra, ghol, chhana, navanita, ghrita, ghee, ghikhoa, makhan, etc.

GHEE : *Indian Production* : 1,000,000 tons. *Chief Producing Centres* : United Provinces ; Bengal ; Rajputana ; Central India ; Punjab.

BUTTER : *World Production :* 4,500,000 tons
Indian Production : 750,087 tons

Trade : BUTTER : EXPORTS : 1886-87 : lbs. 452—Rs. 227 ; (1887-88 to 1889-90 : nil) ; 1901-02 : lbs. 153,222—Rs. 1,16,371 ; 1946-47 : cwts. 44—Rs. 10,717 ; 1954-55 : nil.

IMPORTS : 1875-76 : lbs. 77,000—Rs. 65,443 ; 1901-02 : lbs. 270,000—Rs. 2,94,267 ; 1946-47 : cwts. 1,655—Rs, 3.31,199 ; 1954-55 : cwts. 12,255—Rs. 38,03,576.

GHEE : EXPORTS : 1876-77 : lbs. 1,005,000—Rs. 3,57,250 ; 1901-02 : lbs. 44,154,000—Rs. 21,03,047 ; 1946-47 : cwts. 6—Rs, 1,237 ; 1954-55 : cwts. 28—Rs. 9,076.

(Finger) MILLET

(See "RAGI")

(Small) MILLETS

Indian Production : 2,183,000 tons
Indian Acreage : 13,167,000 acres

A valuable forage and food crop of *India* and the *East Indies*. "An annual, abundant throughout the plains, ascending to moderate elevations on the Himalayas."

Favourite *food for labourers*, also "used by Hindu women on fast days."

Principal Indian States : Madhya Pradesh ; Uttar Pradesh ; Andhra ; Bombay ; Vindhya Pradesh ; Hyderabad ; Mysore Madras ; Bihar ; Rajasthan ; Himachal Pradesh ; Orissa ; etc.

Uses : Food, forage.

Trade and Vernacular names :

ITALIAN MILLET : *Setaria Italica* : Korra, kora, kàkún, kangri, kangu, rala, kiranj, koni, kaon, china, chena, shále, shol, tángun, kher, gal, tennai, naoni, sat, etc.

COMMON MILLET : *Panicum miliaceum* : Chená, varagu, varu, vari, chin, phikai, anne, sálan, wadi, katanai, bili baragu, rali, chehna, chinwa, sirwa, kuri, salan, chinu, wadi, sawa, sava, worga, vrihib-heda, anu, etc.

POORMAN'S MILLET : *Panicum Crus-galli, P. colonum* : Shámá, banti, shamula, same jhungara, mandira, chamalu, sanwa, etc.

GUINEA GRASS : *Panicum maximum* : Gini gawat, geneopullu, gini-hullu, etc.

LITTLE MILLET : *Panicum miliare* : Kutki, kungu, gandula, mighri, chika, warai, sáva, nella shama, shamai, etc.

BUCKWHEAT or BRANK : *Fagopyrum esculentum* : Ogal, ugla, kofu, kultu, phaphra, rajgir, doron, bares katu, etc.

KODO MILLET : *Paspalum scrobiculatum* : Kodo, kodom, pakodi, harik, menya, janhe, kirayuga, kodoa dhan, kodra, kodam.

MOLYBDENUM (Ore)

[*Mineral*]

World Production : 28,520 tons
Indian Production : Almost nil.

Chief Producers in the World : U. S. A. (81%) : Utah (Bingham) ; Colorado (Climax) ; New Mexico (Hurley, Questa) ; Arizona (Greenlee) ; Nevada.

CHILE : Aconcagua. YUGOSLAVIA. NORWAY : Flekke-fiord (Kuabehein), Fjotland (Knaben). JAPAN : Shirakawa Hida. CANADA : Ontario ; Quebec ; Quyon. MEXICO : Cananea. PERU.

Occurrence in India : Bihar and Madhya Bharat (Chota Nagpur) ; Rajasthan (Kishangarh) ; Travancore ; Bihar (Hazaribagh) ; etc.

Uses : Alloy steel (for big guns, armour plates, propeller shafts, cutting tools, etc.) ; dyes.

MONAZITE

[*Mineral*]

Indian Production : 5,000 tons

Chief Producers in the World : INDIA ; British Guiana (Rupunini district in the Guiana-Brazil frontier area) ; Australia ; Ceylon ; Belgian Congo ; Egypt ; Madagascar ; etc.

Principal Indian States : Travancore : from the beaches (Quilon-Koilthottum area) with ilmenite, rutile and zircon.

Occurrence in India : ANDHRA : Tirunelveli, Visakhapatnam. BIHAR : Gaya. MYSORE : Bangalore.

Uses : Source of thorium ; incandescent gas mantles ; pyrophoric alloy : for producing spark in cigarette-lighters ; for tips in tracer bullets ; carbons of search lights and ultra-violet lamps ; colouring (bright canary) matter in glass ; [source of cerium, meso-thorium—radio-active substance].

MOWA (MOWRA)

(See "**Mahua**")

MULBERRY (Tut)

(Morus alba)

[*Timber*]

Occurrence in India : Punjab (Changa Manga Plantation).

Uses : TIMBER : Sports goods (badminton rackets, hockey sticks, cricket stumps, etc.) ; tool handles ; picking arms ; bobbins ; spokes, poles, shafts, and other parts of carriages and carts ; camp furniture ; drums ; picker arms ; etc. FRUIT : Food. ROOTS : Yellow dye. LEAVES : Silkworm feed ; fodder.

Vernacular names : Tut, tula, chinni, uppu, mute, etc.

MUNG

(Phaseolus radiatus)

[*Pulses*]

Indian Production : 182,000 tons
Indian Acreage : 2,520,000 acres

Principal Indian States : Hyderabad ; Uttar Pradesh Andhra ; Madhya Pradesh ; Bombay ; West Bengal ; Kutch Punjab ; Vindhya Pradesh ; Bhopal ; PEPSU : Ajmer ; etc.

Uses : (Green) PODS : Vegetable. SEEDS : Food (dahl) ; sweets ; porridge, wafer buscuits (*papad* or *papar*) ; medicine ; diet.

Vernacular names : Mung, sona mung ; krishna or kálá mung, etc.

MUNJ
(Saccharum exaltatum)

[*Fibre*]

Occurs almost in all parts of India especially in Punjab.

Uses : Thatching ; paper manufacture ; chairs, baskets ; etc. "Strong ropes and strings are made from the sheathing leaves of the culms.....Munj rope is used in rigging boats, for the bottom of cots and chairs and in the manufacture of mats. This grass is a good paper material....."

MUSK (DEER)
(Moschus moschiferous)

[*Perfume*]

Occurrence in the World : Nepal ; Tibet ; Siberia (Central Asia) ; India.

Occurrence in India : Kashmir ; Sikkim (Himalayas).

Uses : (MUSK) Perfumery ; medicine (musk deer). Food.

Vernacular names : Kastura, mushk, raos, la-lawa, bena, rib-jo, etc.

Trade : EXPORTS : MUSK : 1866-67 : Rs. 12,123 ; 1867-68 : ozs. 1,753—Rs. 20,181 ; 1901-02 : ozs. 309—Rs. 13,320 ; 1946-47 : nil.

IMPORTS : 1878-79 : ozs. 295—Rs. 9,000 (rather erratic) ; last record : 1896-97 : ozs. 92—Rs. 425.

MUSTARD (& RAPE)
(Brassica campestris or sinapis)

[*Oilseed*]

World Production :	4,804,000 tons
Indian Production :	962,000 tons
Indian Acreage :	5,665,000 acres
Pakistan Production :	272,000 tons
Pakistan Acreage :	1,631,000 acres

Chief Producers in the World :

CHINA (60%) : Sikiang : Szechwan ; Hupeh ; Anhwei ; Chekiang ; Kiangsu ; Shantung ; Hopeh ; Kiangsi ; etc.

INDIA (17%) : (See below).

Pakistan (6%) : *East Punjab* : Lyallpur, Multan, Dera Ghazi Khan, Shahpur. *East Pakistan* : Mymensingh, Dacca, Rangpur, Bogra ; etc. *Sind* : Bahawalpur, Khairpur. N.-W.F.P.

GERMANY (4%) ; Schleswig-Holstein : Mecklenburg ; Oldenburg. SWEDEN : Gottland : Jonköping ; Kronoberg ; Kalmar ; Christianstad ; Goteberg ; Halland ; etc. POLAND : Bialystok ; Wilno ; Pozana ; Warsaw ; etc. Japan ; Yugoslavia ; Italy ; etc.

INDIA

Principal States :

BIHAR : Purnea ; Hazaribagh ; Santhal Pargana ; Palamau ; Saran ; Champaran ; Darbhanga ; Saharsa ; Muzaffarpur ; Monghyr ; etc.

ASSAM : Goalpara ; Kamrup ; Nowgong ; Darrang ; Sibsagar.

PUNJAB : Gurgaon ; Amritsar ; Ferozepur ; Hissar ; Karnal.

RAJASTHAN : Bharatpur ; Alwar ; Ganganagar ; Tonk ; etc.

UTTAR PRADESH : Bahraich ; Mathura ; Kanpur ; Gonda ; Nainital ; etc.

WEST BENGAL : Dinajpur ; Cooch Behar ; Jalpaiguri ; Nadia ; Malda ; etc. MADHYA PRADESH : Bastar ; Surguja, Mandla ; Raigarh ; Bilaspur ; etc. PEPSU : Patiala ; etc. MADHYA BHARAT : Bhind ; Morena. BOMBAY : Baroda. ORISSA : Koraput ; Cuttack ; etc.

Uses : SEEDS : Oil ; for culinary purposes ; plaster, counter irritant ; medicine ; etc.

OIL : (*Karua tel*) ; cooking oil ; toilet ; illuminant : lubricant ; in steel tempering ; canning ; as preservative ; medicine ; etc.

CAKE ; Cattle food ; manure ; washing material ; etc.

Vernacular names : Sarisha, sarson, rai, jariya, sarsu, sherasa, karuppu kadugu, nalla-áválu, etc.

Other trade names : COLZA, TURNIP RAPE.

Trade : EXPORTS : SEED (Rape) : 1866-67 : Rs. 13,52,202 ; 1867-68 : cwts. 425,331—Rs. 24,68,582 ; 1901-02 : tons 346,244 —Rs. 4,45,56,044 ; 1945-46 : tons 21,893—Rs. 85,80,628 ; very

erratic thereafter, ceased after 1951-52 : tons 200—Rs. 2,22,432. (*Mustard*) : 1866-67 : Rs. 1,84,941 ; 1867-68 : cwts. 10.803—Rs. 47,699 ; 1901-02 : tons 3,232—Rs. 5,61,895 ; 1946-47 : tons 3—Rs. 2,244 ; 1954-55 : cwt. 7,530—Rs. 96,719.

OIL : (Mustard and Rape) : 1894-95 : gals. 175,361—Rs. 2,31,330 ; 1901-02 : gals. 286,169—Rs. 4,74,028.

OILCAKE : (Rape and Sesamum)—1912-13 : cwts. 1,440,000—Rs. 6,33,370 ; 1946-47 ; tons 47—Rs. 3,632 ; 1954-55 : Oilcakes (combined) tons 38,777—Rs. 1,45,35,432.

IMPORTS : SEEDS (Mustard) 1875-76 : cwts. 552—Rs. 2,338 ; 1901-02 : cwts. 22—Rs. 181 ; 1946-47 : negligible.

OIL : (Mustard) 1898-99 gals. 47—Rs. 52 ; 1901-02 : gals. 3—Rs. 3 ; 1946-47 and 1954-55 : negligible. (Rape) : 1875-76 : cwts. 17,054—Rs. 71,920 ; 1901-02 : cwts. 10,323—Rs. 74,556.

MYROBALAN (Beleric)

(Terminalia belerica)

[*Dye*]

Occurrence in and around India : In the forests of India and Burma.

Uses : Dyeing and tanning ; medicine. "When used alone they (*T. chebula* and *T. belerica*) yield a spongy leather of a light colour, but in combination they are more satisfactory. They are used with calf, goat and sheep skins and for sole and harness leather."—Hill.

Vernacular names : Baherá, bhairah, sagoná bharla, hullúch bauri, thara, bahadha, babra, behada, bherdha, yelá, behedan, tani, thani, kattu, elupay, tondi, thana, etc.

MYROBALAN (Black)

(Terminalia chebula)

[*Tanning*]

Chief Producers in the World : India (almost a monopoly) ; (Burma ; Ceylon).

Principal Indian States : Madhya Bharat ; Bihar (Santhal Pargana) ; Madras ; Bombay ; (Bengal).

Uses : FRUIT : Tannin ; medicinal purposes ; dyeing and tanning ; "as mordant in the dyeing of cotton and for the weighting of black-silk."

BARK : Dyeing, etc.

TIMBER : Posts and beams ; cart-frames, axles, shafts, etc.

Vernacular names : Haritaki, bal hár, kále-hár, hērro, silimkung, harirá, harrá, hirdi, halrá, harlá, hardá, hirada, kaduk-kay-pinji, pinda, karakkaya, abhaya, etc.

Trade : EXPORTS : MYROBALANS : 1875-76 : cwts. 286,350—Rs. 10,64,013 ; 1901-02 : cwts. 1,085,000—Rs. 35,63,655 ; 1946-47 : cwts. 608,884—Rs. 49,28,115 ; 1954-55 : cwts. 804,613—Rs. 80,19,707. MYROBALANS EXTRACT : 1946-47 : cwts. 55,226—Rs. 8,16,999 ; 1954-55 : cwts. 64,962—Rs. 17,36,653.

IMPORTS : MYROBALANS—1875-76 : cwts. 1,381—Rs. 5,828 ; 1901-02 : cwts. 88—Rs. 284 ; 1946-47 : negligible.

[It is likely that the above exports include "Beleric" as well as "Emblic" Myrobalans.]

MYROBALAN (Emblic)
(Phyllanthus emblica)

[*Dyestuff*]

Occurrence in and outside India : Throughout India ; Burma.

Uses : BARK : LEAVES : FRUIT : Dyeing and tanning ; etc. FRUIT : Medicine ; pickles and conserves ; hair tonic ; perfume ; source of Vitamin 'C' ; etc. TIMBER : Cheap building construction ; (good) charcoal and fuel ; etc.

Vernacular names : Amlaki, adhiphalā, áonla, áungra, anola, amla, amulati, amlika, amalakamu, avalkati, nelli, usereki, osirka, usri, etc.

NAHOR (Mesua)
(Mesua ferrea)

[*Timber*]

Occurrence in India : Asasm ; Madras ; Coorg ; (Travancore-Cochin) ; etc.

Uses : Posts and pit props, rafters, beams, bridges, boat and cart building, hubs ; railway sleepers, keys and brake blocks ; piling work ; etc.

Vernacular names : Nageswary, nangal, etc.

NEEM (Margosa)
(Azadirachta indica ; A. melia)

[*Timber*]

Occurrence in India : Madras ; U. P. ; Bombay ; Rajasthan ; Madhya Bharat ; Punjab ; Delhi ; Bihar ; in fact, in all the drier parts of India (both cultivated and wild).

Uses : TIMBER : Boards, panels, and other house-building purposes ; ploughs ; toys ; cart parts ; etc. BARK : Medicine. SEED : Medicine. OIL : Medicine ; soap manufacture ; insecticide ; lighting ; etc. CAKE : Fertiliser. LEAVES : Protection against insects.

Vernacular names : Nimba, nim, vepa, nib, taruka, kamaka, agas, limba, kohumba, bevina, etc.

NICKEL

[*Mineral*]

India is extremely deficient in nickel, there being *no workable mine* anywhere. Ores of inferior quality have been found in inaccessible regions of Nepal, along with copper ores in Khetri, Rajasthan, associated with quartz reefs of Kolar and mere traces in the Tabala taluk of South Travancore.

The tolal nickel *recovered in the world in 1955* was 203,000 tons. Canada alone (Ontario : Sudbury) contributed 63% of the total.

U. S. S. R., New Caledonia and Cuba are the next three important countries in point of production.

The chief *uses* of nickel are in the shape of alloy with other metals. Component of aluminium alloys, arc-welding compositions, argentan, bearing metals, Chinese silver, coinage alloys, constantan (unaffected by temperature), ferro-nickel, high speed nickel steels, German silver, nivar (for low expansion : in wheels of watches and accurate instruments), manganese nickel (sparking plugs), molybdenum nickel, monel metal (acid resisting), new silver, nickel alloys, nickel brasses ; nickel cast-iron (permalloy with high magnetic permeability), nickel silvers, nickel-chromium alloys, nickel-copper alloys, nickel-gold alloys, nickel-steel alloys, tiers-argent, tungsten-carbide alloys ; for making tanks, vats, apparatus, utensils, etc. ; for electro-plating and anti-corrosion parts (turbine blades, etc.) ; as a catalyst ; etc.

NIGER SEED

(Guizotia abyssynica)

[*Oilseed*]

Chief Producers in the World : India ; Germany ; Africa (tropical) ; Ethiopia ; etc.

Principal Indian States : Mysore ; Chota-Nagpur ; Madhya Pradesh ; Madras ; etc.

Uses : Adulterant in mustard oil ; varnish and paints ; illuminant ; etc.

Vernacular names : Surguja, kala til, ram til, valesulu, vulisi, etc.

Trade : EXPORTS : 1891-92 : cwts. 131,165—Rs. 67,483 ; 1895-96 : nil ; 1901-02 : cwts. 73,618—Rs. 4,30,972 ; 1946-47 : tons 13—Rs. 7,970 ; 1952-53 : tons 20,783—Rs. 1,34,42,908 ; 1954-55 : tons 7,534—Rs. 45,08,610.

NUX-VOMICA

(Strychnos nux-vomica)

[*Drug*]

Chief Producers in the World : Ceylon ; Cochin China ; India ; Australia ; Burma ; etc.

Occurrence in India : Uttar Pradesh ; West Bengal ; Madhya Pradesh ; Orissa ; Bombay ; Travancore-(Cochin) ; etc.

"A moderate sized tree of the Gorakhpur forests in Northern India ; Bengal ; Orissa ; the Circars : the Decan and Karnatak ; moist forests in the Bombay Presidency ; deciduous forests all over Burma and dry regions of Ceylon."

Uses : SEEDS : Source of strychnine and brucine.

LEAVES : Medicine.

Vernacular names : Kuchla, kuchila, kajra, kedra, mushti, nirmal, kasaraka, kanjiram, kabaung, yetti, etc.

Other trade names : SNAKE WOOD ; STRYCHNINE TREE.

Trade : EXPORTS : 1912-13 : cwts. 41,518—Rs. 2,16,120 ; 1946-47 : cwts. 42,471—Rs. 6,54,595 ; 1954-55 : cwts. 13,612—Rs. 1,84,159.

OAT
(Avena sativa)

[*Foodgrain*]

World Production : 59,000,000 tons

Chief Producers in the World : U. S. A. ; U. S. S. R. ; Canada ; Germany ; France ; U. K. ; Poland ; Argentina ; Sweden ; etc.

Principal Indian States : Punjab (Hissar) ; Delhi ; Uttar Pradesh (Meerut) ; Bombay ; etc.

Uses : SEED : Food (porridge) ; fodder ; etc. STRAW : Fodder. HULLS : Furfural ; synthetic resins ; insecticide ; preservative ; etc.

Vernacular names : Jai, wilayatijan, javi, etc.

Trade : EXPORTS : 1875-76 : cwts. 76,754—Rs. 1,95,712 ; 1901-02 : cwts. 103,142—Rs. 4,11,250 ; 1946-47 : nil ; 1954-55 : Rs. 3.

IMPORTS : 1877-78 : cwts. 293—Rs. 1,892 ; 1901-02 : cwts. 2,278—Rs. 14,292 ; 1946-47 : negligible.

OCHRE

[*Mineral*]

Indian Production : 75,506 tons

Principal Indian States :

(Figures in brackets represent production in tons)

ANDHRA (71·5%) : Kurool (54,367) : Dhone : Malkapuram ; West Godavari : Ellore.

VINDHYA PRADESH (9%) : Satna (7,009) ; Panna ; Sohawal ; Nagod ; Kothi ; etc.

MADHYA PRADESH (8%) : Hosangabad (2,448) ; Chanda (1,248) ; Jabalpur (1,161) ; Jauli, Gogra, Jhalwara ; Betul ; Nagpur ; Durg.

SAURASHTRA (7%) : Gohilwad : (5,200) ; Kutch : Lakhpat, Bhing ; Jhalwad : Raipur ; Nawanagar.

MYSORE (4%) : Bellary (3,019) ; Kolar (200) ; Chitaldrug (30) ; Sandur. MADRAS : Tiruchirapalli ; North Arcot. MADHYA BHARAT : Gwalior : Gird : Behat ; Samaria ; Barouli (near Amarpur). HYDERABAD : Bidar ; Raichur. ORISSA : Cuttack ; Sambalpur ; Koraput : Sarayi, Maganda, Geruputtu. BOMBAY : Rajpipla : Padavania. RAJASTHAN : Devicot : Nagarkantha. WEST BENGAL : Bankura.

Uses : As pigments, (decoration of houses and temples), dyes ; etc.

OCHRO (Lady's Finger)
(Hibiscus esculentus)

[*Fibre*]

Occurs in most warm tropics and sub-tropics. Cultivated all over India for fruits and capsules as a garden crop.

Uses : FRUIT : Eaten raw or cooked ; dried or canned. STEM : Fibre : twine, rope, sacking ; paper making ; etc.

Vernacular names : Dhenros, dheras, ramtarui, bendeki, tindisa, youn-padi-si, vendaik-kay, etc.

OIL (Fish)

[*Oil*]

Indian Production : 12,000 tons

Chief Centres of Supply : Madras ; W. Coast ; Kanara.

Uses : Nutrition ; jute batching ; leather dressing ; lubrication ; paints ; soap making ; illuminant ; "baths in tempering steel."

(Indian) OLIVE
(Olea cuspidata)

[*Oil*]

World Production : 1,211,000 tons (*Oil*)
Indian Production : Negligible.

Chief Producers in the World : Spain ; Italy ; Greece ; Portugal ; Tunisia ; Turkey ; etc.

PAKISTAN : N.-W. F. P. (Kohat).

Uses : OIL : Edible ; soap stock ; in wool-combing ; etc.

ONION
(Allium cepa)

[*Vegetable*]

Occurs both in the temperate and sometimes in tropical climates. Sandy soil in cool moist regions is most suitable for cultivation.

Occurrence in India : Almost all over India.

Uses : Vegetable ; flavouring of curry ; medicine ; etc.

Vernacular names : Piyaz, piyaj, palandu, dungari, kanda, vella-vengá-yam, irulli, nirulli, vulli-gaddalu, etc.

Trade : EXPORTS : 1917-18 : cwts. 603,995—Rs. 24,91,155 ; 1946-47 : cwts. 637,241—Rs. 58,65,550 ; 1954-55 : cwts. 564,915 —Rs. 75,14,013.

OPIUM

(JUICE OF Papaver somniferum)

(See 'Poppy Seed')

[*Drug & Narcotics*]

Indian Production : 11,456 mds.
Indian Acreage : 54,000 acres

Chief Producers in the World : India ; (For poppy seed oil : certain parts of Europe and Africa) ; Burma ; (China).

Principal Indian States : MADHYA BHARAT : Mandsaur : Ratlam ; Shajapur ; etc. UTTAR PRADESH : Budaun ; Bareilly ; Shahjahanpur ; Barabanki ; Faizabad ; Gonda ; Ghazipur ; Azamgarh ; Basti ; Deoria ; etc. RAJASTHAN : Kotah ; Jhalwar ; Tonk ; etc. HIMACHAL PRADESH : Mahasu ; Hoshiarpur ; etc. MYSORE : Hassan. BOMBAY : Baroda.

Uses : DRUG : Narcotic ; soporific ; etc.

Vernacular names : Ahifena, afim, appo, aphu, abini, aphina, abheni, afium, etc.

Trade : EXPORTS : (*Bengal*)—1813-14 : Rs. 72,93,946 ; (*India*) 1848-49 : Rs. 5,77,25,260 ; Quantity first available from 1862-63 : lbs. 11,510,240—Rs. 12,49,41,280 ; 1901-02 : cwts. 92,417—Rs. 8,52,29,850 ; 1946-47 : cwts. 220—Rs. 3,81,000 ; 1954-55 : cwts. 4,858—Rs. 1,53,12,543.

IMPORTS : 1877-78—Rs. 210 ; (1878-79 and 1879-80—nil) ; 1880-81 : lbs. 6—Rs. 63 ; 1901-02 : lbs. 442—Rs 6,135 ; 1946-47 : lbs. 2—Rs. 1,578 ; 1954-55 : lbs. 4—Rs. 50.

ORANGE (MANDARIN)

(Citrus nobilis ; C. aurantium)

[*Fruit*]

World Production : 11,000,000 tons
Indian Production : 425,000 tons

Chief Producers in the World : U. S. A. (Florida, California, Texas) ; Brazil (Sao Paulo, Rio de Janeiro) ; Spain ; China ;

India ; Italy ; Argentina ; Mexico ; Israel ; Japan ; Egypt ; Jamaica ; Cyprus ; Trinidad ; Pakistan ; etc.

Principal Indian States : MADHYA PRADESH : Nagpur, Bhandara, Wardha, Chhindwara, Amraoti, etc. ASSAM : Khasia and Jaintia Hills, Cachar, Kamrup, etc. WEST BENGAL : Darjeeling. PUNJAB : Hoshiarpur, Gurdaspur, Lyallpur, etc. BOMBAY : Ahmednagar, Poona, East Khandesh, etc. MADRAS : Malabar, Madura, Nilgiris, etc. ANDHRA : Visakhapatnam, etc. SIKKIM : Teesta Valley, etc.

Principal Pakistan State : East Bengal (Sylhet). Lahore, Multan.

Uses : FRUIT : Fresh fruit ; juice concentrates ; confectionery ; medicine ; etc.

FLOWERS : (Neroli) oil for perfumery ; etc.

RIND : Masticatory ; oil ; medicine ; confectionery ; etc.

Vernacular names : Kamala, kamala tenga, sangtaru, sangtara ladu, surangi (kamali), narangi, keonla, kaunla kodagu, kitchli, kithalay, puli, shor, sitowli, gangoli, etc.

Other trade names : LOOSE-SKINNED ORANGE.

(Andaman) PADAUK
(Pterocarpus dalbergoides)

[*Timber*]

Occurrence in India : Andaman Islands.

Uses : (Heavy) cabinet work ; furniture : billiard tables ; carriage bodies, ship's saloons, (parquets) floorings ; constructional work ; ornamental or decorative articles ; brushes.

Vernacular names : Padauk, etc.

PALAS
(Butea frondosa)

[*Insect feed*]

Occurrence in India : "Common throughout the plains of India and Burma and ascending the hills to about 4,000 feet in altitude."

Uses : LEAVES : feed for lac insect. GUM (*Chunia-gond, Kamarkas, Palas-ki-gond*) : In dyeing and tanning ; medicine.

FLOWER (*Tesu, Kesu*) : Dye. BARK : Cordage fibre ; for caulking boats. OIL : (from seeds) Medicine. TIMBER : Well-curls ; piles ; etc.

Vernacular names : Dhák, palás, chichra, mùrúp, parás, khakra, pauk, etc.

Other trade names : (Gum) BUTEA GUM, BENGAL KINO ; (Timber) BASTARD TEAK.

PALMAROSA (Oil)

(Cymbopogon martini)

(*Rusa* or *Rosha Grass*)

[*Oil*]

Occurrence in India : (Throughout the drier regions of India). Kashmir ; Punjab ; Uttar Pradesh ; Madhya Pradesh ; Rajasthan ; Bihar ; Bombay ; Hyderabad ; Madras ; Andhra ; etc.

Uses : OIL (from stems, leaves and flowers) : Perfumery (for adulterating attar of roses) ; cosmetics ; soap (perfume) ; mosquito repellent (in ointment) ; medicine.

Vernacular names : Rohisa ; gandh bel, kavatham pillu, roshegavat, etc.

Other trade names : INDIAN GRASS OIL ; EAST INDIAN GERANIUM OIL ; NIMAR OIL ; (inferior quality) GINGER-GRASS OIL.

Trade : OIL : EXPORTS : 1920-21 : gals. 1,541—Rs. 1,20,760 ; 1946-47 : gals. 3,802—Rs. 7,19,438 ; 1954-55 : gals. 16,667—Rs. 28,03,169.

PALMYRA PALM

(Borassus flabellifer)

[*Timber*]

Occurrence in and outside India : Occurs almost everywhere in India, especially in West Bengal ; Bihar ; (in the coastal areas of the peninsula). Burma ; Ceylon ; Malaya ; (East Indies).

Uses : JUICE : Sugar, *tári* (toddy) ; *nirá* (fresh juice).

LEAF : Fibres, machine brushes (leaf stalk) ; fans, hats, mats, umbrella, thatching, fuel, etc.

TRUNK : Posts, rafters, country boats, water pipes, channels, *dhenki* (for paddy husking) rests, walking sticks, clubs, etc.

TRUNK-TOP : (Soft and middle portion) food. FRUIT : Food (green and ripe) ; water (delicious drink and medicine). KERNEL (Cotyledon) : Food, curry, etc.

Vernacular names : Tál, tala, tar, tári, tád, talat, mád, talichettu, panai-maram, pampai, panam, pana, etc.

PAPAW (Papaya)

(Carica papya)

Indian Production : 96,000 tons

Occurrence in the World : Ceylon ; Hawaii ; Philippines ; South Africa ; Australia ; India.

Occurrence in India : Bombay ; Madhya Pradesh ; Assam ; Bihar ; Uttar Pradesh ; West Bengal ; Saurashtra ; Kutch ; Mysore ; etc.

Uses : FRUIT : Ripe : food ; Unripe : vegetable (curry) ; (milky) juice : medicine (*papain*) ; cosmetic ; degumming of natural silk.

Vernacular names : Papya, papaya, papita, bappaye, popai.

Trade : There is a large trade in papain ; U. S. A. being the chief importer. The exporters are Tanganyika, Ceylon, etc.

PAPITA

(Sterculia campanulata)

[*Timber*]

Occurrence in India : Andaman Islands.

Uses : Matches (boxes, sticks, etc.), box shooks, cores of laminboards, insulation board ; packing cases, etc.

Vernacular names : Sawbya, etc.

(Cow) PEA

(Vigna catjang)

[*Pulses*]

Indian Production : 612,000 tons
Indian Acreage : 2,242,000 acres

(It includes a few other species of Peas, *e.g.*, Garden Pea.)

Principal Indian States : Uttar Pradesh ; Bihar ; Madhya Pradesh ; Vindhya Pradesh ; Punjab ; etc.

Uses : (Green) PODS (Beans) : Vegetable. SEEDS : Food (*dâhl*) ; porridge ; etc. PLANTS : Fodder ; etc.

Vernacular names : Batbati, barbati, lobia, chowli, rianish, ghangra, urohi, souta, rowan, chaunro, hurrea, boberlu, tadagunny, etc.

(Garden) PEA

(Pisum sativum)

[*Pulses*]

Chief Producers in the World : Canada ; U. S. A. ; India ; etc.

Principal Indian States : Almost all parts of India : (Extensively cultivated in Northern India ; West Bengal ; Uttar Pradesh ; Punjab) ; etc.

Uses : PULSES : Eaten whole, green or dried ; curry ; split into *dâhl* ; ground into *besam* ; fodder (husks) ; etc.

PLANT : Vegetable ; fodder ; etc.

Vernacular names : Bara-matar, matar, karai sunti, kalon, batana, gol matar, vatana, pattanie, vella, patani, gundusanighelu, panalu, sen, mattar, khandu, etc.

(Pigeon) PEA

(Cajanus indicus)

[*Pulses*]

Indian Acreage : 1,675,000 acres
Indian Production : 1,783,000 tons

Chief Producers in the World :

Africa ; U. S. A. ; Australia ; Hawaii ; East Indies ; West Indies.

Principal Indian States :

UTTAR PRADESH : Kanpur ; Agra ; Banda ; Allahabad ; Badaun ; Hardoi ; Unao ; Partabgarh ; Azamgarh ; Hamirpur ; Rae Bareli ; Etawah ; Aligarh ; Mirzapur ; Jalaun ; Etah ; Ghazipur ; Mainpuri ; Fatehpur ; Sultanpur ; Banaras ; Ballia ; Mathura ; etc.

HYDERABAD : Gulbarga ; Osmanabad ; Aurangabad ; Bidar ; Nander ; Parbhani ; Raichur ; etc.

MADHYA PRADESH : Durg ; Yeotmal ; Nagpur ; Amraoti ; Akola ; Hosangabad ; Wardha ; Buldana ; Chhindwara ; Betul ; Nimar ; Saugor ; Bilaspur ; etc.

BOMBAY : Sholapur ; Dharwar ; Belgaum ; Bijapur ; Baroda ; Ahmednagar ; Satara ; Kaira ; East Khandesh ; West Kandesh ; Nasik ; etc.

BIHAR : Saran ; Monghyr ; Palamau ; Shahabad ; Ranchi ; Santhal Pargana ; Champaran ; Saharsa ; Gaya ; Patna ; Muzaffarpur ; etc.

MADRAS : Tiruchirapalli ; Salem ; South Arcot ; Coimbatore ; Madurai ; etc.

ANDHRA : Anantapur ; Kurnool ; Bellary ; Guntur ; East Godavari ; Chittoor ; etc.

MADHYA BHARAT : Morena ; Shajapur ; Bhind ; etc.

WEST BENGAL : Nadia ; Murshidabad ; etc.

Uses : PEA : Food (curry, powder, sweet cakes) ; medicine. Tender green pods : Curry.

STALKS : Fuel ; roofing, fencing ; basket ; etc.

LEAVES : Vegetable ; (silk) insect feed.

Vernacular names : Arhar, lahar, rahar, tuvar, thar, tur, tura, thovaray, kandalu, etc.

PEARLS

[*Shells*]

Occurrence in the World : Persian Gulf (Kuwait to the north and Trucial Oman Coast ; water around Baherin).

CEYLON : Gulf of Mannar—north-west coast of Ceylon.

BURMA : Mergui. PANAMA : Pearl Island ; MEXICO : Pacific Coast. INDIA : Gulf of Mannar.

Uses : Jewellery ; decoration.

Vernacular names : Mukta, kukuta, sukti, moti, muthu, etc.

Trade : There is a small trade in pearls, both import and export.

PEPPER (Black)
(Piper nigrum)

[*Spices*]

World Production : 1,000,000 cwts.
Indian Production : 450,000 cwts.

Chief Producers in the World : South Sumatra ; India ; Indonesia ; Sarawak ; Indo-China ; etc.

Principal Indain States : MADRAS : Malabar. TRAVANCORE-COCHIN. BOMBAY : Kanara, Karwar.

Occurrence in Pakistan : EAST BENGAL : Jessore, Sylhet.

Vernacular names : Gulmirch, kálimirch, haḅush, miri vellajung, murichung, martz, dáru, garm, choea, milágu, miryála, tigo, menasu, etc.

Trade : EXPORTS : 1875-76 : lbs. 6,196,000—Rs. 10,96,320 ; 1901-02 : lbs. 13,589,000—Rs. 48,01,554 ; 1946-47 : cwts. 220,032 —Rs. 2,06,46,668 ; 1954-55 : cwts. 273,782—Rs. 6,95,05,437.

Remarkable export : 1951-52 : cwts. 298,311—Rs. 23,22,27,311 (U. S. A. : cwts. 158,370—Rs. 12,20,64,496).

IMPORTS : 1875-76 : lbs. 5,907,000—Rs. 12,37,090 ; 1901-02 : lbs. 1,240,000—Rs. 3,41,857 ; 1946-47 : cwts. 6,230—Rs. 8,74,251 ; 1954-55 : cwts. 2.894—Rs. 5,70,723.

PETROLEUM

[*Mineral*]

World Production :	657,230,000 tons
Indian Production :	267,000 tons
Pakistan Production :	251,700 tons

Chief Producers in the World : U. S. A. (50%) : *Texas* : East Texas, Pan Hanole, Slaughter, Levelland, Wasson, Hastings, Webster, etc. ; Texas-Luisiana (Gulf Coast) ; *California* : Wilmington, Coalinga, Ventura Avenue, Buena Vista, etc. ; *Luisiana* : Lake St. John, Delca Farms, Erath, etc. ; *Oklahoma* : Velma, Okhlahoma City, West Edmond ; *Kansas* : Trapp ; *Illinois* : Laudon, etc. ; *New Mexico* : Drinkard, Monument ; *Wyoming* : Elk Basin ; *Mississippi* : Finley Mallilieu, Brookhaven ; *Arkansas* : Columbia County : Magnolia, Smackover ; *Colorado* : Rangeley ; *Michigan* ; *Pennsylvania* ; *New York* : Bradford, Alleghany ; Cattaragus ; etc.

VENEZUELA (14%) : Maracaibo Lake Basin, Lagunillas, Tia Juana, etc. ; Eastern Quiriquire (Jusepin) ; Araco, Tabasca, Oficina ; San Joaquin ; etc.

U. S. S. R. (8%) : *Caucasus* : Circassia (Grozni and Maikop fields in Cuban). *Transcaucasia* : Baku and the surrounding area ; Lok-Batan, Puta and Ker-Gez ; *Georgia* : Shiraki and Mirsaani fields, Dagestan (south of Baku) ; *West Urals* : Ural-Volga region ; *Emba region* : between Urals and the Emba River ; the *Ferghana Province* : Chimion, Sel-Rakho, Shor Sou ; *Sakhalin* : Okha, Ekhabi, Polomai, etc. ; etc.

KUWAIT (6%) : Burghan field (south-eastern part of the Principality of Kuwait) ; etc.

SAUDI ARABIA (6%) : Damman ; Abu Hadriya ; Abquaiq ; Qatif ; Buqqa ; etc.

IRAQ (4%) : Kirkuk ; Naft Khanch ; Naft-i-Shah ; Quiyarah.

IRAN : Masjid-i-Sulaiman ; Haft-Kel ; Agha Jari ; Gach Saran ; Naft Safid ; etc.

PERSIAN GULF : Baherin Is.

MEXICO : *Tamaulipas Province* : Tampico-Panuco area—Central Madre Mts. (Panuco, Topila, Ebano, Cocalilao, Corcorado, Chijol, Querbracho, Altamira) ; *Tamasopo* or *Golden Lane area* : from Das Bocas to San Isidro : (Das Bocas, San Geronimo, Juan Casiano) ; *Poza Rica area* ; Tehuantepec.

CANADA : *Alberta* : Rocky Mountains (Turner Valley) ; *Ontario* : Oil springs ; Petrolia.

EAST JAVA : Rembang ; Sourabaya fields.

EAST SUMATRA : Palembang ; Limau and Jambi fields.

NORTH SUMATRA : Atjeh ahd Langkut fields.

BORNEO : *South-East* : Koetai field ; *North-East* : Tarakan ; *North-West* : Sarawak, Brunei fields.

JAPAN : *Honsu* : Echigo and Akita fields ; Hokkaido.

CHINA : *N. Shensi* : Shensi Basin ; *North Sinkiang* : Wu Su ; *N.-E. Kansu* : Yumen.

NORTH PERU : Tumbes-Paita (N.-W. Coastal area district) ; Agua Caliente field (in the Amazon Basin).

BOLIVIA : Tariza and Chuquisa (in the extreme south) and area south of Santa Cruz.

COLOMBIA : Magdalena River Basin (De Mares Concession) ; N.-E. Colombia (Barco Concession).

TRINIDAD : between Palo Seco and Brighton.

ARGENTINA : *Pantagonia* : Commodoro Revadavia region ; Salta ; Neuquen ; Mendoza.

RUMANIA : *Wallachia* (Sub-Carpathian Zone) : *Ploesti Province* : Dambovilza and Prahova districts ; *Moldavia* : Buzau and Bacau districts.

POLAND : *Boryslaw* : Tustanowice-Mraznica field ; Schodinca ; etc.

GERMANY : Hanover Basin ; etc.

U. K. : Nottingham Field ; Formby (Lancashire).

BURMA : Yenangyaung (Magwe District) ; Singu (Chauk) ; Lanywa ; Yenangyatsabe ; Minbu-Palayan-Yethaya ; etc.

PAKISTAN : *Punjab* : Jhelum ; Rawalpindi ; Pothwar Plateau ; (S.-W. of Rawalpindi) : Dhulian, Jaya Mair near Chakwal ; Balkassar.

INDIA : *Assam* : Digboi ; Badarpur (Naharkatiya).

Uses : Crude oil ; kerosene ; motor spirit ; aviation spirit ; lubricating oils ; (diesel) heavy oils ; road oils ; vaseline ; paraffin wax ; asphalt ; pitch ; still gas ; etc.

Vernacular names : Mitti-ka-tel, matya-tel, minak-tanab, man-yenney, manti-tayilam, manti-nune, etc.

Trade :

Petroleum (Mineral oil) has long been *imported* into India. The position of trade before the "Partition" (1946-47) was : gals. 122,462,510—Rs. 8,55,93,708 ; 1954-55 : gals. 214,932,406—Rs. 24,98,36,170. *Mineral oils* (Kerosene, Fuel oils, Lubricating oils, etc). 1946-47 : gals. 640,912,800—Rs. 29,66,90,003 ; 1954-55 : gals. 936,443,917—Rs. 82,85,61,157.

PIGS

(Sus cristatus)

(See "*Livestock*")

World Population : 325,000,000 heads
India Population : 4,420, 000 heads
Pakistan Population : 104,000 heads

Chief Producers in the World : China ; U. S. A. ; U. S. S. R. ; Germany ; Brazil ; etc.

Uses : MEAT (pork, bacon, ham) ; bristles : (brushes) ; skin ; etc. FAT : lard.

Vernacular names : Sukar, suar, sur, varaha, paddi, dukkar, pandi-handi, tan-wet, etc.

Trade : Lard (q. v.).

PINE (Long-leaved)

(Pinus longifolia)

[*Resin*]

Occurrence in India : N.-W. F. Province ; U. P. ; Kashmir ; etc., (*Pinus Khasya* : Assam).

Uses : RESIN : In soap-making ; in sizing paper and cloth ; in the manufacture of linoleum ; oil cloth ; sealing wax ; inks ; lubricating compounds ; paints and varnishes ; dressing for bows of violins ; for soldering ; dressing for machine belts ; etc.,

OIL : (Turpentine) : paints and varnishes ; for dissolving caoutchouc, fats, etc. ; in medicine.

TIMBER : Poles (electric transmission).

Vernacular names : Salla, sala, saral, chir, dhup, kolan, sapin, mashtar, gula, thansa, etc. (oleo-resin—gandha biroza).

PINEAPPLE

(Ananas sativa)

[*Fruit*]

World Production : 1,470,000 tons
Indian Production : 40,000 tons

Chief Producers in the World : Hawaii ; Brazil ; Mexico ; Cuba ; Philippines ; South Africa ; Formosa ; Malaya ; Australia ; India ; Puerto Rico ; Pakistan ; Bermuda ; the Azores ; etc.

Principal Indian States : Assam ; W. Bengal ; Western Ghats ; foot of the Himalayas ; etc.

Principal Pakistan States : East Bengal.

Uses : FRUITS : Fresh fruit, jam ; processed food ; etc.

LEAVES : Fibre : pinacloth and other durable fabrics.

Vernacular names : Anánas, ánàras ; anáshap pazam, anásapandu. kita-chakka. etc.

PINEY
(Hardwickia pinnata)

[*Timber*]

Occurrence in India : (West Coast of India) ; Coorg ; Travancore-Cochin ; Madras ; etc.

Uses : Building construction : beams, rafters, ceiling boards, battens ; furniture ; floorings ; veneers ; etc.

Vernacular names : Shuráli, kolavu, compaini, uram, etc.

PIYAR (Piyal)
(Buchanania latifolia)

[*Timber*]

Occurrence in India : "In the dry forests throughout India." Bombay ; Madhya Pradesh ; Bihar ; Orissa ; Uttar Pradesh ; Madras ; etc.

Uses : GUM : (*peal* or *pial*) : Resemble Bassora gum ; for dressing textiles ; in dyeing. BARK & FRUIT : Varnish. KERNELS : Food (sweetmeat) ; oil. LEAVES : Fodder. TIMBER : (Seasoned) Building material ; "Spoons, plates, toys and bed-steads"; etc.

Vernacular names : Piyar, piyal, pial, chironji, chiranli ; paira, tarum, char-ka-gond, mowda, nuskul, etc.

POMELO
(Citrus decumana)

[*Fruit*]

Chief Producers in the World : Bahamas ; Cuba ; Jamaica ; U. S. A. (Florida) ; India ; etc.

Occurrence in India : Very common in W. Bengal ; Madras ; Bombay ; found in Uttar Pradesh ; Madhya Pradesh ; Punjab.

Uses : Tasteful fruit ; salad ; etc.

Vernacular names : Batavi-nimbu, maha-nibu, sadaphal, chakotra, botor-nebu, bijoro, papanas, bombalinas, etc.

Other trade names : POMPOLEUS ; SHADDOCK.

POON
(Calophyllum tomentosum ; etc.)

[*Timber*]

Occurrence in India : "South India, from the West Coast districts to Coorg" ; Andamans ; etc.

Uses : Structural work ; panels ; etc.

Vernacular names : Pantaga, wuma, punnal, lalchini, ponyet, kamdeb, etc.

(Prickly) POPPY
(Argemone mexicana)

[*Seed*]

Occurrence in India : Widespread in India, particularly in the drier regions.

Uses : SEEDS : (Resemble rape and mustard). OIL : Illumination ; lubrication ; as adulterant of mustard oil (probably causing epidemic dropsy). Medicine (roots, juice or exudation, seed and oil).

Vernacular names : Brahmadandi, siyal-kanta, bharband, kudiyoetti, etc.

POPPY (SEED)
(Papaver somniferum)

[*Edible seed*]

World Production : 80,000 tons

Chief Producers in the World : France ; Germany ; Bavaria ; Turkey ; Persia ; U. S. S. R. ; India ; etc.

Principal Indian States : Uttar Pradesh ; Punjab ; etc.

Uses : SEED : OIL : Edible oil ; in painter's material ; illuminant ; etc. SEEDS : edible.

Vernacular names : Post, posto, khas-khas, doda, khuskhus, gosha-gosha-tól, casa-casa, etc.

Trade : EXPORTS : 1866-67 : Rs. 6,26,403 ; 1867-68 : cwts. 143,032—Rs. 7,88,668 ; 1901-02 : cwts. 934,080—Rs. 78,17,342 ; 1946-47 : tons 221—Rs. 2,84,031 ; 1954-55 : tons 68—Rs. 96,907.

IMPORTS : 1875-76 : cwts. 20—Rs. 141 ; 1901-02 : cwts. 3,858—Rs. 29,606.

POTATO
(Solanum tuberosum)

[*Food*]

World Production : 165,300,000 tons
Indian Production : 1,965,000 tons
Indian Acreage : 648,000 acres

Chief Producers in the World : U. S. S. R. ; Poland ; West Germany ; France ; East Germany ; U. S. A. ; U. K. ; Czechoslovakia ; Spain ; Netherland ; Austria ; Italy ; Eire ; etc.

Principal Indian States : UTTAR PRADESH : Farrukhabad ; Jaunpur ; Naini Tal ; Dhera Dun ; Meerut ; Moradabad ; Gorakhpur ; Basti ; Gonda ; etc. (Grown in all districts).

BIHAR : Patna ; Gaya ; Dharbhanga ; Saran ; Hazaribagh ; Purnea ; Monghyr ; Shahabad ; etc.

WEST BENGAL : Burdwan ; Hooghly ; Birbhum ; Murshidabad ; Bankura ; Midnapur ; 24-Parganas ; etc.

ASSAM : Khasia and Jaintia Hills ; Darrang ; Silchar ; Kamrup ; Goalpara ; Nowgong ; etc.

BOMBAY : Poona ; Satara ; Nasik ; Ahmednagar ; Kaira ; Dharwar ; Belgaum ; Ahmedabad ; etc.

MADRAS : Nilgiri Hills ; Otakamund and Coonoor Taluks.

EAST PUNJAB : Simla ; Kangra ; Jullundur ; Ambala ; Karnal ; Amritsar ; Sialkot ; Ludhiana ; etc.

MYSORE : Bangalore ; Kolar ; Hassan ; Tumkur ; Mandya ; Mysore ; etc.

MADHYA PRADESH : Jabalpur ; Chhindwara ; Saugor ; Hoshangabad ; Betul ; Mandla ; Amraoti ; etc.

ORISSA : Cuttack ; Puri ; Sambalpur ; Balasore ; etc.

Pakistan :

EAST PAKISTAN : Rangpur ; Bogra ; Mymensingh ; Dacca ; Chittagong ; Sylhet.

WEST PUNJAB : Rawalpindi ; Lahore ; Sialkot.

N.-W. F. PROVINCE : Hazara ; Peshawar ; etc.

SIND : Malir ; Bagirji ; etc.

Uses : Food ; stock feed ; starch (Farina : laundry purposes, sizing, in the preparation of pudding, pastry, confectionery, custard powders, pie fillings, ice-cream, etc.) ; alcohol ; glucose ; dextrin ; etc.

Vernacular names : Alu, bilaiti álu, gól álu, batata, urulai, wallarai, kilangu, utalay, urula gudda, etc.

(SWEET) POTATO

(Ipomoea batalus)

[*Food*]

Indian Production : 1,251,000 tons

Occurrence in India : Grown all over the country : Uttar Pradesh (41·4%) ; Bihar (24·2%) ; Madras (14·0%) ; Bombay (7·9%) ; Orissa ; Madhya Pradesh ; Assam ; Andhra ; Hyderabad ; Mysore ; Travancore-Cochin ; etc.

Uses : TUBER : Vegetable : diet, alcohol, sugar ; "used as food, either cooked in curry or boiled, roasted or fried."

Vernacular names : Ranga alu, mitha alu, chine alu, sakar-khand (white variety), vallikilangu, etc.

PULSES

Other than : Tur or arhar ; (pigeon) Pea : *Cajanus indicus* ; Urad or mash : *Phaseolus mungo* ; Mung : *Phaseolus radiatus* ; Masur : Lentil : *Lens esculenta* ; Kulthi : Horse Gram : *Dolichus biflorus* ; Matar : Garden pea : *Pisum sativum* ; Barbati : Cow pea : *Vigna catjang* ; Lakh khesari : Chickling Vetch : *Lathyrus sativus* ; etc.

Indian Production : 1,977,000 tons
Indian Acreage : 10,498,000 acres

PULSES (*other than Gram and Tur*)

Indian Production : 8,486,000 tons
Indian Acreage : 46,670,000 acres

Trade : EXPORTS : 1884-85 : cwts. 608,233—Rs. 17,00,107 ; 1901-02 : cwts. 947,966—Rs. 41,36,567 ; 1946-47 : tons 173—Rs. 12,64,224 ; 1954-55 : tons 17,725—Rs. 73,67,108.

IMPORTS : 1875-76 : cwts. 2,234—Rs. 7,560 ; 1901-02 : cwts. 220,224—11,42,563 ; 1946-47 : tons 16,817—Rs. 70,21,678 ; 1953-54 : Rs. 2,29,51,181 ; 1954-55 : Rs. 17,00,592.

PYRITES

(See "Sulphur")

[*Mineral*]

Indian Production : 277 tons (1953)

India has fairly big deposits of pyrites chiefly in Bihar (Shahabad, Amjor), Uttar Pradesh (Kumaon Hills), Himachal

Pradesh (Simla Hills ; Solon) and Madras (Tirunelveli). Except in Bihar all other deposits are lying idle, the requirements of sulphur being met by imports.

World production is 10,974,000 tons a year, the biggest producer being Japan (20%) followed by Spain (16%), Italy (11%), U. S. A. (9%), Cyprus (7%), Canada (3%), Sweeden (3%), U. S. A., Yugoslavia, Australia, etc.

The chief *uses* of pyrites lie in the supply of sulphur and ferrous sulphate, etc.

QUARTZ

(*Crystalline silica*)

[*Mineral*]

Quartz usually is found in the shape of pegmatite, granite sandstone, etc. Brazil supplies the bulk of commercial crystals in the world ; India possesses crystals of very good quality.

Clear, colourless quartz is used in making lenses and prisms ; for its cheapness it is used as a common *abrasive*. As quartz crystals have been found "to possess piezo-electric properties", in recent years a steady, though small, demand has grown for their utilization in ultra-sonic apparatus ; in magnesia or oxychloride cements ; in ceramics ; glazes ; as lining in electrical furnaces ; for treating oils and fats ; flux ; filler in making enamels, paints, pigments, tyres ; filtering medium of water, sewage, wine, etc.

RAGI or (FINGER) MILLET

(Eleusine coracana)

[*Foodgrain*]

Indian Production : 1,778,000 tons
Indian Acreage : 5,747,000 tons

Chief Producers in the World : India ; Malaya ; North Africa ; etc.

Principal Indian States : ANDHRA : Srikakulam ; Chittoor ; Anantapur ; Visakhapatnam ; Nellore ; Cuddapah ; etc. MADRAS : Salem ; Coimbatore ; Chingleput ; North Arcot ; South Arcot ; Tiruchirapalli ; etc. MYSORE : Bangalore ; Tumkur ; Kolar ; Mysore ; Hassan ; Mandya ; Chitaldrug ; etc. SAURASHTRA : Gohilwad : Halwar : Zalawad. BOMBAY : Ratnagiri : Nasik :

Kaira ; Kolaba ; Belgaum ; etc. BIHAR : Ranchi ; Hazaribagh ; Darbhanga ; etc. UTTAR PRADESH : Garhwal ; Almora ; etc. ORISSA : Koraput ; Bolangir ; Ganjam ; etc. HYDERABAD : Mahbubnagar ; Medak ; Gulbarga ; etc. MADHYA PRADESH.

Uses : Food ; flour (cakes, puddings) ; fermented beverage ; malt ; birdseeds ; etc.

Vernacular names : Ragi, marua, rajka, mandua, makra, maudal, nangli, ragulu, kelvaregu,tamidelu, kodra, bavto, etc.

RAMIE or RHEA (China Grass)

(Bœhmeria nivea)

[*Fibre*]

Chief Producers in the World : China ; Japan ; Malaya ; U. S. A. ; etc.

Principal Indian States : Assam ; West Bengal.

Use : Sacking, sail-cloth, belting, table cloths, sheeting, shirtins, dress cloths, laces ; thread, string, nets, cordage, ropes, fishing lines and paper."

Vernacular names : Kánkurah, kiah, risa, rhea, pooah, etc.

REFRACTORIES

The minerals or earths suitable for resisting high temperatures without fusion or softening and at the same time available in sufficient quantities at economic prices are :

Bauxite ; Chromite ; Dolomite ; Fire-clays ; Graphite ; Kyanite ; Magnesite ; Quartz ; Silimanite ; Zircon ; etc.

They have found extensive use "in the metallurgical and ceramic industries for the construction of furnaces, kilns, stoves, saggers, crucibles, etc. ; for smelting ores, refining metals, making glass, firing pottery, coking coal, heating air, etc."

REH

(*Alkaline earths*)

Occurrence in India : RAJASTHAN : Pachbadra Salt Basin, Sambhar Lake. UTTAR PRADESH : Meerut, Ghaziabad, Morodabad, etc. BOMBAY : Ahmedabad Kharagodah Lake. SAU-

RASHTRA : Dhrangadhra, Kathiawar. MYSORE : Mysore, Mandya, Tumkur, Chitaldrug. BIHAR : Champaran, Muzaffarpur, Saran. MADHYA PRADESH : The Lonar Lake (Buldana District).

Uses : Cleansing of utensils and coarse fabrics.

Vernacular names: Reh, sajjimatti, phuli, soudu, etc.

(Cleaned) RICE

(Oryza sativa)

[*Foodgrain*]

World Production : 112,400,000 tons
Indian Production : 27,079,000 tons
Indian acreage : 76,646,000 acres

Pakistan : Acres : 24,522,000 ; Production : 9,151,000 tons.

Chief Producers in the World : CHINA (29%) : (All parts of S. China) ; Kiangsu ; Hunan ; Kwangsi ; Hupen ; Honan ; Anhwei ; Chekiang ; Szechwan ; Fu-kien ; Kiangsi ; Kwang-tung ; etc., etc.

India (23%) : See below.

Pakistan (9%) : *East Pakistan* : Mymensingh ; Bakarganj ; Faridpur ; Tippera ; Dacca ; Rangpur ; Noakhali ; Dinajpur ; Khulna ; Rajshahi ; Pabna ; Jessore ; Chittagong ; etc. *West Pakistan* : Sind ; West Punjab.

JAPAN : *Honsu* : Nagato, Suo, Iwami, Izumo, Inaba ; Tajima ; Tamba ; etc. ; *Kyu-Shu* ; *Shikoku.*

THAILAND : "The Great Central Plain of Siam" ; Krung Tep (Bangkok) ; Ayudhya ; Nakon Chaisi ; Rajburi ; Nakno ; Sawan ; Prachin ; Pitsanulok.

INDONESIA : Java.

BURMA : The Irrawaddy Delta ; the lower valleys of the Sittang and the Salwen rivers ; parts of Arakan and Tenasserim Coasts.

Korea ; Philippines ; Brazil ; U. S. A. ; Viet-Nam ; Cambodia ; Italy ; Spain ; etc.

INDIA

BIHAR : Purnea ; Santhal Pargana ; Ranchi ; Gaya ; Shahabad ; Darbhanga ; Champaran ; Manbhum ; Muzaffarpur ; Hazaribagh ; Singhbhum ; Patna ; Monghyr ; Saran ; Bhagalpur ; etc.

MADRAS : Tanjore ; Malabar ; Chingleput ; South Kanara ; South Arcot ; Shrikakulam ; Tiruchirapalli ; North Arcot ; Tirunelveli ; Madurai ; Ramnathapuram ; Salem ; etc.

ANDHRA : East Godavari ; West Godavari ; Krishna ; Guntur ; Nellore ; Vishakhapatnam.

WEST BENGAL : Midnapore ; 24-Parganas ; Burdwan ; Bankura ; Birbhum ; Murshidabad ; West Dinajpur ; Hooghly ; Jalpaiguri ; Nadia ; Maldah ; Coach Behar.

ORISSA : Cuttack ; Sambalpur ; Balasore ; Koraput ; Ganjam ; Puri ; etc.

UTTAR PRADESH : Basti ; Gorakhpur ; Gonda ; Azamgarh ; Deoria ; Bahraich ; Faizabad ; Sitapur ; Allahabad ; Mirzapur ; Sultanpur ; Rae-Bareli ; Garhwal ; Barabanki ; Kheri ; Jaunpur ; Ghazipur ; etc.

MADHYA PRADESH : Raipur ; Bilaspur ; Durg ; Bastar ; Raigarh ; Bhandara ; Surguja ; Jabalpur ; etc.

ASSAM : Kamrup ; Sibsagar ; Darrang ; Goalpara ; Cachar ; Lakhimpur ; Lushai Hills ; etc.

BOMBAY : Thana ; Kolaba ; Ratnagiri ; Surat ; Panch Mahals, Baroda ; Kohlapur ; Dharwar ; etc.

HYDERABAD : Karimnagar ; Nizamabad ; Warangal ; Nalgonda ; Medak ; Adilabad ; etc.

TRAVANCORE-COCHIN : Trichur ; Kottayam ; Quilon ; Trivandrum : etc.

MYSORE ; Shimoga ; Mandya ; Mysore ; Hassan ; Chikmagalur ; Bangalore ; etc.

KASHMIR : Srinagar ; Baramulla ; Jammu ; etc.

PUNJAB : Kangra ; Gurdaspur ; Ambala ; Karnal ; Amritsar ; Hoshiarpur ; etc.

MADHYA BHARAT : Nimar ; Gird ; etc.

Uses : GRAINS : Food ; Starch ; (starch products ; sizing material ; dextrose, maltose, adhesive paste ; etc.) ; beer, *pachwai* ; face powder ; smokeless powder ; etc. HUSK : Fuel ; dye. BRAN : Cattle food ; fish and poultry food ; oil ; etc,

Vernacular names : Dhanya, dhan (rice fn the husk) ; chaul chával, tai, shálian, dángar, tandula, arishi, nellu, biyam, urlú etc.

Trade : EXPORTS : 1852—Rs. 77,70,310 ; 1874-75 : cwts. 17,393,000—Rs. 4,76,53,340 ; 1901-02 : tons 1,701,450—Rs. 13,92,22,290 ; 1945-46 : tons. 44,936—Rs. 1,78,18,550 ; 1946-47 : tons 17—Rs. 7,562 ; 1954-55 : tons 22,656—Rs. 1,38,67,434. (Remarkable export : 1925-26 : tons 2,584,000—Rs. 39,97,50,000).

IMPORTS : Rice (not in the husk) 1873-74 : cwts. 47,592—Rs. 2,44,685 ; 1901-02 : tons 3,099—Rs. 3,56,078 ; 1946-47 : tons 126,655—Rs. 3,63,86,024 ; 1952-53 : Rs. 43,16,45,831 ; 1954-55 : Rs. 13,29,95,406.

Rice in the husk (paddy) 1874-75 : cwts. 756—Rs. 1,046 ; 1901-02 : cwts. 286—Rs. 792 ; 1946-47 : Tons 109,093—Rs. 2,62,89,379 ; 1953-54 : Rs. 3,642 ; 1954-55 : nil.

(Indian) ROSEWOOD or (SISOO)

(Dalbergia latifolia ; D. sisoo)

[*Timber*]

Occurrence in India : Foothills of Nepal ; Bombay ; Madras ; Orissa ; Punjab ; Uttar Pradesh ; West Bengal ; Assam ; etc.

Uses : Furniture ; "gun-carriage wheels, wagon parts" ; boat-building ; blocks (pattern making) ; mathematical instruments ; flooring ; furniture, panelling, domestic construction ; agricultural implements ; tool handles, spokes (of cart wheels) ; ply boards ; combs ; musical instruments ; electrical casing : *hookah* tubes ; shoe lasts ; brushes ; (printing) blocks ; drums (musical) ; shuttles ; tobacco pipes ; etc.

Vernacular names : Sissoo, shisham, sisam, sisu, tali, yette, mukku-kattai, chittegi, irugudu, etc.

DALBERGIA LATIFOLIA : Sitsal, swetsal, biti, vetti, iti, satisal.

Other trade names : BOMBAY BLACKWOOD ; ROSEWOOD OF SOUTHERN INDIA.

RUBBER (CAOUTCHOUC)

(Fiscus elastica)

[*Rubber*]

World Production : 1,802,000 tons
Indian Production : 21,493 tons
Indian Acreage : 149,262 *acres*

Chief Producers in the World :

INDONESIA (41%) : *Java* : Banjermasin, Pontianak, etc. *Sumatra :* Palembang, Jambi ; North Borneo ; Sarawak ; etc.

MALAYA (32·5%) : Selangor ; Perak ; Johore ; Pahang ; Trengganu ; etc.

Ceylon (5·2%) ; Indo-China (4·3%) ; Belgian Congo ; India ; Nigeria ; Burma ; Liberia ; Tanganyika ; etc.

INDIA

TRAVANCORE-COCHIN : Kottayam ; Quilon ; Trichur ; Trivandrum. MADRAS : Malabar ; Nilgiris ; Coimbatore ; etc. COORG : Coorg. MYSORE : Chikmaglur.

Uses : TYRES : tubes ; sheets ; surgical gloves ; (hot) bags ; bladders ; hygienic goods ; pouches ; tubings ; shoe ; toys ; nipples ; flooring, pads ; "sponges" ; rubber, mattresses ; pillows ; belts ; life-belts ; straps, bands, bandages ; horn bulbs ; brakes ; brake linings ; buffers ; stoppers ; valves ; washers ; garters ; corsets ; road blocks ; floor-treads ; vulcanite and ebonite ; rubber "plated", rubber-lined articles ; conveyors ; gaskets ; protective clothing ; insulating material ; rubber-proofed articles ; leather substitutes ; etc.

SEED : Oil : paints ; soap ; etc.

Vernacular names : Bar, attah, barkagiri ranket; lesu, kyet paung, nyaung yak, bandi, etc.

Trade : EXPORTS (Raw) 1866-67 : Rs. 1,12,449 ; 1867-68 : cwts. 6,203 ; 1872-73 : cwts. 21,571—Rs. 14,37,603 ; 1901-02 : cwts. 4,136—Rs. 6,04,197 ; 1946-47 : lbs. 669,836—Rs. 5,02.537 ; 1954-55 ; lbs. 47,635—Rs. 85,189.

IMPORTS : (Raw) 1875-76 : cwts. 81—Rs. 9,110 ; (extremely erratic since 1891-92 ; 1901-02 : nil ; 1946-47 ; lbs. 379,421—Rs. 2,69,470 ; 1954-55 : lbs. 10,504,356—Rs. 1,03,49,015.

RUSA GRASS

(Cymbopogon martini)

[*Essential oil*]

Occurrence in India : Madhya Pradesh ; Uttar Pradesh ; Bombay ; Hyderabad ; etc.

Uses : Attars ; (for adulteration of attar of roses) ; for obtaining gereniol ; perfumery ; etc.

Vernacular names : Rusa, rosa, rhaunsa, rohisha, rauns, gandhabena, mirchigand, etc.

SABAI GRASS (Bhabar)

(Ischæmum angustifolium)

[*Paper material*]

Consumption in India : 80,000 tons

Occurrence in India : "Plentiful in drier tracts of India, from Chota Nagpur and Rajmahal to Nepal and Garhwal, also throughout the plains northward, *viz.*, in the Central Provinces (M. P.), Central India (mainly V. P. and M. B.) and Rajputana (Rajasthan) to the Punjab, Kashmir and Afghanistan. ascending to altitudes of 7,000 feet." (Watt). UTTAR PRADESH : *Siwaliks*. Bahraich, Kheri, Piliphit. BIHAR Singhbhum, Chota Nagpur : ORISSA ; W. BENGAL ; PUNJAB ; etc. NEPAL : Terai.

Uses : Paper manufacture ; (rough) rope, string ; mats ; etc.

Vernacular names : Bhabar, baboi, ban-kas, bagali, boib, bankus munji, mulka-gadi, som, etc.

SAFFLOWER (KARDI)

(Carthamus tinctorius)

[*Dye*]

Chief Producers in the World : Egypt ; India ; Asia Minor ; (Southern) France ; Spain ; Germany ; Italy ; Hungary ; Caucasus ; Persia ; China ; Indonesia ; etc.

Principal Indian States : WEST BENGAL ; UTTAR PRADESH (Meerut) ; MADRAS ; PUNJAB (Hoshiarpur, Ambala) ; BOMBAY (Ahmednagar, Sholapur, Dharwar, Belgaum) ; MADHYA PRADESH (Amraoti, Yeotmal, Bilaspur) ; HYDERABAD (Gulbarga, Aurangabad Bhir, Osmanabad, Bidar, Raichur) ; etc.

Uses : FLOWER : Dye (for fabrics, rouge and sweetmeats). Medicine ; etc. SEED : Oil : soap ; paint and varnish ; linoleum ; "Afridi wax cloth" ; culinary uses ; adulterant of ghee ; illuminant ; "for greasing oil ropes, leather, etc." ; in hair oil ; poultry feed ; etc. CAKE : Cattle food.

Vernacular names : Kusum kusumbha, kajra, kusam, kurtam barre, kardail, kurdi, karabi, khoinbo, sendugram, agnisikha, kushumbavittulu : etc.

Other trade name : CARTHAMINE (dye).

Trade : EXPORTS : 1875-76 : cwts. 4,080—Rs. 1,63,528 ; 1901-02 : cwts. 1,085,174—Rs. 59,192 ; 1946-47 : cwts. 830—Rs. 74,272.

IMPORTS : 1875-76 : cwts. 10—Rs. 152 [Erratic and negligible].

SAFFRON

(Crocus sativus)

[*Dye*]

Occurrence in the World : Spain ; Italy ; Greece ; France ; Turkey ; Persia ; China ; India ; etc.

Principal Indian States : Kashmir (Pampur) ; Jammu (Kishtwar).

Uses : Colouring agent ; medicine.

Vernacular names : Zaafaran, jafran, keshara, kunkumapuvu, kungumapu, etc.

SAGO (Palm)

(Arenga saccharifera)

[*Fibre*]

Occurrence in India : "Very commonly cultivated in India and wild in the forests of Assam and Burma."

Uses : (See SAGO PALM—*Caryota Urens*).

Vernacular names : Taung-ong, eju, gumúti, etc.

Other Trade names : MALACCA PALM, MALAYA PALM.

SAGO (Palm)

(Caryota urens)

[*Fibre*]

Occurrence in the World : Ceylon ; Straits Settlements ; Malaya ; East Indies ; India ; etc.

Occurrence in India : In Western and Eastern Coasts ; Bihar (Chota-Nagpur) ; Orissa ; Bengal ; etc.

Uses : FIBRE : (Leaf sheath) : Kittul (Ceylon), Salopa (Orissa) : ropes, brushes, brooms, baskets ; fishing line ; for caulking boats ; etc. Kittul : a good substitute for bristles. STEM : (Interior) sago or the kittul flour. JUICE : (Terminal bud) toddy ; jaggery ; sugar. TERMINAL BUD : ("Cabbage") Edible. TIMBER : Agricultural purposes ; as water conduits, tank pipes ; etc. ROOTS : Charcoal (for gold and silversmiths) ; etc.

Vernacular names : Mada, dirgha, sagu-dana, mári, bherawa, birlimhad, berli, tippili, jilugujattu ; etc.

Other Trade names : INDIAN SAGO-PALM ; BASTARD-SAGO.

SAL

(Shorea robusta)

[*Timber*]

Occurrence in India : Foot of the Himalayas ; Santhal Pargana ; Chota-Nagpur ; Madhya Pradesh ; North Bengal Hills.

Uses : TIMBER : Beams ; rafters ; piles ; sleepers ; planing ; railing ; hubs (of carts) ; felloes ; vats (for liquor storage) ; poles (for electrical transmission) ; etc.

Vernacular names : Makai, sakhu, sarjun, salwa-soringhi, rinjal, kandar, ral, kulingiliyam, gugal, guggilamu, kabbu, etc.

SALAI

(Boswellia serrata)

[*Timber*]

Occurrence in India : Bihar ; Vindhya Pradesh ; Madras ; Bombay ; Orissa ; Madhya Bharat ; Saurashtra ; etc.

Uses : TIMBER : Packing cases ; boxes ; cooperage (*keto* or *ketko*) ; paper pulp ; plywood. OIL : (Indian olibanum) : for sizing and also as a thickening agent in cloth printing ; varnishes ; etc. Similar to turpentine ; paint ; etc.

Vernacular names : Salhe, selga, kundur, salpe, luban, salga, anduku, guggula, salaphali, dhup, kungli, kundrikam-moranda, parangi-shambirani, anduga pisunu, andu, vella kundirukkam, salasi-miryasa, etc.

SALT
(Sodium chloride)

[*Mineral*]

World Production : 49,000,000 tons
Indian Production : 2,516,725 tons
Pakistan Production : 301,000 tons

Chief Producers in the World : U. S. A. (34%) ; United Kingdom (7%) ; India (6%) ; Germany (6%) ; France (4%) ; U. S. S. R. ; China ; Italy ; Spain ; Canada ; Brazil ; Japan ; Aden ; etc. ; etc.

Principal Indian States : BOMBAY (31%) : Kharagodha, Dharsana (Gujrat) ; Bhyandar and Bhandup (Thana) ; Uran (Colaba). *Total Production* : 794,799 tons.

SAURASHTRA (24%) : Dhrangadhra ; *Kathiawad* : Mithapur (Okhamandal), Bhavnagar, Jaffarabad, Jamnagar, Lavanpur, (near Navalakhi), Porbandar, Versamadi. *Total Production* : 603,566 tons.

MADRAS (16%) : Naupada, Pennuguduru, Madras, Cuddalore, Adirampatnam, Tuticorin. *Total Production* : 394,485 tons.

RAJASTHAN (12%) ; Sambhar Lake (Aravalli Hills. At the border of Jaipur and Jodhpur States) ; Didwana and Pachbadra (Jodhpur). *Total Production* : 315,331 tons. KUTCH (6%) : Kandla. ANDHRA (6%) : *Total Production* : 162,857 tons. TRAVANCORE-COCHIN (2%) : Nagercoil (district). *Total Production* : 50,073 tons. ORISSA : Puri, Ganjam, Balasore, Cuttack. *Total Production* : 26,176 tons. HIMACHAL PRADESH : Mandi (Guma, Drang, Maigal). *Total Production* : 4,007 tons. WEST BENGAL : Midnapore, 24-Parganas.

Uses : Cattle lick ; condiment in cooking ; food ; manure ; as a weed killer ; preservation of fish (curing) ; pickling agent for fish, meat, vegetables ; source of heavy chemicals (bleaching powder, caustic soda, sal ammoniac, glauber's salt, chlorate, hydrochloric acid, soda ash) ; sodium salts ; ceramics glazes ; in lowering temperature ; salting of hides ; chrome, mineral and vegetable tanning ; ingredient of bath salts ; in mercerising cotton ; etc.

Vernacular names : Nun, lavan, nimak, mitha, uppre mitha, midha, etc.

SALTPETRE

(Potassium nitrate)

[*Mineral*]

Indian Production : 3,000 tons

Chief Producers in the World : Chile ; U. S. A. ; India ; Egypt ; Hungary ; Persia ; etc.

Principal Indian States : Punjab ; Uttar Pradesh (Kanpur, Ghazipur) ; PEPSU ; Bihar ; Delhi.

Occurrence in India : MADHYA BHARAT : Gwalior (Bhind ; Jawagarh or Jawad) ; BOMBAY ; MADRAS (Salem, Madurai, Coimbatore) ; ANDHRA (Krishna, Nellore, Tiruchirapalli) ; KASHMIR.

Uses : Fertiliser ; explosives ; fireworks ; dyeing (lac and cochineal) ; preservative ; manufacture of acid, glass, enamel ; as a flux ; medicine ; etc.

Vernacular names : Shorá, sorá, soráka, suriakhar, potti-luppu, veti-uppa, etc.

Trade : EXPORTS : 1858-59 : cwts. 700,000 ; 1902-03 : cwts. 410,622—Rs. 43,27,283 ; 1946-47 : cwts. 34,101—Rs. 10,86,633 ; 1954-55 : cwts. 3,161—Rs. 95,320.

SANDAL WOOD

(Santalum album)

[*Timber & Oil*]

Chief Producers in the World : East Indies ; India ; Australia (*Fusamus spicatus*).

Principal Indian States : MYSORE ; Madras ; Coorg ; Madhya Pradesh ; Bombay.

Uses : WOOD : Carving ; ornamental boxes, fans, partition, etc. ; incense ; paste (for fragrance and in religious observances) ; engraving (blocks) ; medicine.

OIL : Perfumery, soap making ; medicine ; for scenting inferior woods.

SAWDUST : Oil : scenting clothes, cupboards ; stuffing pin-cushions, etc.

Vernacular names : Chandan, sandal, srikhanda, gandhácha-koda, shan danak kattai, gandhapu chekka, gandha, sukhad, etc.

Trade : EXPORTS : WOOD : 1875-76 : Rs. 2,04,499 (originally recorded as "ornamental wood") ; 1901-02 : Rs. 7,83,727 ; 1946-47 : tons 1,083— Rs. 45,48,463, 1954-55 : tons 114— Rs. 29,07,491.

OIL (Essential) : 1866-67 : Rs. 1,08,488 ; 1901-02 : gals. 20,700 —Rs. 6,45,743 ; (Sandal) 1918-19 : lbs. 14,984— Rs. 22,71,563 ; 1919-20 : lbs. 16,461— Rs. 41,22,680 ; 1946-47 : gals. 8,577— Rs. 25,13,875 ; 1954-55 : gals. 20,094— Rs. 69,88,932.

IMPORTS : WOOD : 1875-76 : Rs. 2,981 ; 1901-02 : Rs. 29,709 ; 1946-47 : tons 79— Rs. 45,307 ; 1954-55 : tons 45— Rs. 2,181.

SANDAL WOOD (Red)

(Petrocarpus santalinus)

[*Dye*]

Occurrence in India : South India (Cuddapah, North Arcot, and Karnul districts).

Uses : WOOD : House posts ; plough poles, agricultural implements ; medicine. WOOD DYE : Colouring agent in pharmacy ; in dyeing leather and wood.

Vernacular names : Rakta-chandan, undum, tilaparani, ranjana, ratánjli, seyapu chandanum, kuchandanam, erragandhapu chekka, honné, agaru, etc.

Trade : (See "Sandal Wood").

SANDAN

(Ougeinia dalbergoides)

[*Timber*]

Occurrence in India : Bombay ; Madhya Pradesh ; Bihar ; Orissa ; Uttar Pradesh ; etc.

Uses : Tool handles, agricultural implements ; cart-building (hubs) ; picker arms, shuttles ; cooperage ; etc.

Vernacular names : Panjam, bandhan, tinsa, etc.

SAPPAN (Bakam Wood)

(Cæsalpinia sappan)

[*Timber*]

Occurrence outside India : Burma ; Ceylon ; Malay ; etc.

Occurrence in India : Madras ; Bombay ; Travancore ; etc.

Uses : WOOD, BARK, FLOWER, PODS : Dye (in wool dyeing and calico printing) ; tanning ; etc. TIMBER : Substitute for log wood ; in the preparation of incense (gulal) ; etc. HEARTWOOD : Colouring material in dyeing of cotton, silk and woollen fabrics ; suitable for inlaying work ; scabbards ; medicine ; etc.

Vernacular names : Pattra-ranjika, bakam, bokom, tairi teri, patang, sappanga, chapangam, patungam, tein-nyet, etc.

SARA

(Saccharum procerum)

[*Reeds*]

Occurrence in India : "Common in the plains."

Uses : REEDS : Matting ; thatching ; for making chairs, etc. "The flower is used to stuff pillows and may be used as a paper material."

Vernacular names : Sarkanda, sarkara, ramsar, sar, ser, munj (*Saccharum exaltum*), ikar, para, war, palwa, kanda, darga, gundra, ponika, etc.

SATIN WOOD

(Chloroxylon swietenia)

[*Timber*]

Occurrence in India : Madhya Bharat ; Vindhya Pradesh ; Bombay ; Madras ; etc.

Uses : TIMBER : Furniture ; brush-backs, picture frames ; turnery ; house building ; carts, agricultural implements, boot lasts, brush backs ; etc. GUM ; (Wood) Oil ; Dye. (Leaves) Fodder.

Vernacular names : Bhera, bhira, billa, bella, madula, jirhul, soli, hurgalu, halda, etc.

SAWA (DILL)

(Peucedanum graveolens)

[*Eseential Oilseed*]

Occurrence in the World : Indigenous to Central and Southern Europe. Found throughout India.

Uses : PLANT : Vegetable ; flavouring agent. SEED : Essential oil : perfume ; medicine ; condiment (in curries).

Vernacular names : Súlpha, solpha, sawa, baluntshep, satapuspa, misreya, samyeit, etc.

Trade : EXPORTS : cwts. 133— Rs. 615 ; 1901-02 : tons 95 —Rs. 13,740 ; 1946-47 : tons 505— Rs. 1,97,206 ; 1954-55 : tons 502— Rs. 3,99,589.

SENNA

(Cassia angustifolia)

[*Drug*]

Chief Producers in the World : Egypt ; Arabia ; India ; etc.

Occurrence in India : Madras (Tirunelveli, Madurai, Tiruchirapalli) ; Mysore ; Bombay ; etc.

Uses : LEAVES : Medicine.

Vernacular names : Sonámúkhi, sanna-mukhi, bhumiari, bhupadma, nilavirai, nila-tangedu, etc.

Other trade names : INDIAN SENNA, TINNEVELLI SENNA.

Trade : EXPORTS : 1912-13 : cwts. 39,566— Rs. 5,51,160 ; 1946-47 : cwts. 47,962—Rs. 19,73,350 ; 1954-55 ; cwts. 38,087— Rs. 11,74,710.

SESAMUM (Gingelly)

(Sesamum indicum)

[*Oilseed*]

World Production : 1,931,000 tons
Indian Production : 592,000 tons
Indian Acreage : 6,460,000 acres

Pakistan : Acres 216,000 ; Production : 37,000 tons

Chief Producers in the World :

CHINA (42%) : Fukien ; Chekiang ; Hunan ; Anhwei ; Hupeh ; Shantung ; Hopeh ; Shensi ; Jehol ; Kirin ; etc.

INDIA (27%) : See below. ANGLO-EGYPTIAN SUDAN (7%) : Upper Nile ; Kordofan ; Berber ; etc. MEXICO (4%) : Jalisco ; Michoacan ; Sinualoa ; Nayarit ; Guerro ; Ozaca ; etc. BURMA (2%) : Central Burma. TURKEY : Izmir ; Bursa. PAKISTAN (See below) ; Uganda ; Greece ; Nigeria ; etc.

INDIA

ANDHRA : Visakhapatnam ; West Godavari ; East Godavari ; etc. MADRAS : Tiruchirapalli ; Salem : South Arcot ; Coimbatore ; Madurai ; etc. HYDERABAD : Karimnagar ; Adilabad ; Gulbarga ; Raichur ; Warangal ; Nizamabad ; Mahbubnagar ; etc. RAJASTHAN : Nagaur ; Banswara ; Sirohi ; Jaipur ; Bhilwara ; etc. MADHYA PRADESH : Hosangabad ; Chanda ; Nimar ; Chhindwara ; Yeotmal ; Saugor ; Raigarh ; Raipur ; etc. MADHYA BHARAT : Shivpuri ; Morena ; Guna ; Gird. BOMBAY : West Khandesh ; Baroda ; Ahmedabad ; Bijapur ; Kaira ; Dharwar ; etc. UTTAR PRADESH : Jhansi ; Hamirpura ; Banda ; etc. BIHAR : Palamau ; Santhal Pargana ; etc. ORISSA : Sambalpur ; Ganjam ; Cuttack ; etc. SAURASHTRA : Bhavnagar. TRAVANCORE-COCHIN : Kottayam ; Trichur. MYSORE : Chitaldrug. VINDHYA PRADESH : Tikamgarh (Orcha). PUNJAB ; WEST BENGAL ; AJMER ; JAMMU and KASHMIR.

PAKISTAN

EAST PAKISTAN : Mymensingh ; Rangpur ; Dacca ; Dinajpur ; Bogra ; etc.. WEST PAKISTAN : Punjab (Gurdaspur ; Multan).

Uses : SEED : Food ; sweetmeats ; etc.

OIL : Edible ; toilet ; illuminant ; lubricant ; adulterant in olive oil ; in the manufacture of soap, margarine, etc. ; medicine.

Vernacular names : Til, tir, rasi, khasa, tili, kunjad, yellúcheddie, nuvvulu, ellu, polla nuvvulu, yallu, etc.

Other trade names : SIMSIM, BENNISEED.

Trade : EXPORTS : SEED : 1866-67 : Rs. 13,52,202 ; 1867-68 : cwts. 425,331—Rs. 24,68,582 ; 1901-02 : tons 122,457—Rs. 2,14,39,368 ; 1946-47 : tons 2,404—Rs. 16,98,011 ; 1954-55 : negligible.

OIL : 1880-81 : gals. 118,750—Rs. 1,36,770 ; 1901-02 : gals. 112,211—Rs. 1,83,549 ; 1946-47 : gals. 51,571—Rs. 3,59,060 ; 1954-55 : gals. 32—Rs.451.

OILCAKE : (Linseed, Rape and Sesamum combined) : 1911-12 : cwts. 1,440,000—Rs. 63,34,275 ; 1946-47 : Rape and Sesa-

mum—cwts. 47—Rs. 3,632 ; 1954-55 : tons 38,770—Rs. 1,45,35,432 ; *Dregs of Jinjili oil* : 1885-86 : cwts. 51,289—Rs. 1,00,966 ; 1899-1900 : cwts. 201,950—Rs. 6,83,112 ; (No record thereafter).

IMPORTS : Seed (Til)—1875-76 : cwts. 6,274—Rs. 31,091 ; 1901-02 : cwts. 55,066—Rs. 4,22,314 ; 1946-47 : negligible ; 1954-55 : negligible.

SHEEP (Ovis)

(SEE "LIVESTOCK")

World Population : 828,000,000 heads
Indian Population : 38,830,000 heads
Pakistan Population : 6,570,000 heads

Chief Countries in the World : Australia (16%) ; U.S.S.R. (10%) ; Argentina (6%) ; India (5%) ; U.S.A. (5%) ; New Zealand ; South Africa ; Turkey ; Uruguay ; Peru ; China ; etc.

Uses : Meat (mutton) ; skin ; wool and hair ; furs ; horns ; intestines ; manure (excreta) ; milk (medicine) ; etc.

Vernacular names : Mesh, bhera.

SHELLS (Conch or Chank)

(Turbinella pyrum or **rapa)**

[*Shells*]

Occurrence in India : Gulf of Mannar ; off the coast of Travancore, Tuticorin, Tirunelveli, Ramnathapuram, Kathiawar and Carnatic Coast.

The combined collection of *Chanks* in India and Ceylon is 2,500,000 pieces a year.

Uses : Bracelets, armlets, rings and other *ornaments* ; buttons, charms ; etc. For making (deep) sound on sacred occasions (and in declaring the beginning of a battle). (Other Shells) : Decoration ; lime ; etc.

Vernacular name : Sankha.

Trade : EXPORTS : 1886-87 : (Shells and Cowries) Rs. 2,853 ; erratic from 1877-78 ; 1901-02 : Rs. 94,666 ; 1919-20 : cwts. 3,062—Rs. 10,588.

IMPORTS : 1867-68 : (Shells and Cowries) Rs. 1,32,971 ; 1875-76 : (Shells) Rs. 3,27605 ; 1901-02 : Rs. 3,43,622 ; 1919-20 : cwts. 24,775—Rs. 26,769.

SILK

(Bombyx mori ; etc.)

World Production : 54,000,000 lbs.
Indian Production : 2,100,000 lbs.
Pakistan Production : 40,000 lbs.

Chief Producers in the World :

Japan (63%) ; China (17%) ; Taiwan (Formosa) ; U. S. S. R. (3%) ; Italy ; Korea ; France ; Greece ; Bulgaria ; etc.

JAPAN : (From North Hokkaido to South Kiusu) ; Central Honsu is the biggest centre of production.

CHINA : Chekiang ; Shantung ; Kiangsu ; Szechwan ; Kwantung ; etc.

INDIA : (See below).

FORMOSA (Taiwan) : Shinchiku ; Takao ; Taihoku ; Tanan ; Karenko.

KOREA : The entire western region.

INDIA

Garad : *Bombyx (sericaria) mori* :

MYSORE : Bangalore ; Mysore ; Tumkur ; Kolar.

MADRAS : Coimbatore (Kollegal taluk).

WEST BENGAL : Murshidabad ; Maldah ; Birbhum ; Midnapore ; etc.

KASHMIR & JAMMU.

ASSAM : Scattered all over the State.

Tassar : *Antheræa paphia* :

BIHAR : Bhagalpur ; Manbhum ; Palamau ; Chota-Nagpur ; etc.

MADHYA PRADESH : Nagpur ; Jabalpur ; Chhatishgarh ; etc.

WEST BENGAL : Murshidabad ; Bankura ; Birbhum ; etc.

Muga : *Antheræa assama* : Assam ; Bihar (Purnea) ; West Bengal (Jalpaiguri, Tripura).

Eri or Endi : *Attacus ricini* : (Assam Silk ; Palma Christi Silk ; *Erandi*). Assam ; Bihar (Purnea) ; West Bengal (Jalpaiguri).

Matka : Spun Silk. Jhut (Lat guti or Koa) : Waste Silk (*Chasm*).

Pakistan : EAST BENGAL : Rajshahi ; Maldah ; Dinajpur ; Rangpur ; Sylhet ; etc.

WEST PAKISTAN : Punjab.

Uses : Textiles ; water-proof fabric ; parachute cloth ; nets ; hats ; type-writer tapes ; covering of electric wires ; decorations ; etc.

Trade : EXPORTS : 1772 : *Raw* : Quantity and value not known ; 1773 : (from Bengal) lbs. 145,777—Rs. 14,57,000 ; 1880 : lbs. 583,000—Rs. 58,31,000 ; 1849-50 : (all India) Rs. 66,60,940 ; 1862-63 : lbs. 1,229,000—Rs. 82,28,920 ; 1901-02 : lbs. 1,906,000—Rs. 66,34,209 ; 1946-47 : lbs. 116,902—Rs. 1,98,276 ; 1954-55 : lbs. 336,558—Rs. 5,60,377.

Manufactures : 1838 : (Handkerchiefs) Rs. 30,00,000 ; 1849-50 : Rs. 30,23,200 ; 1901-02 : Rs. 10,54,695 ; 1946-47 : Rs. 1,52,003 ; 1954-55 : 19,91,691.

IMPORTS : *Raw* : 1849-50 : Rs. 18,41,420 ; 1862-63 : lbs. 1,601,000—Rs, 39,23,590 ; 1901-02 : lbs. 2,128,000—R. 80,96,205. 1946-47 : lbs. 768,902—Rs. 2,16,73,514 ; 1954-55 : (lbs. 525,917 —Rs. 1,06,20,096.

Manufactures : 1849-50—Rs. 11,26,010 ; 1867-68 : lbs. 1,694,000—Rs. 42,35,980 ; 1901-02 ; lbs. 17,472,000—Rs. 1,48,47,015 ; 1946-47 : Rs. 1,73,72,324 ; 1954-55 : Rs. 21,78,706.

Yarn, noils, etc. : 1872-73 : lbs. 2,655 (value included in "*Manufactures*" Rs. 56,06,460) ; 1901-02 : lbs. 804,069—(value : see "Manufactures" above) ; 1946-47 : lbs. 202,886—Rs. 53,59,691 ; 1954-55 : lbs. 50,460—Rs. 7,10,404.

SILLIMANITE

[*Mineral*]

World Production : 20,000 tons
Indian Production : 3,066 tons

Chief Producers in the World : Union of South Africa (50%) ; Australia (25%) ; India ; etc.

Principal Indian States : ASSAM : Khasia & Jaintia Hills (90%) ; Sonapahar (*Reserve* : 250,000 tons).

VINDHYA PRADESH : Rewa (Pipra in the district of Sidhi).

MADHYA PRADESH : Bhandara.

MYSORE : Kolar ; Hassan.

Uses : Refractories ; as insulating material ; wares (spark plugs ; electrical and chemical porcelains ; enamelware, saggers ; etc.).

Trade : EXPORTS : 1951-52 : tons 3,293—Rs. 9,58,358 ; 1954-55 : tons 2,655—Rs. 8,81,571.

SILVER

(Argentum)

[*Mineral*]

World Production : 190,000,000 ozs.
Indian Production ; 14,624 ozs.

Chief Producers in the World : MEXICO (25%) : *Zimapan* : Velardena ; *Zacatecas* : Fresnillo, El Oro ; *Chihuahua* : Santa Eulalia (El Potosi Mine), San Francisco del Oro ; *Hidalgo* : Pachuca, Guanajuato ; Etc.

U. S. A. (19%) : *Montana* : Butte ; *Utah* : Bingham, Tintic, Park City ; *Idaho* : Coeur d' Alene, Sunshine ; *California* : Darwin ; *Colorado* : San Juan, Quartz Hill, Leadville ; *Texas* ; Shafter ; *Nevada* : Comstock Lode, Tonopah District ; etc.

CANADA (15%) : *British Columbia* : Premier, Yukon Territory ; *Ontario* : Sudbury ; Manitoba : Flin Flon ; *Quebec* : Noronda ; etc.

PERU (10%) : Cero del Pasco ; Colquijirca.

AUSTRALIA (6%) : *New South Wales* : Broken Hill ; *Queensland* : Mount Isa.

BOLIVIA (4%) : Huanchaca ; Chocaya ; Potosi.

JAPAN (3%) ; Belgian Congo (2%) ; Yugoslavia ; Federal Germany (Schneeberg) ; French Morocco ; Chile (Chanarcillo) ; Sweden ; Spain ; Union of S. Africa ; Honduras (Rosaria) ; etc.

Principal Indian States : MYSORE : Champion Reef (5,217 ozs.) ; Oorgaum ; Nundydrug (5,554 ozs.) ; Mysore (5,240 ozs).

HYDERABAD : Hutti (1,188 ozs.). RAJASTHAN.

Uses : Coinage and jewellery ; wares ; decorations ; in surgical and pharmaceutical industries ; photography ; photo engraving ; electrical apparatus ; manufacture of atomic bombs ; silver alloys in place of nickel and brass alloys ; etc.

Trade : EXPORTS : Nil.

IMPORTS : 1954-55 : (By sea) ozs. 399—Rs. 1,788 ; (By land) ozs. 2,466—Rs. 10,236.

SILVERGREY (Wood)
(Terminalia bialata)

[*Timber*]

Occurrence in India : Andaman Islands.

Uses : Cabinet wares ; veneers, for decorative purposes in fashionable rooms and chambers.

Vernacular name : Chuglam

SIRIS (Khirich)
(Albizzia lebbek)

[*Timber*]

Chief Producers in the World : India ; Burma.

Prinicpal Indian States : West Bengal ; Assam ; Bombay ; Madras ; Uttar Pradesh ; Madhya Pradesh ; Punjab ; etc.

Uses : TIMBER : Building construction ; furniture ; interior decoration and panelling ; ploughs, oil presses, cart parts : wheels ; naves, spokes ; etc. ; suitable for racket handles ; internal wood work in railway carriages ; plywood ; picture frames ; bent wood articles ; camp beds and chairs ; etc.

BARK : Dyes ; tans ; medicine.

GUM : Sizing of papers ; etc.

LEAVES : Fodder.

Vernacular names : Kokko, hirih, chinchula, harreri, samkesar, kinhi, dirasana, vagei, tinia, etc.

SOLA (Pith)
(Æschynomene aspera)

[*Pith*]

Chief Producers in the World :

INDIA : West Bengal : 24-Parganas ; Burdwan ; Nadia ; Hooghly ; etc.

PAKISTAN : Khulna ; Jessore ; Sylhet ; etc.

Indonesia ; Burma ; etc.

Uses : Fisherman's floats ; hats ; life belts ; toys and decoration ; mats ; substitute for sponges and corks (and of surgical lints for widening sinuses ; etc.).

Vernacular names : Shola, kuhila, atunete, takke, nirjuluza, benda, etc.

SOYA BEANS

(Glycine soja)

[*Food*]

World Production : 17,800,000 tons
Indian Production : Negligible.

Chief Producers in the World : Manchukuo ; China ; U.S.A. ; Japan ; Indonesia ; U. S. S. R. ; Canada.

Principal Indian and other States : Bombay ; (Madras) Nepal ; Pakistan : (N.-W. F. P ; Sind).

Uses : BEANS : Food, (semi drying) OIL : salad oil ; edible ; candles ; soap, varnish, printing ink manufacture ; plastics ; synthetic rubber ; etc.

STEATITE

(Soapstone ; Talc)

[*Mineral*]

World Production : 1,000,000 tons
Indian Production : 42,326 tons.

Chief Producers in the World : U. S. A. ; Korea ; France ; Italy ; China ; India ; Norway ; etc.

Principal Indian States :

(Figures in brackets represent production in tons)

RAJASTHAN (75%) : Jaipur (17,820) ; Udaipur (7,218) ; Bhilwara (6,329) ; Mewar, Girwara, Rajnagar ; Kotah.

MADHYA PRADESH : Jabalpur (2,390) ; Bhandara.

BIHAR : Singhbhum (2,078) ; Hazaribagh (5,430).

ANDHRA : Kurnool (594) ; Anantapur (128) ; Nellore.

HYDERABAD : Karimnagar (75) ; Khammameth.

MADRAS : Salem.

MYSORE : Tumkur ; Hassan (162).

ORISSA : Mayurbhanj ; Nilgiris (92).

UTTAR PRADESH : Jhansi (18).

Uses : As filler in paper, rubber manufacture ; soap ; in paint, ceramics, roofing materials ; toilet articles ; foundry facings ; etc.

Trade : EXPORTS : 1946-47 : tons 6,241—Rs. 12,48,514 ; 1954-55 : tons 7,999—Rs. 14,91,559.

STRONTIUM

[*Mineral*]

The only workable deposit of Strontium in India is at Tiruchirapalli in Madras. PAKISTAN has the special advantage over India inasmuch as she produced 820 tons in 1953. The United Kingdom leads with 2,965 tons followed by Mexico (2,210 tons). The other producing countries are Tunis and France, etc.

Strontium and compounds are chiefly *used* in pigments ; in fire-works ; as flux in steel manufacture ; in refining beet sugar ; etc.

SUGAR (CANE)

(Saccharum officinarum)

[*Sugar*]

World Production : Cane :	236,000,000 tons
Indian Production : Cane :	51,000,000 tons
Indian acreage :	4,100,000 acres
World Production : (Cane) Sugar :	17,500,000 tons
Indian Production : (Cane) Sugar :	1,500,000 tons
World Production : Gur :	34,500,000 tons
Indian Production : Gur :	2,877,000 tons
Indian Production : *Molasses* : (in factories)	345,000 tons
Cane crushed (in Indian factories) :	9,934,000 tons

Pakistan : Acres : 960,000 ; Production : 1,072,000 tons (*gur*).

Chief Producers in the World* :

INDIA : (See below.)

CUBA : *Oriente Province :* Chaparra ; Boston ; Delcias ; Manate ; Preston ; etc. *Camaguey Province :* Vertientes ; Jaranu ; Moron ; Stewart ; Violeta ; etc. *Las Villas (Santa Clara) Province* ; Narcisa ; Caracus ; Hoomiguero ; San Augustin ; etc. *Matanzas Province* : Cuba ; Espana ; Porfuerza ; Mercedes ; Tinguaro ; etc. *Havana Province* ; Hershey ; Toledo ; Gomez Mena ; Josefita ; etc. *Pinar del Rio Province* : Orozco ; Andorra ; El Pilar ; etc.

HAWAII : *Hawii* : S. Hilo ; N. Hilo, Kamakua ; Kaui Island ; Oahu Island ; etc.

PUERTO RICO : Ponce ; Guayama ; Mayaguez ; etc.

U. S. A. : Louisiana ; Florida ; Texas ; West Virginia ; Massachussetts ; Pennsylvania ; Georgia (Savanah) ; etc.

BRAZIL : Pernambuco ; Rio de Janeiro ; Sao Paulo ; etc.

AUSTRALIA : (Entire) East coast.

PHILIPPINES : Negros ; Panay ; Mindanao ; Luzon ; etc.

FORMOSA (*Taiwan*) : Tainan ; Taichu ; Takao ; Shinchiku ; etc. INDONESIA : Java.

INDIA

Principal Indian States : UTTAR PRADESH : Meerut ; Muzaffarnagar ; Deoria ; Saharanpur ; Bijnor ; Moradabad ; Kheri ; Bulandshar, Sitapur ; Bareilly ; Gorakhpur ; Gonda ; Barabanki ; Faizabad ; etc.

BIHAR : Champaran ; Saran ; Shahabad ; Darbhanga ; Gaya ; Muzaffarpur ; Patna ; Monghyr ; etc.

PUNJAB : Rohtak ; Hoshiarpur ; Amritsar ; Karnal ; Ambala ; Gurdaspur ; Jullundur ; Ludhiana ; Ferozepur ; etc.

BOMBAY : Ahmadnagar ; Kohlapur ; etc.

ANDHRA : Visakhapatnam ; East Godavari ; Chittoor ; etc.

MADRAS : North Arcot ; South Arcot ; Coimbatore ; Tiruchirapalli ; etc.

HYDERABAD : Nizamabad ; Bidar ; Aurangabad ; etc.

WEST BENGAL : Murshidabad ; Burdwan ; 24-Parganas.

ASSAM : Sibsagar ; Kamrup ; Cachar.

In term of *gur* turned into sugar including jaggery sugar.

MADHYA PRADESH : Bilaspur ; Chhindwara ; Betul ; Bhandara ; Raigarh.

ORISSA ; Koraput ; etc.

SAURASHTRA : Bhavnagar.

PAKISTAN : East Pakistan ; Punjab ; N.-W. F. P. ; Bahawalpur.

Uses : Food ; sweets ; in the preparation of preserved fruits ; spirits ; power alcohol ; medicine ; etc.

Vernacular names : Ikshú, ukh, aku, ganna, shakai, surkh, khand, serdi, ús, usa, gol, karumbu, cheruku, charki, pottikanapur, etc.

Trade : For Sugar—see 'Sugar Industry'.

SULPHUR (Crude)

(*Brimstone*) [*Mineral*]

(Also **Pyrites**)

India has no known deposit of native Sulphur and just a part of the requirements is met from Pryrites (q. v.). Kohi-Sultan in Baluchistan (PAKISTAN) has a fairly big deposit of Sulphur but is difficult of working due to comparative inaccessibility.

World production of *Sulphur* per year is 5,820,000 tons obtained chiefly from U. S. A. (90%) : Texas, Louisiana ; Italy : Sicily (4%) ; Japan ; Chile ; France ; etc.

Pyrites occurs largely in Spain, Norway, Italy, Portugal, Japan, etc.

Sulphur has very extensive *uses* chief of which is the manufacture of acids and chemicals ; carbon disulplide. Also it is used in the vulcanisation of rubber ; filler in plastics ; moulds for electrotyping ; impregnation of wood, paper, textiles, etc. ; manufacture of dyes, in ultramarine ; in explosives, matches, pyrotechnics ; bleaching gas and agent for molasses, sugar, hemp, jute, silk, linen ; in flotation process in metallurgy ; deodorant, fumigant, disinfectant, insecticide (cattle dips), fertilizer, preservative ; in refrigeration, fire extinguishers ; livestock feed ; in inorganic syntheses, dye syntheses, battery cathodes ; added to steel for screw-stock ; in metal cutting oils for thread cutting,

turret lathes and other machine work ; cements "for anchoring metal in stone" ; for locating ammonia leaks ; imparting colour to glass ; in glue, glycerine, paints ; acid resisting substitute for shellac ; poison gas ; dental casts and plates ; etc. ; etc. "Essential to life".

Trade : IMPORTS : There has been a systematic import over a long period. In 1901-02 : cwts. 35,271—Rs. 2,00,957 ; 1946-47 : cwts. 1,007,394—Rs. 1,03,35,408 ; 1954-55 : cwts. 1,519,485—1,78,22,487.

SUNDRI

(Heritiera fomes)

[*Timber*]

Occurrence in India : West Bengal : Sunderbans ; etc.

Occurrence outside India : Pakistan : Khulna, Bagerhat forests. Burma : Arakan.

Uses : Boat building : oars, spars masts, etc. ; general constructional wood ; tool handle ; "suitable for pulley blocks, tent pegs, pitprops, etc." ; railway keys ; etc.

Vernacular names : Sunder, ye-kanazo, raso, etc.

SUNFLOWER

(Helianthus annuus)

[*Oilseed*]

World Production : 4,215,000 tons
Indian Production : Negligible.

Chief Producers in the World : U.S.S.R. (80%) ; Argentina ; Turkey ; Yugoslavia ; etc.

Uses : SEED : Edible. OIL : Edible or cooking oil ; margarine ; cooking fat ; as drying oil ; soap manufacture.

SWEET FLAG

(Acorus calamus)

[*Drug*]

Occurrence in India : Occurs wild in almost every part of India in marshy lands ; especially in Kashmir and Assam (Manipur and Naga hills). Cultivated in Korategere taluk in Mysore.

Uses : LEAVES : Yield essential oil (used "in the manufacture of liquors and of snuff").

RHIZOME : Medicinal purposes ; as flavouring agent ; as insecticides.

Vernacular names : Vacha, batch, vasa, vasambu shadgrantha, etc.

TAMARIND

(Tamarindus indica)

[*Fruit & Timber*]

Occurrence in India : Found in almost every part of India, particularly in West Bengal, Madhya Pradesh, Madhya Bharat, Madras, etc.

Uses : FRUITS (Pulp) : Food, for making (acid) curries, chutnies, pickling fish ; cleansing metalwares ; etc. Medicine. SEEDS : Source of starch ; oil. LEAVES, Etc. : Auxiliary in dyeing ; food ; medicine. TIMBER : Wheels, mallets, planes, rice-pounders, oil (ghani) mill expellers ; turnery ; (high class) fuel.

Vernacular names : Tentul, imli, tintiri, amli, koya, puli, jojo, chinch, nedi, shenta, sitta, karangi, etc.

TANTALUM

[*Mineral*]

In India Tantalum ore occurs in *Andhra* (Nellore), *Bihar* (Monghyr, Gaya, Santhal Pargana : Punnan Hill near Jhajha).

World Production is about 4,500 tons a year chiefly from Nigeria (43%), Belgian Congo (41%), Norway (12%), Portugal, Brazil and Mozambique.

Uses : "For electric lamp filaments (superseded by tungsten), in alloys, in cemented carbides for very hard tools and in electrolytic rectifiers" ; as electrode in radio valve, for conversion of alternating into direct current ; etc.

TAPIOCA

(Manihot utilissima)

[*Starch*]

Indian Production : 1,300,000 tons

Occurrence in India : Cultivated in almost all the States of India, particularly the southern States. Travancore-Cochin (70%); Madras (20%) ; Assam Hyderabad ; Andhra ; etc.

Uses : TUBERS : coarse meal (conac) ; fine meal (cassua) ; "Brazilian arrowroot" ; tapioca or parched starch, preservation of meat (with the help of *cassareep* or the boiled juice of the bitter variety of tubers).

LEAVES : Fodder.

Vernacular names : Simla álu, simul álu, maravuli, marachini, pulu pinan, myouk, etc.

Other Trade names : CASSAVA, MANIOC, MANDIOCCA.

TARO (Giant)
(Alocasia indica)

[*Food*]

Chiefly cultivated in West Bengal and Assam ; also grows wild.

The root or rhizome is used as (cooked) food material ; for medicinal purposes. The stems and root stocks are also used as vegetable.

Vernacular names : Manaka, mankachu, mankanda, etc.

TEA
(Camellia thea)

[*Beverage*]

World Production :	1,240,000,000 lbs.
Indian Production :	608,000,000 lbs.
Indian Acreage :	777,000 acres
Pakistan Production :	52,700,000 lbs.
Pakistan Acreage :	72,000 acres

Chief Producers in the World : CHINA : Kiangsi ; Honan ; Fukien ; Chekiang ; Kwangsi ; Kwangtung ; Kweichow ; Yunnan ; etc.

INDIA : *Assam* : Sibsagar ; Cachar ; Lakhimpur ; Darrang ; Kamrup ; Nowgong ; Goalpara ; (Sylhet). *West Bengal* : Jalpaiguri ; Darjeeling. *Travancore-Cochin* : Kottayam ; Quilon ; Trivandrum. *Madras* : Nilgiris ; Coimbatore ; Malabar ; Salem ; Madurai. *Uttar Pradesh* : Dehra Dun ; Almora. *East Punjab* : Kangra. *Coorg* ; *Mysore*.

Ceylon ; *Japan* (Shizuoka, Kyoto, Kagoshima, Mije, Miyazaki) ; Indonesia (Java).

FORMOSA (Taiwan) : Taihoku ; Shinchiku ; etc.

Occurrence in Pakistan : Sylhet ; Chittagong.

Uses : LEAVES : Beverage ; caffeine ; etc. SEED : Oil : edible.

Vernacular names : Chá, chái, thayili eyaku, etc.

Trade : EXPORTS : *Tea* : 1637 : cwt. 1 ; 1839 : lbs. 488 ; 1848-49—Rs. 3,55,250 ; 1862-63 : lbs. 2,929,000—Rs. 22,37,630 ; 1901-02 : lbs. 180,935,000—Rs. 8,14,94,895 ; 1946-47 : lbs. 327,364,079—Rs. 34,56,20,654 ; 1954-55 : lbs. 455,428,665—Rs. 1,46,53,76,569.

Waste : 1904-05 : lbs. 1,063,000—Rs. 73,115 ; 1946-47 : lbs. 4,377,164—Rs. 6,76,534 ; 1954-55 : lbs. 2,921,386—Rs. 4,56,422.

Seed : 1895-96 : cwts. 3,238—Rs. 3,60,058 ; 1901-02 : cwts. 647—Rs. 88,477 ; 1938-39 : Rs. 160 (thereafter ceased altogether).

IMPORTS : *Tea* : 1848-49 : Rs. 8,62,610 ; 1866-67 : lbs. 1,971, 000—Rs. 13,45,270 ; 1901-02 : lbs. 3,204,000—Rs. 16,33,935 ; 1946-47 : lbs. 471,726—Rs. 8,63,070 ; 1954-55 : lbs. 39,199—Rs. 34,637.

TEAK (Sagun)

(Tectona grandis)

[*Timber*]

Occurrence in India : Madras ; Bombay ; Madhya Pradesh ; Orissa ; Bengal ; Coorg ; etc.

Occurrence outside India : Burma.

Uses : "In ship and boat building ; for furniture, mill work, piles, railway cars, flooring and green houses" ; door and windows (very common constructional wood) ; parquets ; bent wood articles ; casks (for liquors) fermentation vats : musical instruments ; ply boards ; etc.

Vernacular names : Sakhu, chingjagu, sag sigwan, khaka, tek, teka loheru, tekku, tekkumaram, pedda taku, teku-manu, etc.

Trade : IMPORTS : 1946-47 : cubic tons 1,487—Rs. 10,27,132 ; 1954-55 : cubic tons 16,773—Rs. 1,03,25,306 (Burma is the chief supplier).

TIN

(Stannum)

[*Mineral*]

There is only one workable tin ore deposit in India in Parhar Sing Hill at Ranchi (and Hazaribagh : Chhakkerbundha) in Bihar and of which the former produced a nominal quantity of 4 cwts. in 1953.

World Production of tin metal amounts to 178,000 tons. The chief producers are *Malaya* (Perak : Kinta Valley ; Ipoh) 31%. *Indonesia* (Banka, Billiton, Singkep Is.) 20%. *Bolivia* (Oruro, Llallaqua-Uncia, Huanuni, La Paz, Potosi) 19%. *Belgian Congo* (Katanga district : Manono ; Ruanda Urundi) 7%. *Thailand* 6%. *China* (S. Anhwei Province : Taiping ; Yunnan : Kochiu). *Nigeria* (Bauchi Plateau, Kobba, Niger, Benue). *Australia* (Queensland : Mt. Garnet, Tasmania, New South Wales). Portugal ; Union of South Africa ; United Kingdom, Spain ; etc.

Uses : Tin plating ; terne plate, collapsible tubes ; foil ; alloys : solders, pewter (tin, antimony, lead) ; babbit metal (tin, copper, antimony) : bearing material ; printers alloys (lead, antimony, tin).

Vernacular names : Ráng, rangu, etc.

TITANIUM

(See 'ILMENITE')

TUNGSTEN

(See 'WOLFRAM')

TOBACCO

(Nicotiana tabacum)

World Production : 6,657,000,000 lbs.
Indian Production : 540,000,000 "
Indian Acreage : 895,000 acres

Pakistan : Acres : 174,000 ; Production : 165,000,000 lbs.

Chief Producers in the World : U. S. A. (31%) : Virginia ; Carolina North and South ; Kentucky ; Tennessee ; Georgia ; Arkansas ; etc.

CHINA : Kwei-chow ; Szechwan ; Hupeh ; Hunan ; Kwangse ; Shensi ; Shansi ; Shantung ; Hopeh ; etc.

INDIA (8%) : See below.

BRAZIL (5%) : Rio Grande do Sul ; Pernambuco ; Minas Geraes ; etc.

TURKEY (4%) : Bursa ; Izmir ; etc.

Japan (3%) ; Pakistan (2%) ; Canada ; Greece ; France ; South Rhodesia ; etc.

INDIA

ANDHRA : Guntur ; West Godavari ; East Godavari ; Krishna ; Visakhapatnam ; etc.

MADRAS : Coimbatore ; Salem ; Madurai ; etc.

BOMBAY : Kaira ; Baroda ; Belgaum ; Kolhapur ; Satara ; etc.

BIHAR : Purnea ; Muzaffarpur ; Darbhanga ; Monghyr ; etc.

UTTAR PRADESH : Farrukhabad ; Etah ; Aligarh ; Meerut ; Sitapur ; Budaun ; Garhwal ; Bulandshar ; Bareilly ; Tehri Garhwal ; etc.

WEST BENGAL : Cooch Behar ; Jalpaiguri ; Malda ; 24-Parganas ; West Dinajpur ; etc.

HYDERABAD : Raichur ; Warangal ; Nalgonda, Medat ; Hyderabad ; Gulbarga ; etc.

ORISSA : Koraput ; etc.

ASSAM : Kamrup ; Goalpara ; Darrang ; Nowgong ; etc.

MYSORE : Mysore ; Tumkur ; Hissar ; Kolar ; etc.

RAJASTHAN : Jaipur ; Alwar ; Bharatpur ; Dholpur ; etc.

PEPSU : Patiala ; etc.

MADHYA PRADESH : Bastar ; Durg ; etc.

Pakistan : East Pakistan : *Prominent Districts* : Rangpur ; Mymensingh ; Dacca ; Faridpur ; Pabna ; Rajshahi ; etc.

N.-W. F. P. ; Punjab ; Sind..

Uses : LEAVES : Cigarettes ; cigar ; cheroots ; pipe tobacco ; *chilam* or (hookah) tobacco ; biris ; snuff ; etc. Insecticide.

SEED : Oil : Edible ; soap manufacture.

Vernacular names : Támák, támáku, támbakhu, págaku, dhumra-patramu, hagesappu ; etc.

Trade : EXPORTS : (*Raw*) 1848-49 : Rs. 3,71,550 ; 1891-92 : lbs. 8,320,000—Rs. 14,14,030 ; 1901-02 : lbs. 20,224,000—Rs. 34,69,005 ; 1946-47 : lbs. 72,151,387—Rs. 5,92,94,424 ; 1853-54 ; lbs. 72,844,972—Rs. 9,92,92,568.

IMPORTS : 1848-49 : Rs. 3,52,860 ; 1887-88 : lbs. 1,567,000 —Rs. 10,16,720 ; 1946-47 : lbs. 10,116,758—Rs. 2,77,35,231 ; 1954-55 : lbs. 3,084,914—Rs. 1,00,68,184.

Manufactures—See 'Tobacco Industry'.

TOON

(Cedrela toona, etc.)

[*Timber*]

Occurrence in India : Bihar ; Madhya Pradesh ; Assam ; West Bengal ; Bombay ; Madras ; Mysore ; etc. Common in Northern India.

Uses : TIMBER : Furniture ; carriage roofs ; doors and windows ; general construction ; cigar boxes ; toys : brushes ; mathematical instruments ; pen and pencils ; etc.

FLOWER : "The flowers yield a beautiful red or yellow dye which is used in dyeing cotton."

Vernacular names : Tun, tuni, lim, mahanim, nandivriksha, lud, mahalimbu, chuti-sirin, der, dori, poma, jia, deodari, kuruk, kudka, tunu-marum, mali, wunjuli, nandi-chettu, kempu, gandagheri, etc.

Other trade names : RED CEDAR ; MOULMEIN CEDAR ; INDIAN MAHOGANY.

TUNG (Oil)

(Aleurites : Aleurites montana)

[*Oil*]

World Production : 106,500 tons

Chief Producers in the World :

CHINA (65%) : Kwei-chow ; Szechwan ; Hunan ; Kwangsi.

U. S. S. R. : Transcaucasia ; Georgia ; etc.

U. S. A. : Mississippi ; Louisiana ; Florida ; etc.

ARGENTINA : Misiones ; Corriantes ; etc.

Paraguay ; Brazil ; Burma ; etc.

Principal Indian and other States : Assam ; Sikkim ; West Bengal (Jalpaiguri) ; Bihar. NEPAL.

Uses : OIL : Varnish (quick varnish) ; lacquering ; paints ; linoleum, leather dressings ; "waterproof priming for cement" ; boat coating.

OIL-CAKE : Fertiliser.

Vernacular names : Makyaubkai, Kanyin, etc.

Other trade name : CHINESE VARNISH.

TUR (Arhar)

(Cajanus indicus)

[See **(Pigeon) Pea**]

TURMERIC

(Curcuma longa)

[*Spices*]

Indian Production : 120,000 tons

Chief Producers in the World :

India ; China ; Indonesia ; Pakistan (Eastern) ; etc.

"Cultivated throughout the warmer parts of the world."

Principal Indian States : Orissa (31·2%) ; Andhra (26·6%) ; Bombay (22·1%) ; Madras (9·6%) ; Travancore-Cochin (5·5%) ; Hyderabad ; Madhya Pradesh ; Mysore ; West Bengal ; Rajasthan ; Uttar Pradesh ; Tripura ; etc.

Uses : Dye ; condiment or curry powder ; colouring agent ; chemical indicator (for acids and alkalis). Medicine.

Vernacular names : Haldi, halud, halja, haridra, manjal, pasupu, halede, etc.

Trade : EXPORTS : 1876-77 : lbs. 13,868,000—Rs. 10,50,050 ; 1877-78 : cwts. 147,227—Rs. 12,40,189 ; 1901-02 : cwts. 82,436 —Rs. 9,40,215 ; 1946-47 : cwts. 83,283—Rs. 32,14,646 ; 1954-55 : cwts. 121,591—Rs. 1,06,61,528.

UPAS (Sacking) TREE

(Antiaris toxicaria)

[*Timber*]

A gigantic evergreen tree of the forests of the Western Ghats (India). It is found in BURMA, CEYLON, MALAY and EAST INDIES.

Uses : BARK : Fibre (very strong), "The tough bark is stripped off whole from the branches and young trees to form rice-sacks, a section of the stem being left to serve as a bottom to each sack", hence known as SACKING TREE.

GUM : Resin ; for poisoning arrows.

SEEDS : Medicine.

Vernacular names : Pásund, karwat, hmyaseik, nettávil.

URD or UDID

(Phaseolus mungo)

[*Pulses*]

Indian Production : 305,000 tons
Indian Acreage : 2,930,000 acres

Principal Indian States : Madhya Pradesh ; Bombay ; Uttar Pradesh ; Hyderabad ; West Bengal ; Madras ; Punjab ; Vindhya Pradesh ; Himachal Pradesh ; etc.

Uses : SEED : Food ; parched and ground into flour ; porridge ; bread ; fodder ; medicine ; etc.

Vernacular names : Urid, másh, máshkalái, urud, dord, tircorai-kalái, ramra, adad, patchay-pyre, minu-milu, hasaru, etc.

VANADIUM

[*Mineral*]

In India Vanadium ore **occurs** in Singhbhum, in Bihar and Mayurbhanj in Orissa. The other occurrences are practically of no value.

World Production of vanadium is about 1,000 tons a year obtained chiefly from PERU (in the Departments of Junin : Pasco Province : Quisque : Minasragra ; Lima) and SOUTH-WEST AFRICA, between Uris and Berg Aukas. U. S. A. deposits are confined to Utah, the Paradox Valley Region in Colorado, the Rocky Mountain chain in Arizona and New Mexico. Ores are

found in Cordilleran region in MEXICO from the State of Chihuahua to Hidalgo ; and Kusa and Pervouralsk in the U.S. S. R.

Uses : Alloy of special steel ; as a catalyst ; mordant in dyeing ; in pottery (glaze) ; in photography ; etc.

VASAKA (Bakasa)

(Adhatoda vasica)

[*Drug*]

Occurrence in India : Throughout the warmer parts of India.

Uses : Medicine ; dye ; charcoal (fireworks, gunpowder) ; insecticide ; manure ; hedge (plant) ; etc.

Vernacular names : Vasaka, vakasa, vasa, adulsa, arusa, basunti, adhatodi, maya, etc..

VERMICULITE

[*Mineral*]

World Production : 2,10,000 tons
Indian Production : 3 tons

Chief Producers in the World : U. S. A. (80%) : Montana, Libby ; Union of South Africa ; Newfoundland.

Occurrence in India : MYSORE : Kolar, Hassan. MADRAS : Coimbatore. WEST BENGAL : Bankura. AJMER.

Uses : Insulating cement in power plants and oil refineries ; refractory ; in "drilling mud" ; in rubber tyres and rubber goods ; paints (gold and bronze printing ink and paints) ; etc.

WALNUT

(Juglans regia)

[*Timber*]

Occurrence in India : Kashmir ; Punjab ; Uttar Pradesh ; Bhutan ; Assam (Khasia Hills).

Pakistan : North-Western Frontier Province.

Uses : TIMBER : Furniture, rifle parts, gun stocks ; ornamental carving ; turnery. NUTS : Edible kernel ; oil. RIND : Tanning ; dyeing purposes. BARK : Dye ; medicine. LEAVES : Fodder.

Vernacular names : Akhrot, akhor, khor, kabsing, kol, dún, thitcha, etc.

(Black) WATTLE

(Acacia mollissima)

[*Tanstuff*]

Occurrence in India : Nilgiris ; Travancore ; etc.

Uses : Wattle of commerce for tanning leather.

(Silver) WATTLE

(Acacia dealbata)

[*Tanstuff*]

Chief Producers in the World : South Africa ; Ceylon ; India : [Madras : Nilgiris].

Uses : "Wattle bark yields a solid, very firm and faintly pink leather, much used for soles." Indian commercial acacias are *A. Arabica*, *A. Catechu* and *A. Senegal* and are chiefly used as tans, dye auxiliaries and medicines.

(BEES') WAX

(See "Honey")

[*Wax*]

The sources of supply of Wax are the same as that of honey.

Uses : Illuminant ; in brass, gold and copper foundry ; in shoe-making (used by the shoe-makers) ; in etching metals with acids ; for sealing acid-containers ; etc.

Vernacular names : Mom, sinth, mena, min, mazhukin mainam, lelin, madhujam, siktha, etc.

WHEAT

(Triticum vulgare)

[*Foodgrain*]

World Production : 194,200,000 tons
Indian Production : 8,539,000 tons
Indian Acreage : 26,842,000 acres

Pakistan : Acreage : 10,646,000 ; Production : 3,683,000 tons

Chief Producers in the World : CHINA (18·0) : (North China Plains) ; Anhwei ; Kiangsu ; Shantung ; Hupeh ; Shensi ; Kiangsi ; etc. ; etc.

U. S. A. (16%): North Dakota ; Minnesota ; Montana ; Oklahoma ; Arkansas ; Texas ; Colorado ; Wyoming ; Washington ; Oregon ; Idaho ; Utah ; Kansas ; Nebraska ; Illinois ; Indiana ; Kentucky ; Michigan ; Wisconsin ; Ohio ; etc.

U. S. S. R. (11·3%): Ukraine ; White Russia ; Moscow ; Leningrad ; Kalinin ; Yaroslavl ; Vanovo ; Gorki ; Smolensk : Kursk ; Saratov ; Chakalov ; Verdlovsk ; Kurgan ; North Kazakhstan ; etc.

CANADA (8·4%) : Southern Alberta ; Saskatchewan and Manitoba ; etc.

ITALY (4·6%) Venezia ; Veneto ; Emilia ; Marches ; Abruzzi.

FRANCE (4·5%): Picardy ; Normandy ; Ile de France ; (Seine, Seine-et-Oise, Seine-et-Marne, Aisne, Oise) ; etc.

Turkey (4%) ; **India** ; Argentina ; Australia ; West Germany ; Spain ; U. K. ; Yugoslavia ; **Pakistan** ; Egypt ; Iran ; Greece ; Japan ; etc.

INDIA

Principal States : UTTAR PRADESH : Meerut ; Moradabad ; Budaun ; Basti ; Gonda ; Saharanpur ; Garhwal ; Muzaffarnagar ; Shahjahanpur ; Hardoi ; Sitapur ; Bulandshar ; Etah ; Kheri ; Farrukhabad ; Jalaun ; Gorakhpur ; Bijnor ; Deoria ; Mainpuri ; Kanpur ; Faizabad ; Jhansi ; etc.

PUNJAB : Ferozepure ; Amritsar ; Kangra ; Hoshiarpur Jullundur ; Ludhiana ; Karnal ; Gurdaspur ; Rohtak ; Ambala ; Hissar ; etc.

MADHYA PRADESH : Sagar ; Hosangabad ; Jabalpur ; Chhindwara ; Akola ; Mundla ; Betul ; Amaravati ; etc.

BOMBAY : Bijapur ; Dharwar ; Ahmedabad ; Nasik ; West Khandesh ; Ahmednagar ; Baroda ; East Khandesh ; Belgaum ; etc.

MADHYA BHARAT : Bhilsa ; Indore ; Mandsaur ; Dhar ; Ujjain ; Bhind ; Guna ; Gird ; etc.

BIHAR : Shahabad ; Monghyr ; Muzaffarpur ; Gaya ; Champaran ; Saran ; Patna ; Darbhanga ; etc.

RAJASTHAN : Kotah ; Tonk ; Bundi ; Jaipur ; Bikaner Bharatpur ; Alwar ; etc.

PEPSU : Patiala ; Faridkot ; Kapurthala ; Nabha ; etc.
HIMACHAL PRADESH : Mandi ; Mahasu ; Chamba ; etc.
HYDERABAD : Osmanabad ; Bir ; Aurangabad ; etc.
West Bengal ; Saurashtra ; Jammu ; Kashmir ; Ajmer.

Pakistan : PUNJAB : Attock ; Multan ; Shahpur ; Montgo mery ; Gurdaspur ; Gujranwala ; Jhang ; Lahore ; etc. SIND ; etc.

EAST PAKISTAN : Maldah ; Rajshahi ; Dacca ; Pabna ; Faridpur ; etc.

Uses : Food : bread, *chapattis*, bakery products ; patent food (macaroni, vermicelli, etc.) ; starch : starch products ; rolum (adhesive) ; etc.

Vernacular names : Godhuma, gehun, gam, kunak, geh, godumai, godumbay-arisi, gadu-mulu, etc.

Trade : EXPORTS : *Wheat* : 1855-56 : Rs. 17,38 830 ; 1862-63 : qrs. 82,708—Rs. 11,20,560 ; 1901-02 : cwts. 7,322,000—Rs. 3,25,59,210 ; 1946-47 : Rs. 23 ; 1954-25 ; Rs. 6,335.

Wheat flour : 1887-88 : cwts. 322,000—Rs. 19,73,550 ; 1901-02 : cwts. 529,000—Rs. 37,12,875 ; 1946-47 : tons 30—Rs. 12,137 ; 1954-55 : tons 1,162—Rs. 5,83,424.

IMPORTS : *Wheat* : 1874-75 ; cwts. 46,799—Rs. 1,65,699 ; 1901-02 : cwts. 210,915—Rs. 10,23,999 ; 1946-47 : tons 326,363 —Rs. 8,12,48,213 ; 1954-55 : Rs. 12,87,28,151.

Wheat flour : 1876-77 : lbs. 727,000—Rs. 61,705 ; 1901-02 : cwts. 28,343—Rs. 1,75,633, 1946-47 : tons 37,056—Rs. 1,09,96,037; 1953-54 : Rs. 3,47,05,811 ; 1954-55 : Rs. 1,12,807.

WOLFRAM

(Tungsten)

[*Mineral*]

World Production : 39,000 tons
Indian Production : 1 ton

Chief Producers in the World :

CHINA (31%) : Hunan ; Kwangsi ; Kwangtung.

U. S. A. (13%) : *Nevada* : Mill City, Mina, Oreana. *California* : Pine Creek ; Atolia ; San Bernardino ; Tulare Inyo ; Alpine ;

Mono. *Colorado* : Boulder County. *Alaska* : Hyder. *North Carolina* ; Vance County. *Idaho* : Yellow Pine *South Dakota* ; *Arizona* : Hamme.

KOREA (12%) : South Korea ; Sangdong.

PORTUGAL (7%) : Beira ; Castello Branco : Panasqueira.

BOLIVIA (6%) : *Oruro* ; Potosi ; La Paz ; Cochabamba.

SPAIN (4%) : Galicia ; Orense.

AUSTRALIA (4%) : *New South Wales* : Torrington Division. *Queensland* : Wolfram Camp, Bamford, Coolgara, etc. *Northern Territory* : Pine Creek, Hatches Creek. *Tasmania* : Story's Creek, Ben Lomond, Moina.

BURMA (3%) : From Yenang and Mawnang States of the Federated Shan States in the north, through the districts of Yamethin, the Bawlake State of Karenni, to Thaton, Amherst, Tavoy and Mergui districts in the far south.

THAILAND (3%). North Korea ; Belgian Congo ; France ; Mexico ; Peru ; Sweden ; South Rhodesia ; Union of South Africa ; Argentina ; etc.

INDIA

RAJASTHAN : Mewar : Degana.

MADHYA PRADESH : Nagpur : Agargaon.

BIHAR : Singhbhum : Kalimati.

WEST BENGAL : Bankura : Chendpathar.

Uses : Alloy of steel : acid resisting, aromour plate, bearing metal, chemical plant equipment ; high pressure, high temperature, high speed steels ; magnet steel ; *stellite* ; spot welding alloys, etc. ; electric light and radio tube filaments ; in ignition systems ; carbon electrodes ; in arc welding ; electrolysis ; phonograph needles ; cemented carbide for cutting metal ; in ceramic processes, glass, asbestos sheets ; pigment ; "bronze powder" ; mordant in dyeing ; etc.

WOOL

[*Fibre*]

World Production : 4,475,000,000 lbs.
Indian Production : 72,000,000 lbs.
Pakistan Production : 30,000,000 lbs.
(*On greasy basis*)

Chief Producers in the World : Australia (29%) ; New Zealand (10%) ; Argentina (9%) ; U. S. A. (7%) ; Union of South Africa (6%) ; Uruguay ; U. K. ; Spain ; Turkey ; INDIA ; Brazil ; Chile ; France ; Rumania ; Italy ; Yugoslavia ; West Germany ; etc.

Principal Indian States : RAJASTHAN (32%) : Jodhpur ; Jaisalmer ; Bikaner ; Jaipur. AJMER ; etc.

UTTAR PRADESH (10%) : Nainital ; Almora ; Garhwal ; Mirzapur ; Agra ; etc.

BOMBAY (9%) : Khandesh ; (Deccan) ; Kaira ; Ahmedabad ; Baroda ; Panch Mahals ; Surat ; etc.

PUNJAB : Hissar ; Ferozepore ; Amritsar ; Ludhiana ; Fazilka ; Rohtak ; Karnal ; etc.

MADRAS (8%) : Coimbatore ; etc.

ANDHRA : Kurnool ; (Bellary) ; etc.

Hyderabad ; Saurashtra (Morvi, Porbandar, Rajkot) ; Mysore ; Himachal Pradesh ; Kashmir ; Bihar ; Kutch ; PEPSU (Nabha, Jhind, Patiala, Faridkot, Malerkotla, etc.) ; Madhya Bharat ; Vindhya Pradesh (Wardah, Jabalpur, Nagpur, etc.).

Pakistan : PUNJAB : Lahore ; Multan ; Rawalpindi ; Jhelum ; Gujranwala ; Sialkot ; Jhang ; Mianwali ; Shahapur ; Lyallpur ; Sheikpura ; Montgomery ; etc. BALUCHISTAN ; SIND : BAHAWALPUR ; N.-W. F. P. ; etc.

Uses : WOOL : Hosiery ; manufactures ; flannel, tweeds, serges, broad cloths, blankets, rugs, wrappers, shawls, etc. WOOL GREASE : Lanolin, manure.

Vernacular names : Urna, pasham, etc.

Trade : EXPORTS : *Raw* : 1848-49 : Rs. 5,55,910 ; 1862-63 : lbs. 21,035,000—Rs. 84,13,230 ; 1946-47 : lbs. 43,469,351—Rs. 3,94,71,349 ; 1954-55 : lbs. 30,806,184—Rs. 8,61,05,370.

IMPORTS : *Raw* : 1862-63 : lbs. 2,794,000 ; 1865-66 : lbs. 2,969,000—Rs. 10,68,630 ; 1901-02 : lbs. 3,992,000—Rs. 10,76,295 ; 1954-55 : lbs. 2,803,473—Rs. 1,00,01,894.

ZINC (Ore)

(Zincum)

(*In terms of Metal*)

[*Mineral*]

World Production : 2,605,000 tons
Indian Production : 3,974 tons
(*Concentrates*)

Chief Producers in the World : U. S. A. (23%) : *Oklahoma* ; *Kansas* ; *Missouri* (Tri State District). *Idaho* : Cœur d' Alene. *New Jersey* : Franklin (Furnace, Sterling Hill). *New York* : St. Lawrence Co. *New Mexico* : Hanover. *Tennessee* : East Tennessee. *Arizona* : Bisbee, Upper Mississippi Valley. *Colorado* : Red Cliff, Lead Ville. *Nevada* : Pioche. *Utah* : Bingham. *Montana* : Butte ; etc. *Appalachian Zinc Provinces* : *Tennessee* : Mascot, Jefferson City, Embree. *Virginia* ; (Austinville).

CANADA (13%) : British Columbia (Kooteney) ; Quebec (Noronda) ; Manitoba (Flin Flon) ; Yukon (Keno) ; etc.

U. S. S. R. (12%) : Tomosk ; Yenisi ; etc.

MEXICO (9%) : Chihuahua ; Durango ; Zacatecas ; Potosi, etc.

AUSTRALIA (8%) : New South Wales (Broken Hill).

POLAND (5%) : Crakow ; Kielce ; Silesia, etc.

PERU (4%) : Cerro de Pasco ; Huanuco ; Junin. ITALY (Sardinia : Inglesias). SPAIN (Linares-Carolina in the Sierra Morena). YUGOSLAVIA (Trepca, Stantrg) ; BURMA (Badwin) ; etc. Japan ; Sweden ; North Rhodesia ; Belgian Congo ; etc.

Principal Indian States : Zawar in Udaipur, Rajasthan ; Durali in Kashmir.

Uses : In galvanising iron sheets, tubes, etc. ; electrical batteries : as rods and plates ; boiler plates ; ornamental fittings ; perforated metal screens ; (seamless compressed) tubes ; castings for blocks, engravers' plates and dies ; as pigments ; in paints ; making lithophone ; mordants in dyeing ; alloys in brass, nickel-silvers, zinc bronze, bearing metals ; flux for soldering copper and iron ; glaze (in porcelains) ; in enamel and in water-proofing

composition ; in crucible and lining compositions for furnaces ; abrasives ; medicine ; antiseptic and disinfectant ; etc.

ZIRCONIUM

Zirconium is found in the Ilmenite sands of *Travancore* coast and recovered as zircon sand. It has also been found near Kangayam in Coimbatore District, Madras and Srinagar near Gaya in Bihar.

The total zirconium concentrates production in the world (1953) was 32,000 tons of which Australia alone contributed a little less than 90%. The other important producers are Brazil, French West Africa and Egypt. The remote sources are Ceylon and Malaya.

The chief use of zirconium is in the nature of alloy of steel (ferro-zirconium) ; as refractory ; as abrasive ; opacifier in the manufacture of white enamels for iron-ware, for spot-welding electrodes ; for making containers for holding uranium ; for rayon spinnerets ; as insulator for heat and electricity, for gas mantles and certain incandescent lamps ; for toughening rubber ; for white inks.

CHAPTER IX

WATER—IRRIGATION And POWER PROJECTS

Enormous quantity of water flows down the rivers of India which is estimated at 1,350 million acre-feet per year. Half of this volume is carried by the Ganges and the Brahmaputra systems and the other half by the rivers flowing from east to west and *vice versa*. Theoretically, if the whole flood water could be controlled, it would have been able to inundate the whole expanse of the country to a depth of 1·5 feet.

The estimated total flow of 1,350 million acre-feet of water constitutes only 49% of the mean annual rainfall. At the present moment a mere 76 million acre-feet or 5.6% is utilised mainly for irrigation and power generation. Huge schemes have been undertaken in almost all parts of the country, sometimes a single project covering two or more States at a time, the completion of which will enable India to put into profitable use 13·6% of the total flow thereby doubling the present irrigated area.

The gigantic task that has been undertaken by the Central Government and the States constitutes 153 projects that are under execution in the different parts of the country. Of these six are multi-purpose, 104 for irrigation and 43 as power projects. Twelve of the 153 projects may be termed "major" and the others are of varying importance.

Under the First Five-Year Plan the several projects are expected to irrigate 8·53 million additional acres and provide a million kW. of hydel power at the end of the Plan period. Ultimately the schemes are expected to irrigate 17 million additional acres and 1·5 million kW. of additional power.

According to the Central Board of Irrigation, for the purpose of **flood measurement :**

1 **cusec** of water is taken as 1 c.ft. per second (flow). Flowing continuously for 24 hours, one *cusec* will cover five acres to a depth of about five inches.

1 **acre-foot** is sufficient to cover an acre to a depth of one foot. Two acre-feet of water equals one cusec flowing for 24 hours.

One **million acre-feet** means 43,560,000 *cubic feet* and is sufficient to cover an area of 10 sq. miles to a depth of 156 ft. This represents a storage sufficient to feed a canal of 1,850 cusecs capacity for the entire flow season in a year (normally 270 days).

Falling through a height of 150 ft. a *cusec* can generate 10 *kilowatts* or units of electric energy which is sufficient to drive a 12 h.p. car at a speed of 40 miles per hour, and is roughly equal to power output of 100 men.

One kW. will light 25 average sized electric bulbs and one kW. generated continuously for a year can irrigate 50 acres of land by pumping water from a depth of about 20 ft.

1,000 kW. will drive a passenger train at 50 miles per hour ; and 1 unit hydro is, for all practical purposes, equal to 5 tons of coal per year.

There are nine important river systems in India, the names and the estimated annual flow *in million acre-feet* per annum of each is given below :

	m. ac.-ft.		m. ac.-ft.
Brahmaputra	... 300	Krishna	... 50
Cauveri	... 12	Mahananda	... 74
Ganges	... 40	Narmada	... 32
Godavari	... 84	Tapti (Tapee)	... 17

PROJECTS FOR IRRIGATION AND POWER

There are many projects for irrigation and power of various magnitude and at different stages of execution which are destined to make the most essential contribution to the economic regeneration of India. Some of the bigger schemes have been termed "multi-purpose" for the fact that they, while aiming primarily at irrigation and power generation, also "provide for flood control, silt control, better navigation, soil conservation, reclamation of water-logged areas, malaria control, fish culture and recreation facilities."

The four **major schemes** that are being worked under the Central Government are as follows :

BHAKRA NANGAL PROJECT (*Punjab*) comprises (*i*) a dam 680 ft. high across the Sutlej at Bhakra in Ambala District, (*ii*) the Nangal Dam about 90 ft. high (8 miles down the river from Bhakra) and (*iii*) the Nangal Hydel Canal. The reservoir will have a gross capacity of impounding 7·4 million acre-feet of water extending over 56 sq. miles, developing 400,000 kW. of power and irrigating about 3·6 million acres. The canals will command an area of 6·6 million acres in the States of Punjab, PEPSU and Rajasthan out of which 1·6 million acres is at present virgin waste land.

The entire project also includes (*iv*) two Power Houses on Nangal Canal of 400,000 kW. capacity at Nangal Dam and (*v*) a far-flung Bhakra Canal System. The power will be utilised in the States of Punjab, PEPSU, Himachal Pradesh, Delhi and Rajasthan.

"New irrigation canals of an aggregate capacity of 15,585 cusecs constitute, (i) Bhakra Main line which takes off from the tail of Nangal Hydel Canal, (ii) Bist Doab Canal which takes off at Rupar and (iii) Sidhwan Branch which takes off from the existing Sirhind Canal are under construction."

DAMODAR VALLEY PROJECT (*Bihar and West Bengal*) : Primarily meant for flood control, will have (*i*) a series of four storage dams, at Tilaiya, Konar Maithon, and Panchet Hill, (*ii*) an irrigation barrage at Durgapur with an irrigation-cum-navigation canal and distributaries extending over 1,800 miles, (*iii*) a giant 200,000 kW. power station at Bokaro and (*iv*) an extensive power transmission grid comprising 370 miles of 132 kV. double circuit main transmission lines, etc.

Tilaiya Dam (on the Barakar) 112 ft. high and 1,147 ft. long, creates a lake of 20 sq. miles to irrigate about 100,000 acres of *kharif* and *rabi* crops and its power house generates 20 million kWh. of electric power.

Konar Dam (across the Konar river, a tributary of the Damodar) is about 910 ft. long and 162 ft. in height, with two earth embankments, 4,000 ft. and 5,800 ft. long on the right and

the left bank respectively, will irrigate 104,000 acres of land and drive a plant of 40,000 kW. capacity.

Maithon (earthen) **Dam** (on the Barakar) consists of a dam of the total length of 9,378 ft. and 162 ft. in height above the river bed. It is primarily designed for flood control and will impound 1·1 million acre-feet of water to irrigate 270,000 acres of land. It will provide the power station of 60,000 kW. sufficient to generate 164 million kWh. energy per annum.

Panchet Hill (Dam) on the Damodar consists of an 1,800 ft. long and 133 ft. high main earth dam and 1,175 ft. long concrete spillway with earthen dykes on both sides. The reservoir will provide irrigation to 683,000 acres and enable developing 40,000 kW. of energy.

Durgapur Barrage 2,271 ft. long and 88 ft. in height, will supply water to 1,552 miles of canals and distributaries, irrigate one million acres and provide 85 miles of canals for navigation between Calcutta and the Raniganj coalfields.

Bokaro Thermal Power Station comprises three units of 50,000 kW. each with provision for a fourth of the same size.

"*The Grid*" consists of 375 miles of 132 kV. and 96 miles of 33 kV. double circuit transmission lines and 32 miles of 66 kV. single circuit temporary lines.

HIRAKUD PROJECT (*Orissa*) comprises a masonry and concrete dam (3,768 ft.) and an earth fill barrier on the Mahanadi of the total length of 15,748 ft. creating a lake covering 250 sq. miles capable of impounding 6·6 million acre-feet. Mainly intended for controlling flood, it will provide 123,000 kW. at the beginning, rising to 270,000 kW. and irrigation to 1·07 million acres.

The entire scheme covers two parts, in the first of which there is provision, besides the delta irrigation proposals, the construction of a main dam and dykes, a power house for four units, 400 miles of transmission lines and eight substations.

In addition to irrigation and power generation, the scheme provides for *navigation facilities* to about 300 miles of the river from Hirakud to the sea.

HARIKE PROJECT (*Punjab*) envisages a barrage on the Sutlej and the Beas, the full benefits wherefrom have not yet been

determined. The Harike Barrage has been completed and the highway bridge over the road linking Fazilka-Ferozepur-Amritsar has been opened to traffic.

Besides the four major projects narrated above, there are numerous others distributed over almost all the States. A few of these schemes are nearing completion and have already begun doing part of the services they are ultimately expected to render. The number of plans that are under active consideration is also very large and preliminary surveys have been undertaken regarding a lot of them.

The schemes have been enumerated *Statewise* arranged *alphabetically*.

ANDHRA

Krishna Barrage Project: Planned for constructing a combined regulator and road bridge across the Krishna river near Vijayawada. Started in 1954, the scheme is expected to irrigate additional 100,000 acres to the existing area in addition to stabilising the present irrigation in the Krishna Delta.

Machkund Hydro-Electric Project: It has been undertaken for irrigation and power for the benefit of both Andhra and Orissa. It aims at harnessing the Machkund river in Visakhapatnam District by construction of a dam at Jalaput for impounding 612,000 acre-feet of water, and helping ultimately in generating 102,000 kW. of power.

Nagarjuna Sagar Project: A joint venture of the Andhra and Hyderabad Governments, this multi-purpose project comprises the construction of a 387 ft. high masonry dam across the Krishna at Nagarjuna Konda. The dam, which will be the highest in the South, will form a reservoir having a storage capacity of 9·3 million acre-feet of water, about two million acre-feet more than that of the Bhakra reservoir. The project will irrigate about 31·83 lakh acres in the two States and generate 75,000 kW. of power at 60 p.c. load factor.

The dam site 10 miles from the Macherla railway station in Guntur distrtct—lies about 1½ miles below Nandikonda village in the gorge between the confluence of the Krishna with the

Dundi and Chintalapalam village. The total length of the dam will be 15,080 feet, comprising 1,880 feet of spillway, 2,020 feet of non-spillway, 4,960 feet of composite dam and 6,220 feet of earth dam.

The project is proposed to be taken up in three stages.

The first stage has been included in the First Five-Year Plan and is expected to be completed in seven years. The right bank canal lying in Andhra up to Musi valley—a length of 140 miles—is also included in this stage. It will carry a discharge of 14,000 cusecs, as much as the Bhakra canal in Punjab. The left bank canal in Hyderabad will be 108 miles long and will lead up to the river Muneru.

The first stage will irrigate 23·6 lakh acres in the districts of Guntur, Kurnool and Nellore in Andhra and Khammameth and Nalgonda in Hyderabad.

In the second stage the dam and the canals are to be completed. During the third and final stage hydro-power to the extent of 75,000 kW. will be generated.

Rallapad Reservoir Project: (Irrigation): It comprises a reservoir across the Manneru river near Rallapad by constructing (started in 1951) a masonry and earthen dam 9,908 feet long from end to end, will impound 1,500 million acre-feet of water and help irrigating 11,000 acres of land.

Tungabhadra Project for *Andhra* and *Hyderabad*, comprises a dam 5,942 ft. long and 160 ft. in height across the Tungabhadra, a tributary of the Krishna near Mallapuram in Bellary District. It will impound 2·6 million acre-feet of water spread over 133 sq. miles, for irrigating 700,000 acres of land in Andhra, Mysore and Hyderabad (450,000 acres); the ultimate aim being 2 million acres. At the initial stage, arrangements have been made for generation of 9,000 kW. in each of the two States of Andhra and Mysore and 7,500 kW. in Hyderabad. Started in 1945 the scheme is nearing completion.

Schemes under active consideration

Nandikonda Project aims at irrigating 2·4 million acres in Andhra and 795,000 acres in Hyderabad.

Perur or the Upper Pennar Project (for irrigation) provides for a dam across the Pennar near Perur village in Dharamvaram *taluk* in Anantapur District with a storage capacity of 46,000 acre-feet for irrigating 8,000 acres of land.

Pulichintala Project provides for a dam at Pulichintala and excavation of a right bank canal. The capacity of the reservoir is estimated at 164,000 million cubic feet of water. Incidentally the project is expected to provide for 30,000 kW. of power.

Ramapadasagar Project will require a dam 428 ft. high and 6,000 ft. long across the Godavari near Dowalaishwaram about 20 miles from Rajahmundry. The capacity of the reservoir will be 692,604 million cubic feet and is expected to irrigate 2·75 million acres and generate 150,000 kW. of firm power. The canals taking off from either side of the dam will become *navigable* throughout the year from Visakhapatnam Harbour to the Godavari and through the reservoir to the hinterlands of Hyderabad and Madhya Pradesh.

Siddeswaram and Somasila (Krishna Irrigation) Projects will ultimately serve nearly 3 million acres in Kurnool, Cuddapah and Nellore districts. Three dams are contemplated with one reservoir of 190,000 million cubic feet storage capacity, on the Krishna at Siddeswaram (in Kurnool), the second with 46,000 million cubic feet storage capacity on the Pennar at Someswaram or Somasila (in Nellore) and a third across the Pennar (at Gondikota) to store 80,000 million cubic feet of water. The dam at Siddeswaram, 160 feet high, will enable generating 30,000 kW. of firm power and the dam at Gandikota, 15,000 kW.

Tungabhadra (High Level) Canal Project envisages a "canal of 40,000 cusecs drawing off from high level canal sluices in the Tungabhadra Dam to irrigate 3·8 lakh acres in Bellary, Anantapur, Kurnool and Cuddapah Districts."

Vamsadhara Project will use the flow of the Vamsadhara by construction of a reservoir at Gotta with two canals and a barrage at Singidi and one canal to irrigate 242,000 acres of arid land. It may also generate seasonal power to the extent of 5,000 kW.

ASSAM

There are a large number of schemes under consideration which will involve construction of high dams capable of impounding 68 million acre-feet of water and generating 4 million kW. of power.

Umtru Hydro-Electric Project : The scheme envisages a 50 ft. high weir on the Umtru river and setting up of three generating sets of 2,500 kW. capacity each. The preliminary works have already been started.

BIHAR

Damodar Valley Project : See p. 253.

Schemes in hand or under active consideration

Gandak Project comprises a weir across the Gandak (at Tribeni, just beyond the Nepal Hills) and a road bridge over the barrage opening communication with the right bank of the Gandak river. Total irrigation contemplated under the project is 2,642,000 acres.

Kosi Project was originally designed to put up a dam 750 feet high across the Chatra Gorge in Nepal just above the Varaha Kshetra for storage of 11 million acre-feet of water and a plant for developing 1·8 million kW. The present proposals comprise a barrage at Hanuman Nagar and flood banks on either side of the river. The scheme will provide, through an extensive canal system, irrigation to 1,397,000 acres in Saharsa and Purnea Districts. "It is also proposed to provide intake structure, penstocks and power house to accommodate ultimately 7 units of 3,330 kW. each."

Pardoi River Scheme is designed to generate 3,000 kW. by using the water of the Pardoi and is being considered along with some other Tube-well Schemes to improve irrigation in Bihar.

Sakri Canal Project is designed for the purpose of irrigating about 50,000 acres in Gaya District.

Sone Canals (Remodelling) Scheme is to put up a new barrage, 32 miles above the present site to irrigate additional 400,000 acres over the present 600,000 acres.

BHOPAL

Kolar-nadi Project for irrigation and power comprises a dam across the Kolar-nadi (a tributary of the Narbada) for impounding 390,000 acre-feet of water to irrigate 96,000 acres and generate 16,500 kW. of power.

BOMBAY

Banganga Irrigation (Tank) Project is desired to irrigate 2,500 acres in Satara North District by constructing a dam across the Banganga river near Kuravali village and opening two new canals.

Gangapur (Storage) Project started in 1948, comprises an earthen dam, 12,500 feet long and 120 feet high, on the Godavari at Gangapur, Nasik, for storage of 12,700 million cubic feet of water when completed. The area to be irrigated is 45,000 acres in Nasik and Ahmednagar Districts.

Ghataprabha (Left Bank Canal) Project or better known as the *Ghataprabha Valley Development Scheme*, started in 1949, will provide irrigation for 100,000 acres, when completed, in Belgaum and Bijapur Districts.

Kakrapar Project envisages a weir over the Tapti, 2,039 feet long and 45 feet high at Kakrapar with its canal system, 50 miles upstream of Surat and also a dam at Ukai. The scheme will irrigate 652,000 acres at the initial stage rising up to 920,000 acres when completed. The total length of the main canals, branches, distributaries and minors will be 850 miles. In the other two sections of the scheme it has been planned to irrigate 520,000 acres of a narrow strip in Khandesh and another 400,000 acres in the same district later on.

Kolchi (Weir) Scheme consists of a submersible weir across the Malprabha near Ramdurg for the purpose of irrigating 3,700 acres in Belgaum District. Started in 1949, the scheme was scheduled to be completed in 1955.

Koyna Project has been designed to be completed in three stages. It comprises (started in 1954) a dam on the Koyna, a tributary of the Krishna, some 205 feet high which is to be raised to 270 feet in the second stage and will store 97,000

million cubic feet of water. In the final stage it will generate 500,000 kW. of power, irrigate Poona-Bombay area and the adjoining regions of Maharashtra and Karnatak to the extent of 400,000 acres in an arid area subject to recurrent famines.

Mahi (Right Bank Canal) Project (*Stage I*) consists of a reservoir of 244,000 acre-feet capacity at Kel on the Panam river (a tributary of the Mahi) to irrigate 150,000 acres of land in Kaira District. The scheme was started in 1948 with the construction of a weir 2,450 feet long and 73 feet high, located at Wanakbori across the Mahi river. The programme is scheduled to be completed by 1957.

Patadungri (Tank) Project started in 1952 with the construction of a dam across the Khan river in Dohad *taluk* of Panch Mahals District thereby creating a reservoir with capacity to impound 1,450 million cubic feet of water to enable irrigation of 12,700 acres of land.

Radhanagari (Power and Irrigation) Project comprises a dam 140 feet high across the Bhogawati river about 32 miles from Kohlapur for storage of 8,500 million cubic feet of water, a power station of 4,800 kW. capacity at Radhanagari in Kohlapur District, high tension transmission lines and installation of pumps. The scheme, started in 1952, has made good progress.

Ranand (Tank) Project has been designed to irrigate 3,500 acres in Satara District by constructing an earthen dam 3,580 feet long and 63 feet high with an overflow waste weir 1,085 feet in length. Started in 1949, it is mainly intended for discharge of monsoon floods.

Schemes under active consideration

Asoga (Reservoir) Scheme proposes to construct a dam on the Malaprabha river at Bhutewadi, Belgaum, to store 460,000 acre-feet of water.

Chola (Power) Project aims at generating 50,000 kW. to serve Poona, Colaba and Thana.

Daddi (Irrigation) Project, when completed, will enable storage of 1,037,000 acre-feet on the Ghataprabha river (in Belgaum) and irrigate 400,000 acres of land.

Girna Project comprises a dam on the Girna (at Panjham in Nasik) for impounding 483,000 acre-feet and to irrigate 110,000 acres.

Kali-nadi (Power) Project envisages a dam, 287 feet high, on the Kali-nadi about one mile below Supa with the purpose of generating 90,000 kW. of power to supply it to the districts of Dharwar, Kanara, Belgaum and Bijapur.

Meshwa (Canal) Project comprises a weir at Raska (Kaira) sufficient to irrigate 10,000 acres in the same district.

Sabarmati (Irrigation) Project includes a dam across the Sabarmati, storage of 230,000 acre-feet of water for irrigating 45,000 acres and generating 6,000 kW. of power.

Zankhari (Irrigation & Power) Project proposes to construct a dam, 3,500 feet long, across the combined Zankhari and Gira valleys for impounding 120,000 acre-feet of water for the purpose of irrigating 9,000 acres and developing 2,300 kW. of electric energy.

HYDERABAD

Bensundra Project includes a reservoir on the Bensundra near Pali village about 5 miles from Bir (town), together with a spillway and necessary sluices and canals, and will irrigate 9,300 acres of land.

Godavari Project comprises four dams, two on the Godavari at Kawaliguda and Kushtapuram and one each on the Kaddam and the Manair. When completed, it will irrigate 2 million acres and develop 175,000 kW. of power. At the initial stage it will irrigate 53,000 acres of land in Adilabad.

Koil Sagar Project aims at constructing a storage reservoir across the Pedda Vagu rivulet, a tributary of the Krishna, at Koilkonda in Mahbubnagar *taluk*, with the help of a 2,050 feet long dam with canals that will command an area of 2,500 acres.

Nagarjuna Sagar Project: See p. 255.

Nizamsagar (Hydro-Electric) Scheme comprises a power station on the Manjira river, a tributary of the Godavari and other arrangements for developing hydro-electric power for Hyderabad varying between 3,000 kW. and 10,000 kW.

The Nizamsagar reservoir completed in 1929 with a storage capacity of 29,700 million cubic feet is going to have a power station of its own.

Rajolibunda (Diversion) Scheme comprises an anicut 2,690 feet long across the Tungabhadra, 80 miles below the main Tungabhadra dam, and is expected to irrigate 79,000 acres.

Ramagundam (Power) Project envisages construction of a thermal station in Hyderabad sufficient to generate 38,000 kW. of power.

Tungabhadra Project : See p. 256.

MADHYA BHARAT

Chambal Valley (Development) Scheme (in the Holkar State) envisages three dams and one barrage for harnessing the Chambal river for irrigating 1·4 million acres and generating 200,000 kW. of power for the benefit of Madhya Bharat and Rajasthan. One dam, near Chaurasigarh Fort, about 200 feet high, will impound 5·73 million acre-feet of water and generate power to the extent of 45,000 kW.

MADHYA PRADESH

Ballarpur Project envisages three power stations with capacity for 7,500 kW. each (in Ballarshar).

Chandi Project plans for necessary erections in Khandwa for generating 17,000 kW. of power.

Central Thermal Station provides three sets of plants of 10,000 kW. each at Khaperkhada.

A comprehensive plan has been prepared for the purpose of irrigating more than 600,000 acres of land in a number of districts in the State. The most important of such schemes are the following :—

Dudhwa (Feeder Tank) Project in Raipur District will irrigate another 60,000 acres in addition to 240,000 acres that is at present irrigated by the Mahanadi Canal.

Dukrikhera Tank Project is expected to irrigate 10,000 acres in Hosangabad District.

Gangulpara Tank Project is intended to irrigate 8,000 acres in Balaghat District.

Gondli Feeder Tank Project is a scheme for supplementing the Tandula Reservoir in Durg District. Besides providing additional protection to 35,000 acres over the 165,000 acres that are now being served by the Tandula Reservoir, it will independently irrigate another 15,000 acres in Balod *tehsil*.

Sampna Tank Project will irrigate 10,000 acres in Betul District.

There are other minor irrigation schemes which, when completed, will bring 153,000 additional acres under irrigation.

MADRAS

Amaravati (Reservoir) Project, started in 1954, envisages a dam 3,600 feet long for impounding 3,600 million cubic feet of water across the Amaravati about 14 miles south-east of Udamalpet Town and related canals to irrigate 15,000 acres.

Araniar (Reservoir) Project embraces a reservoir across the Araniar near Pisattur village in Chingleput District, of the capacity for 1,863 million cubic feet of water and necessary canals with a view to irrigating 2,530 acres of new land besides stabilising supplies to the existing insufficiently irrigated area of 2,970 acres. The scheme, started in 1951, has made good progress.

Krishnagiri (Reservoir) Project proposes construction of a 3,600 feet long dam across the Ponniyar in Salem District with storage capacity of 2,400 million cubic feet of water. It will irrigate 7,500 acres.

Lower Bhavani Project, started in 1948, comprises a masonry (1,523 ft.)-cum-earth embankment of the combined length of 28,862 feet, across the Bhavani at Bhavani Sagar in Coimbatore District with storage capacity of 32,800 million cubic feet and a canal 124 miles long. It will irrigate a new area of 207,000 acres. The length of the water courses will roughly run into 500 miles.

Malampuzha Project consists of a dam nearly 6,000 feet long on the Malampuzha river to create a reservoir of 7,200 million cubic feet capacity for irrigating 40,000 acres of land.

Mangalam (Reservoir) Scheme consists of a reservoir on the Cherukunnupuzha (a tributary of the Mangalam river) of storage capacity of 600 million cubic feet of water in Malabar District providing irrigation facilities to 3,735 acres.

Manimuthar Project envisages a 9,270 feet long dam with a consequent reservoir on the Manimuthar, a tributary of the Tembraparni in Tirunelveli District. The reservoir will impound 4,000 million cubic feet of water at the first stage rising to 5,500 million cubic feet when completed, planned to irrigate 103,000 acres of land. The scheme was started in 1950 and is on its way to completion.

Sathanur (Reservoir) Project envisages a dam across the Ponniar near Sathanur village, North Arcot, to create a reservoir of storage capacity of 4,600 million cubic feet to irrigate about 20,000 acres.

Walayar (Reservoir) Scheme, started in 1952, comprises a dam of about the length of a mile to enable storage of 670 million cubic feet of water in a reservoir for irrigating 6,500 acres of land.

Schemes under active consideration

Moyar Project will involve necessary construction in the Moyar Valley, for the supply of additional power to the Mettur System from a plant with generating capacity of 36,000 kW. of power.

Papanasanam *(Stage II)* comprises arrangements for generating additional 14,000 kW. at Madurai over the existing 7,000 kW. of power.

Pykara Plant Extension *(Stage III)* provides for a dam across the Pykara river in Nilgiri District for storage of 45,000 acre-feet and generating 212,000 kW. of power and extension of 110 kV. lines.

MYSORE

Ambligola Reservoir Scheme, a rather moderate plan, started in 1953, involves an earthen *bund*, 57 feet high, across the Salur Halla, a minor stream in Tungabhadra basin near Ambligola, is expected to irrigate 7,000 acres.

Bhadra Project comprises a dam 187 feet high with a storage depth of 182 feet across the Bhadra at Lakhavali capable of impounding 1·55 million acre-feet (68,000 million cubic feet) of water, for irrigating 224,000 acres in Shimoga and Chitaldrug and generating 12,680 kW. of power (continuous).

Kapini (Irrigation) Project aims at a masonry dam 74 feet high across the Kapini near Bidarahalli creating a reservoir with storage capacity of about 12,000 million cubic feet for irrigating 6,000 acres in the monsoon and supply of water during summer to Shivasamudram and Shimsha Power Station.

Nugu (Reservoir) Scheme, started in 1947, comprises a dam 114 feet high and 600 feet long across the Nugu river, a tributary of the Kapini, and a channel 56 miles long. It will irrigate 20,000 acres in Mysore.

Tunga Anicut Scheme constitutes masonry works of a 41 feet high and 1,200 feet overflow dam, with two canals for irrigating 21,000 acres in Shimoga and Honnali *taluks*.

Mysore has a series of other projects mainly for the purposes of irrigation and some of these are :

CHIKHOLE RESERVOIR PROJECT, DANDAVATI RESERVOIR PROJECT, HEBBAHALLA RESERVOIR PROJECT, HEMAVATHI RESERVOIR PROJECT and TARAKA RESERVOIR PROJECT.

ORISSA

Hirakud Dam Project : A multi-purpose scheme. For details see p. 254.

Mahanadi Delta Irrigation (Extension) Scheme proposes extension of the present system to irrigate an additional 1,077,000 acres in Sambalpur and Bolongirpatna Districts. It is intended further to generate at the final stage, 123,000 kW. of power and also to control devastating floods that annually visit wide areas in the Mahanadi Delta.

PEPSU

(Patiala and East Punjab States Union)

Bhakra Nangal Project executed under the supervision of the Central Government. See p. 253.

Bein River Project incorporates additions to and alterations in the Bein Regulator near Kapurthala for irrigating about 40,000 acres of land.

Narnaul Bund Project envisages an earthen *bund* about 48 feet high at a distance of two and half miles from Narnaul. The reservoir thus created is expected to irrigate 6,700 acres.

Schemes under active consideration

A large number of tube-wells, about 300 in number, are likely to be sunk for affording irrigation to about 240,000 acres. **Ashni-nadi Project** comprises a dam near Simla on the Ashni-nadi about four miles from Kandaghat capable of impounding 163,000 acre-feet and generating 16,000 kW. of firm power.

PUNJAB

Bhakra Nangal Project : See p. 253.

RAJASTHAN

Jawai River Project comprises a reservoir of 170,000 acre-feet capacity on the Jawai to serve 110,000 acres and generate 1,570 kW. of power at canal head and 2,530 kW. at canal tail in Jodhpur.

Morel Project contemplates construction of an earthen dam, 53 feet high, for the formation of a reservoir capable of impounding 1,950 million acre-feet to irrigate, at the initial stage, in Jaipur 22,000 acres and additional 12,000 acres when completed.

SAURASHTRA

Aji Irrigation Scheme envisages a 72 feet high dam on the Aji near Rajkot creating a reservoir of 26,220 acre-feet capacity. The total length of the dam, masonry and otherwise, will run into 10,140 feet. While irrigating 6,400 acres of land, the project will regularly supply water to the city of Rajkot.

Bhimdad Irrigation Scheme, completed in 1953, consists of 360 feet and 2,400 feet, of masonry overflow section and of earthen flanks, respectively, to irrigate about 3,000 acres.

Brahmani Irrigation Scheme constitutes an earthen dam, 8,700 feet long and 61 feet high, on the Brahmani near Golasan village in Zalawad District for the creation of a reservoir capable of impounding 60,930 acre-feet of water and irrigating 27,000 acres. The scheme is in the last phase of execution.

Ghee Irrigation Scheme has just begun supplying water to 3,500 acres by the erection of an earthen dam 3,400 feet long and 40 feet high.

Machhu Irrigation Scheme comprises a 3,200 feet long and 84 feet high masonry dam across the Machhu near Jalsika, a village in Madhya Saurashtra District. The capacity of the resultant reservoir is 59,090 acre-feet and irrigation of 22,000 acres.

Malan Irrigation Scheme envisages construction of an earthen dam, 4,875 feet long and 74 feet in height, contributing to the formation of a reservoir of the capacity of 13,130 acre-feet of water for irrigating 5,600 acres.

Moj Irrigation Scheme contains a dam, 1,100 feet long and 79 feet high, on the Moj creating a reservoir of 30,130 acre-feet capacity. It is intended to control flood and ultimately irrigate 15,000 acres on the completion of a subsidiary dam measuring 2,850 feet in length.

Puna Irrigation Scheme possesses an earthen dam 4,720 feet long across the Puna river, 16 miles from Jamnagar causing a reservoir of the capacity of 11,360 acre-feet for the purpose of supplying water to the cement industries at Sikka and irrigating 500 acres of land.

Rangholi Irrigation Scheme, completed in 1952, serves 10,000 acres through the help of a newly constructed earthen dam, 6,400 feet long and 58 feet high.

Sasoi Irrigation Scheme comprises a composite masonry (1,000 ft.) and earthen (11,360 ft.) dam on the Sasoi near Pipri village, about 12 miles from Jamnagar, creating a 49 feet high reservoir capable of impounding 41,400 acre-feet for the purpose of irrigating 10,600 acres of land.

Surajwadi Irrigation Scheme has recently been completed with an earthen dam 6,050 feet long and 69 feet high for irrigating 3,000 acres.

Scheme under active consideration

Bhogavo Irrigation Scheme contemplates an earthen dam 6,600 feet long and 50 feet high, across the Bhogavo near Nyaka village in Zalawad District to irrigate 4,200 acres.

TRAVANCORE-COCHIN

Chalakudy Irrigation Scheme contains a weir, 435 feet long and 9 feet 6 inches high, across the Chalakudy about 10 miles below Adirapilli Falls (in Trichur District) for diverting the water of the river by two channels for irrigating 50,000 acres. Work started in 1949 is nearing completion.

Kodayar (Extension) Scheme comprises a dam across the Paraliar above the Puthen Dam and a pick-up weir at Thirparappu across the Kodayar river. The Puthen Dam, 1,137 feet in length and 87 feet wide at the base, was completed in 1952. The entire scheme, when in full operation, will irrigate 10,000 acres of land.

Neyyar Scheme envisages a masonry dam across the Neyyar in South Travancore for impounding rain water for irrigating 30,000 acres.

Pallivasal (Extension) Scheme constitutes a storage dam at Madupatty across the Mudirapuzha for carrying out improvements to the existing system and generation of about an additional 7,500 kW. of power. It also contemplates modifications to the three old water-wheels of 4,500 kW. each so as to increase the generating capacity of every one of them by another 500 kW.

Peechi Scheme started in 1948, has by now a dam 750 feet long and 130 feet high across the Manali river with a storage capacity of 3,900 million cubic feet to irrigate 47,800 acres of land and simultaneously to supply drinking water to Trichur.

Poringalkuthu Hydro-Electric Project comprises a dam across the Chalakudy with a reservoir of 1,200 million cubic feet capacity, a system of tunnel 4,000 feet long and a power station with three 8,000 kW. generating sets.

Sengulam Project is contemplated to use the surplus water of the Pallivasal Power Station, and construct a reservoir with 24 million cubic feet capacity with connected channels, tunnels and pumping units and a generating set of 48,000 kW. installed capacity.

Wadakkancherry (Vazhani) River Valley Scheme covers a dam started in 1949 across the Wadakkancherry for impounding 550 million cubic feet of water, which, with the help of a far-flung distributing system, will irrigate 11,000 acres.

Under *a new Scheme*, it is proposed to improve the present transmission and distribution system of electric power by grid system not only to Cochin and South Travancore but to carry the extra energy to supplement the Madras power system by 20,000 kW.

UTTAR PRADESH

Ahraura Dam, started in 1951-52, is intended to irrigate 20,000 acres, and **Arjun Dam,** started in 1952, near Charkhari Town to irrigate 27,000 acres in Hamirpur District, were completed in 1955. **Banganga Canal Project** comprises a barrage across the Banganga river to irrigate 34,000 acres. Started in 1950, the **Belan and Tons Canals** will irrigate in a short time about 100,000 acres. The **Chandraprabha Dam,** in Banaras District, will irrigate 40,000 acres ; while the modest **Kabrai Lake Project,** already under way, will water 5,000 acres only.

Lalitpur Dam Project, started in 1945, has taken long to be completed and it comprises a storage dam, 40 feet high, with a reservoir of 78,000 acre-feet capacity to irrigate 60,000 acres of land.

Matatila Dam Project covers a masonry dam, 2,200 feet long and 120 feet high, across the Betwa river, which with the earthen embankment on either side runs into four and half miles. The total field to be irrigated is 400,000 acres distributed not only in Uttar Pradesh (Jhansi, Jalaun, Hamirpur) but in two districts (Bhind and Gwalior) of Madhya Bharath and two districts of Vindhya Pradesh (Datia and Orcha). The length of the canals will run into 700 miles.

Nagwa Dam completed in 1951-52, irrigates 70,000 acres. **The Naugarh Dam** (Baranasi) was completed in 1954. **Chandauli Canals,** a bigger scheme, designed to irrigate 80,000 acres, is yet in the preliminary stage.

Pathri Power Project aims at working three turbo-generator sets of 6,800 kW. capacity each by harnessing a few of the falls of the Ganga Canal that are still running into waste. **Partapgarh Branch,** one of the various Canal Projects, is carrying water to about 44,000 acres in Allahabad and Partapgarh Districts.

Rangawan or **the Majhgawan Project,** started in 1950, comprises a dam across the Banne-nadi (in Panna District in Bundelkhand) and supplies water to 90,000 acres.

The Rihand Dam, *i.e.*, a dam on the Rihand near Pipri (in Mirzapur District) with a base 277 feet wide and a height of 270 feet, will impound 375,000 cubic feet of water spreading over 180 sq. miles.

The project is expected to irrigate 1·6 million acres in U. P. and 4 to 5 lakh acres in Bihar. The installed capacity is 240,000 kW. a fraction of which will help 4,000 tube-wells to irrigate large tracts of land. The work, though started in 1947, has not showed much progress and it will be a long time before it is completed.

The Saprar Dam, started in 1948, embraces an earthen dam 55 feet high on the Saprar river for impounding 64,300 acre-feet to supply water to the existing canals and improve irrigation of 40,000 acres.

Sarda Project "aims at combining into a single drop a large number of existing falls on the Sarda Canal and installing a power house at Khatima in Nainital District for generating 41,400 kW. for industrial, agricultural and domestic purposes in towns and rural areas of the districts of Nainital, Almora, Bareilly, Pilibhit, Shahjehanpur, Lakhimpur, Kheri, Sitapur, Hardoi and Lucknow." Started in 1945, there remains not much to be done to complete the work. Part of the project comprises **the Sarda Canal Reservoir Scheme** which aims at setting up a dam in Taral Forest for impounding 260,000 acre-feet of water. The additional discharge from the reservoir will augment the

flow of the Sarda Main Canal and will enhance its efficiency. The *Shahganj Distributary* having been started in 1950 is now in a position to irrigate at least 20,000 acres of land.

The Sirsi Dam (and Canal) completed in 1955, irrigates a considerable area in Mirzapur District.

Schemes under active consideration

Azamgarh Pumped Canal Project contemplates irrigation of 615,000 acres in Faizabad, Azamgarh, Ghazipur and Jaunpur Districts by pumping 3,000 cusecs of water from the Ghagra (Gogra) at Mehri.

Betwa (Power) Project has been planned to construct a dam at Piprai on the Narini, a tributary of the Betwa, and a power station at Khukwan for generating 2,500 kW. of power in Bundelkhand.

Dhorighat Pumped Canal Scheme is an extension of the Azamgarh Scheme and aims at pumping 584 cusecs from the Gogra (Ghagra) river at Dhorighat in Azamgarh District for the purpose of irrigating 138,800 acres of land.

Gandak Canal (Irrigation) Scheme will necessitate a 400-mile long canal to be fed by the Gandak for irrigating 450,000 acres in Gorakhpur and Deoria Districts.

Gogra Project "aims at harnessing the immense potentialities of the Gogra by short-circuiting the loops of the Karnali river by means of tunnels across the intervening hills" with the object of generating 30,000 kW. of power. By the **Extension of Gogra (Ghagra) Canal** by about 115 miles 78,622 acres of land will be benefited in Faizabad District.

The Kothri Scheme plans for a dam 250 feet high across the Kothri, a tributary of the Koh, to impound 180,000 acre-feet for irrigation and generation of 5,660 kW. in Garhwal District.

Nayar (Dam) Project envisages construction of a 600 feet high dam on the Nayar, a tributary of the Ganga for impounding 1·4 million acre-feet for generating 200,000 kW. at Maora and

32,000 kW. at Byasghat besides irrigating 238,000 acres of new land and improving supply of water to 1,068,000 acres of land at present served by the Upper Ganga Canal System.

Pinder Scheme envisages two dams 200 feet and 500 feet high across the Pinder, a tributary of the Ganga, at Karanprayag to generate 40,000 kW. of firm power and 50,000 kW. of seasonal power.

Pipri Project is designed to construct a dam 280 feet high across the Rihand, near Pipri village in Mirzapur District, to impound 8·87 million acre-feet and generate 230,000 kW. of power.

Ramganga Project, a fairly big-sized scheme to be completed in four parts, *viz.*, (i) a 330 feet high dam across the river in Garhwal District to impound 2·2 million acre-feet in the Ramganga Valley for irrigating 800,000 acres, (ii) a Power House at the toe of the dam having five generating sets of 18,000 kW. each, (iii) a pick-up weir, 1,186 feet long, across the Ramganga river, 16 miles downstream of the dam in Bijnore District, and (iv) a 46 miles long feeder canal of 5,000 cusecs capacity.

Yamuna Hydel Scheme *(Stage I)* aims at constructing a barrage across the Yamuna river at Dakpathar two miles downstream from the junction of the Tons and the Yamuna and diverting the water by a 8·7 miles long concrete channel to the power stations designed to generate 11,560 kW. of firm power and 28,360 kW. of seasonal power. When the second stage will have been completed, the total power generated will be 253·8 million kW. per annum.

WEST BENGAL

Damodar Valley Project : A multi-purpose major scheme. See p. 253.

Jaldhaka Scheme aims at generating of 10,000 kW. of power in Darjeeling.

Ganga Barrage Scheme for irrigation and power envisages a number of barrages with benefits that would (*a*) render the Bhagirathi navigable throughout the year ; (*b*) provide direct road

and rail communication between the north and south Bengal; (*c*) flood-flush 320 sq. miles of land lying between the Bhagirathi and the Jalangi and irrigate about 1·50 lakh acres of land; and (*d*) improve the Calcutta Port by pushing back silt.

Mayurakshi Project consists of (i) a dam at Messanjore in Santhal Pargana, Bihar, connecting two hills on the Mayurakshi of the total length of 2,200 feet and 150 feet in height, has 21 spillways of 30 feet in width, (ii) a Power House furnished with two units of 2,000 kW. turbines, (iii) a barrage across the Mayurakshi at Tilpara, two miles from Suri, Birbhum, 1,013 ft. in length fitted at the centre with 7 bays each 60 feet wide, (iv) a barrage across the Kopai (or *Sal*) to maintain supply to the South Bank Canal System of the Mayurakshi Reservoir Project, and (v) the Chandrabhaga Acqueduct 'a rigid frame box-type structure' which has been termed "the most difficult cross drainage structure in the Mayurakshi Project." The entire scheme has been designed to irrigate 750,000 acres of land and generate 2,000 kW. of power. The different sections of the Project have been started at different times of which the Messanjore Dam was started in 1951-52, the Mayurakshi Barrage in 1949, Kopai Barrage in 1950 and the Chandrabhaga Acqueduct in 1952. The whole project has nearly been completed.

PAKISTAN

From the point of view of irrigation and irrigated land, Pakistan, particularly its western unit, is extremely fortunate in enjoying well developed irrigation facilities that can compare favourably with some of the countries of the world that are well equipped in this respect. The entire area of Sind, 87 per cent. of Bahawalpur and 76 per cent. of West Punjab are drenched by canal waters obtained as a result of irrigation developed nearly through a century of peace and tranquillity.

The following statement gives only a part of the more important canals in the West Punjab and Bahawalpur which gives an idea of what the entire system looks like.

Punjab and Bahawalpur Canal System

Head Works	River	Perennial Canals	Capacity in '000-cusecs	Area irrigated—000' acres Com-manded	Kharif	Rabi	Total
Madopur*	Ravi	Central Bari Doab	3'0	650	320	220	540
Balloki	Ravi	Lower B. D.	7'0	1,460	725	800	1,525
Marala	Chenab	Upper Chenab	13'0	1,450	436	330	766
Khanki	Chenab	Lower Chenab	12'0	2,900	1,215	1,600	2,815
Mangla	Jhelum	Upper Jhelum	9'0	500	185	185	370
Rasul	Jhelum	Lower Jhelum	5'5	1,275	425	590	1,015
		Haveli(+ Sidhnai)	5'25	1,005	430	545	975
Trimmu	Chenab	Rangpur	2'7	340	67	91	158
Kalabagh	Indus	Thal	10'0	800	30	90	120
Feroze-pur*	Sutlej	Dipalpur	7'0	990	320	217	537
		Eastern	3'3	62	—	—	—
		Bikaner	2'7	—	—	—	—
Sulei-manki	Sutlej	Pakpattan	6'5	1,261	430	450	880
		Sidiquia	4'9	928	369	377	746
		Fardwah	3'4	424	132	137	269
Islam	Sutlej	Mailsi	5'0	688	212	212	424
		Bahawal	5'4	645	191	222	413
		Quimpur	'6	42	13	13	26
Panjnad	Sutlej	Abbasia	—	106	21	25	46
		Panjnad	—	1,300	492	393	885
Inun-dation Canals		Shahpur	1'3	108	41	28	69
		Muzaffargarh	6'4	600	143	228	371
		Indus	7'3	650	150	155	305

Perhaps (the former) Sind is the only state in the world that gets all its water required for agriculture from irrigation canals. This has been possible by the construction of the Lloyd Barrage, one of the most wonderful engineering feats in the world, 4,700 feet long, with seven canals, commanding an area of

* Situated in India

7·5 million acres. The total length of the canals fed by the water stored behind the barrage is about 6,473 miles. It began to function in 1932, *i.e.* at a time when Sind was a part of the Bombay Presidency.

The second biggest is the Jinnah Barrage, also over the Indus, at Daud Khel just below Kalabagh in Punjab. The length of the barrage is a little over 4,000 feet and is recognised as the most important factor in the Thal Development Project.

The more important Development Projects that have either been recently completed or are nearing completion are given below :

EAST PAKISTAN

Ganges-Kobadak Project (*Phase I*) when complete, will irrigate about 2 million acres. The target of the first phase is 200,000 acres in the districts of Khulna and Jessore through a canal 60 miles long taking from the Ganges near the Hardinge Bridge.

Karnafuli Project envisages a dam some 2,000 feet long and 140 feet high, a spillway and a lock sluice for navigational facilities, and an electrical Power House at Silchari gorge, a place three miles upstream in the Kaptai Reserve Forest of the Chittagong Hill Tracts. Commanding an area of 4,250 square miles, the dam will create a reservoir of 215 square miles. The initial capacity of the power plant will be 80,000 or 90,000 kW. which will rise to 150,000 to 160,000 kW. at the end. Work has already begun involving the *first phase* and has made great headway, much ahead of the schedule.

Tista Barrage Scheme : Examination of this scheme has been completed but no final sanction for starting work has yet been accorded. The dam will cut the Tista by a 3,500 feet long barrage supplying water to a canal and its branches. The scheme covers an area of about 1·6 million acres in the districts of Rungpur, Dinajpur and Bogra.

NORTH-WEST FRONTIER PROVINCE

Dargai Hydro-Electric Project : This is complementary to the Malakand Project which is located in the Upper Swat

Canal. The installed capacity for electric energy is 20,000 kW. generated by four turbo-alternators, each with a capacity of 5,000 kW. The station is working since April 1954 supplying a small quantity of energy.

Kurram-Garhi Project : A barrage is proposed to be constructed in Garhi village on the Kurram-Garhi river, situated at about ten miles from Bannu. There will be a canal on each side of the weir and one on the right side will carry water to a big reservoir constructed at a distance of about three miles down the valley. The work has made good progress and the scheme will be put into service in the very near future. Besides irrigating an area of about 270,000 acres, it will generate 4,000 kW. of energy.

Warsak Dam Project envisages a 235 feet high and 620 feet long dam across the Kabul river near Warsak village situated at about 19 miles from Peshawar for irrigating 93,000 acres of land in the North-Western Frontier Province and generating 150,000 kW of electrical power.

Two other schemes of comparatively minor importance to be taken up in or near about Mardan are (i) the MUGAM MULLAH IRRIGATION SCHEME, and (ii) MAYORE LIFT IRRIGATION SCHEME. The possibility of seven other schemes to irrigate 77,000 acres is being discussed at high level.

PUNJAB

Balloki-Suleimanki Link aims at connecting Balloki and Suleimanki with a view to supplying the surplus water of the Chenab in the months of September and October when the Sutlej gets woefully deficient in water. The **Chenab-Ravi Link** is complementary to the above scheme and having already been in operation, is meeting the deficiency of the Ravi Canals.

Rasul Hydro-Electric Project serves the purpose of bringing the water of the Upper Jhelum Canal to the Lower Jhelum Canal, the water level of which is lower by 85 feet of the Upper. The installed capacity of the two generators is 11,000 kW. each. Construction of the Power Station is nearing completion which is expected to go into production and supply energy within a very short time.

Taunsa Barrage Project : A *multi-purpose scheme* which besides irrigation and generation of power aims also at an improved trans-Indus communication with the help of a roadway 24 feet wide. Below the Jinnah Barrage (at Kalabagh) at a distance of 180 miles downstream a barrage, one mile long, is being constructed for utilising some of the excess water of the Indus for the purpose of irrigation through two canals of the respective capacity of 14,000 and 9,000 cusecs. The roadway will provide a rail and road link between Dera Ghazi Khan and the rest of Punjab. The work is going on in full swing and the earth-works on the Taunsa site are nearly finished.

Thal Project : A bold and very expensive scheme to irrigate about five million acres triangular in shape bounded by the Salt Range, the Indus and the Jhelum in Punjab. Roads and colonisation would be the two added benefits the value of which will be very considerable. Work was started in 1934 and is likely to be finished in the near future.

There are four "*Canal Fall Schemes*" of different magnitude, all aimed at generation of power, the biggest being the Mangla Scheme to generate 45,000 kW. The other three are (i) Chichoki-Millian, (ii) Shadiwal and (iii) Gujranwala, each to generate 12,000 kW. at the final stage.

There are a few other projects in view the most important of which is the *Mianwali Multi-Purpose Project* which when completed will generate 100,000 kW. of power and irrigate 3,20,000 acres of land. The scheme is still in the investigation stage and there have been alterations in the original scheme of using the excess water of the Thal Main Upper Canal for the generation of power.

CHAPTER X

TRANSPORT

ROADS

There are 13,400 miles, approximately, of National Highways and the maintenance and construction of such highways is the responsibility of the Central Government. The State Highways and the District and the Village Roads are maintained by the State Governments.

Out of a total mileage of 248,914 miles of roads (1948) 158,806 miles were unmetalled and 90,108 miles were metalled. Excluding urban roads there were about 1,18,000 miles of all-weather roads.

Insufficiency of roads in this vast country with a very large population living in rural areas is keenly felt by everybody and the "Five-Year Plans" have laid great stress on the development of roads. India aims at developing nearly 3,000 miles of new urban roads and 15,000 to 20,000 miles of village roads. Works in this line have been satisfactory though they have failed to reach up to expectation. During the period 1951-54 about 300 miles of new roads and 20 large new bridges have been constructed. Some very mportant roads have been opened or developed and these include the border roads to connect Tripura with Assam, the Pathankot-Gammu Road, some roads in Sikkim and a portion of the west coast road in Madras and Bombay States. About 150 miles of new roads have been added to the existing total of roads of India.

The number of **automobiles** in all the States of India (1952-53) were thus divided into privately-owned cars 1,55,234, buses 38,728 and trucks 91,125.

In respect of *private cars* distributed Statewise, Bombay leads with 37,315 followed by West Bengal 27,273 ; Madras 23,227 ; Uttar Pradesh 10,112 ; Delhi 7,135 ; Hyderabad 7,090 ; Bihar 6,783 ; Mysore 5,590 ; Rajasthan 4,959 ; Assam 4,728 ; etc.

West Bengal has the largest number of *buses, viz.*, 8,425 and Madras comes second with 6,128. The next places are occupied by the different States in the following order: Bombay 4,511; Uttar Pradesh 3,975; Rajasthan 1,112; Travancore-Cochin 1,612; Bihar 1,417; Punjab 1,413; Assam 1,317; etc.

The largest number of *goods vehicles* are found in West Bengal: 25,918. Though second in position Bombay has only 15,061. The other States have goods vehicles in the following order: Madras 9,319; Uttar Pradesh 6,119; Assam 4,577; Bihar 3,978; Madhya Pradesh 3,460; Punjab 3,004; Hyderabad 3,110; Rajasthan 2,916; Travancore-Cochin 2,131; Orissa 2,110; Mysore 1,630; Delhi 1,586; etc. The number of *motor cycles* are 29,124 and miscellaneous other (motor) vehicles, 5,156.

Bullock carts are about 10 millions (98,63,111) of which Part "A" States have 75,89,367; "B" States 20,09,446 and "C" States 2,64,298. Capital invested on carts is in the neighbourhood of Rs. 3 crores.

The Government investment on public road transport is Rs. 19·85 crores, approximately.

The total and the respective length of the different categories of Extra-Municipal Roads (1948) are given below:

Miles

	Metalled				Unmetalled	Total
	Bituminous	Concrete	Water-bound macadam	Total surfaced		
India *excluding* former Indian States	9,036	652	54,436	64,124	1,14,659	1,78,783
Former Indian States (1944)	1,675	111	24,198	25,984	44,147	70,131
Total	10,711	763	78,634	90,108	1,58,806	2,48,914

Excluding urban roads there are about 1,18,000 miles of all-weather roads.

[**Note**: The roads that are maintained by the Public Works Department, District Boards, Military Engineering Service *excluding* Municipality are known as "Extra-Municipal Roads." The road statistics of India is extremely defective inasmuch as no statistics relating to West Bengal as also roads maintained by Municipalities are available at all. The latest published reports disclose figures for 1950 and not beyond that.]

RAILWAYS

Of the various means of transport the Railways play the most important role inasmuch as they carry 80 per cent. of the goods and 70 per cent. of the passenger traffic of the country. In 1952-53 total mileage of the rail route was 34,274·98 including 7,560 miles added by integration of States. Out of this, single-line-track consisted of 31,084·52 miles and double (or more) line-track 3,190·46 miles.

Working of Railways : (Rupees in crores)

The *Revised Budget* for 1954-55 (and *actuals* for 1953-54)—*figures given within brackets*—show ; (*a*) *Capital-at-charge* as Rs. 894·98 (Rs. 869·30) ; (*b*) *Gross Traffic Receipts* : Rs. 282·80 (Rs. 274·29) and *Miscellaneous Earnings* : Rs. ·07 (Rs. ·31) ; (*c*) Ordinary Working Expenses : Rs. 202·76 (Rs. 201·47) ; (*d*) Appropriation to Depreciation Reserve Fund : Rs. 30·00 (Rs. 30·00) ; (*e*) Payments to Worked Lines : Rs. ·19 (Rs. ·28) giving a total of (*c* + *d* + *e*) WORKING EXPENSES : Rs. 232·95 (Rs. 231·75), resulting in (*f*) NET TRAFFIC RECEIPTS : Rs. 49·85 (Rs. 42·54). After deducting receipts (in Miscellaneous transactions) : Rs. ·06 crores (Rs. ·31) from (Miscellaneous) Expenditure : Rs. 8·38 (Rs. 5·93), (*g*) the Net Miscellaneous Expenditure was Rs. 8·32 (Rs. 5·62). Thus the (*h*) NET RAILWAY REVENUE was Rs. 41·53 (Rs. 36·92). This was distributed as (*i*) *Dividend to General Revenue* Rs. 34·96 (Rs. 34·36) ; showing a (*j*) Net Gain or Surplus : Rs. 6·57 (Rs. 2·56) ; (*k*) Appreciation to Development Fund : Rs. 6·57 (Rs. 2·56).

The Budget for 1955-56 showed (*a*) Capital-at-charge as Rs. 292·50 ; (*b*) Gross Traffic Receipts : Rs. 292·55 ; (*c*) Ordinary Working Expense : Rs. 206·59 ; (*d*) Appropriation to Depreciation Fund : Rs. 35·00 ; (*f*) Net Traffic Receipts : Rs. 50·70 ; (*h*) Net Railway Revenue : Rs. 43·21, (*i*) Dividend to General Revenue : Rs. 36·07 ; (*j*) Net Gain or Loss : Rs. 7·14 and (*k*) Revenue Fund (hitherto named as "Appropriation to Development Fund)" Rs. 7·14.

Reserve Funds : (Rupees in crores)

In respect of Railway Reserve Funds the *Revised Estimates* for 1954-55 and *Actuals* for 1953-54—figures given within brackets

—showed the *Closing Balance* for (*a*) Depreciation Reserve : Rs. 102·68 (Rs. 33·97), ; for (*b*) Revenue Reserve : Rs. 38·37 (Rs. 1·13) ; for (*c*) Development Fund : Rs. 15·62 (Rs. 3·29) ; *Total* : Rs. 149·79 (Rs. 38·39). In the Budget for 1955-56, *Closing Balance* for (*a*) was Rs. 99·31, for (*b*) Rs. 46·87, for (*c*) Rs. 3·61 and the *Total* : Rs. 149·79.

Railway Traffic :

	1954-55	1953-54	1952-53
No. of Passengers (millions)	...	1,179	1,168
Passenger miles "	...	35,215	34,406
Tons of goods carried (thousands)	...	129,009	128,773
No. of Ton miles (millions)	...	29,365	28,539
Total No. of Wagons loaded (thousands)	11,768	11,082	11,413
No. of Wagons (thousands) loaded with :			
Coal and Coke	2,711	2,512	2,635
Grains and Pulses	885	899	949
Oilseeds	183	153	171
Cotton—raw and manufactures	160	153	169
Jute—raw and manufactures	167	168	209
Sugar	158	190	169
Cement	397	344	297

Railway Zones :

The railway system comprising a large number of sections has been regrouped and divided in seven separate zones.

The *Southern Zone* has a route mileage 6,016·97 of which 1,754·05 miles are broad gauge, 4,160·12 miles, metre gauge and the rest, narrow gauge and comprises the Madras and South Mahratta, South Indian and Mysore Railways with headquarters in Madras.

The *Central Zone* has a route mileage 5,427·70 of which 4,091·23 miles are broad gauge, 772·49 miles, metre gauge and 563·98 miles, narrow gauge and comprises the Great Indian Peninsular, Nizam State, Scindia and Dholpur Railways with headquarters in Bombay.

The *Western Zone* has a route mileage 5,468·03 of which 1,266·34 miles are broad gauge, 3,402·18 miles, metre gauge, and the rest, narrow gauge, comprises the Bombay Baroda and

Central India, Saurashtra, Kutch, Rajasthan and Jaipur Railways with headquarters in Bombay.

The *Northern Zone* has a route mileage 6,007·33 of which 3,881·68 miles are broad gauge, 1,997·68 miles, metre gauge and the rest, narrow gauge and comprises the Eastern Punjab, Jodhpur, Bikaner, and the Moradabad, Lucknow and Allahabad divisions of the East Indian Railway with headquarters in Delhi.

The *North-Eastern Zone* has a route mileage 4,766·87 of which only 2·15 miles are broad gauge, 4,712·75 miles, metre gauge and the rest, narrow gauge, and comprises Oudh and Tirhut (Trihut) and Assam Railways with headquarters in Gorakhpur.

The *Eastern Zone* has a route mileage 2,167·24 of which 1,225 miles are broad gauge and 941·97 miles, narrow gauge and comprises the Dinapore, Asansol, Howrah and Sealdah Divisions of the East Indian Railway with headquarters in Calcutta.

The *South-Eastern Zone* has a route mileage 3,500 composed entirely of broad gauge of Bengal-Nagpur Railway with headquarters in Calcutta.

Consumption of Coal :

The Railway consumes (1954) 11,419,000 tons of coal which is the largest single unit of consumption and constitutes 31·0 per cent. of the total production of coal in India.

Contribution to Central Revenue :

The contribution of the Railways to the Central Government Exchequer is (1956-57 Budget) Rs. 6·57 crores.

SHIPPING

The number of companies at the end of 1954 were 30 with 130 ships and the g.r.t. was 474,000. At the end of 1955 it stood at 480,000 g.r.t.

From 1950 the coastal trade of India has been reserved for Indian ships. From 1951 the Indian Coastal Conference, consisting primarily of Indian shipping companies commenced functioning and the two British shipping companies operating in India became Associate Members of the "Conference."

Total (Indian) tonnage is less than one-half of one per cent. of total world tonnage of 88 million gross tons ; but the total value of Indian trade is about 2½ per cent. of total world trade. India hardly carries 6% of her total overseas trade.

The total freight and passenger earnings of Indian companies on the coastal trade (1953-54) amounted to Rs. 11·93 crores.

The total cargo moved round the coast in 1953 was 25 lakh tons out of which coal comprised 12 lakh and salt 3 lakh tons.

Total Indian shipping tonnage employed in overseas trade (1953) was 176,300 g.r.t. and freight earnings amounted to Rs. 8·59 crores. Thirty-four ships aggregating 225, 560 g.r.t. ply at present on six overseas routes. On four of the six routes only cargo and on the rest passenger-cum-cargo is carried.

Trading Merchant Vessels Registered in India (1953) excluding Vessels with tonnage below 100 tons were divided as follows :—

	No.	g.r.t.	per cent.
Up to 1,000 tons	28	16,544	3·8
1,001-2,000 »	20	28,917	6·6
2,001-3,000 »	1	2,410	0·6
3,001-4,000 »	7	26,508	6·1
4,001-5,000 »	11	51,324	11·8
5,001-6,000 »	21	112,130	25·7
6,001-7,000 »	4	26,712	6·2
7,001-8,000 »	21	153,744	35·3
8,001-9,000 »	2	16,914	3·9
Total	115	435,203	100·0

INLAND WATERWAYS

Inland navigation which had served India as the cheapest and the most convenient transport in the past, received a serious set back by silting up of the rivers and development of power transport particularly on the land, "but the lack of co-ordinated authority to maintain the waterways, and provide navigational facilities, has been the greatest impediment to the development of our waterways." Still there is a large scope for this type of

age-old transport and at the present moment, after a struggle carried on for over a century, the country boats which have not changed either in shape or the mode of their operation, hold an important position in this sphere. They carry even today many times the traffic dealt with by the inland steamers. Navigation by country boats is a source of great advantage to the public inasmuch as they may negotiate reaches where the steamers are ineffective and the other forms of transport are helpless.

According to the Central Waterways, Irrigation and Navigation Commission, "The total length of waterways in India affording perennial flow amounts to about 25,000 miles, comprising 10,000 miles of rivers and 15,000 miles of canals. Of the former, approximately 6,000 miles are navigable to a minimum of about three feet draught, and of these about 5,000 miles are in Bengal and Assam. The canals are mostly for irrigation, but it is estimated that about 4,000 miles would be suitable for power-driven carft, and the ramainlng 11,000 miles could be utilised for boat traffic."

As a great source of potential navigation in the rivers, survey has been carried out, and it has been found out that over 2,500 miles out of 5,158 miles of navigable waterways in India comprising (i) 1,557 miles of river navigable by steamers; (ii) in addition to above, 1,432 miles of river navigable by large country boats, and (iii) 2,169 miles of canals navigable by country boats. It has to be remembered that these "exclude the tidal creeks of the coast which are not connected with any inland transport system." In this vast country there are only seven States, *viz.*, West Bengal (the Ganga and the Brahmaputra), Assam (the Brahmaputra), Bihar (the Ganga), Orissa (the Mahanadi canals), Madras and Andhra (the Buckingham canal and the west coast canals), Travancore-Cochin (the back waters and other canals) and Bombay (Narmada, Tapee) where inland transport holds an important place of its own. The present position of the inland waterways has been summarised (1947) by the said Commission in the following words :—

"Canal navigation is still active in the Madras Presidency where the important waterways are the Godavari Canals, the

Buckingham Canal, the Kurnool-Cuddapah Canal, the West-Coast Canals and the Vedaranniyam Canals. The Godavari, the Krishna and the Kurnool-Cuddapah Canals are used both for navigation and irrigation, while the others are intended for navigation only. In the Godavari and Krishna deltas, the navigable canals are the main highways, and afford cheap and ready mode of access to all markets. The Buckingham Canal has played an important part in the trade of the country traversed by it, and, in particular, during the last War when the traffic was heavy, afforded considerable relief to railways. On the West Coast, the waterways form the chief means of communication and transport in the interior of the country. There are some 250 miles of navigable canal in use in Orissa."

When the multi-purpose development schemes of irrigation and power will have been completed, navigability of the rivers and canals by boats is sure to increase a good deal due to opening of new waterways and conservation of larger quantity of water in the rivers. Those that are likely to be benefited by the newly constructed dams are as follows ;

The Kosi and the Sone rivers, by the Kosi and Rihand dams, respectively, in *Bihar.*

The irrigation-cum-navigation Canal from Durgapur under the Damodar Valley Project to connect Raniganj coalfields with the Hooghly and Calcutta ; and (ii) the Ganga Barrage Scheme connecting the Ganga with the Bhagirathi in *West Bengal* ; Development of navigation on the Mahanadi from Hirakud about 300 miles to the sea by the Hirakund Dam Project in *Orissa* ; Dams on the Narmada and (Tapee) Tapti to provide navigation facilities on these rivers in *Madhya Pradesh.* The Kakrapur Project to provide navigable channels from the sea to the Kakrapur Dam and 50 miles farther inland in *Bombay.* Extension of navigation facilities by the construction of reservoirs on the Godavari and Krishna in *Madras.*

Inland transport—the organised companies and the country crafts—provide direct **employment** to nearly **200,000 people** in India, of which the *major transport companies have* 12,000 as floating staff and 20,000 as shore establishment. The number

of persons *engaged in country crafts* : West Bengal : Hooghly River 60,000 ; Madras : Buckingham Canal 15,000 ; Orissa rivers 5,000 ; Travancore-Cochin 55,000.

The Ganga system has been given, as a result of the survey, priority for renovation in the following order :

Ganga-Buxar to Allahabad	232 miles
Ghagra-Bardaj to Bahram Ghat	180 »
Gandak-Patna to Sinai Ghat	100 »

As the work progresses, other schemes will be taken in hand in due course. Improvement in inland navigation system will relieve congestion from other means of transport, particulary the Railways, and the bottleneck of movement of goods will be removed to a large extent.

AVIATION

India is taking a very important place in world aviation and the progress is steady. For a fairly long time, due to losses suffered by private companies, the Government of India subsidised private companies, and as from August 1953, the nationalisation of the industry has been complete.

Under the Air Corporation Act, 1953, (1) the Airlines Corporation for the operation of the internal air services, and the services to the neighbouring countries like Burma, Ceylon and Pakistan, and (2) the Air India International for operating long distance international services, were constituted on June 15, 1953. On August 1, 1953, the Corporation took over the management as well as the undertakings of the private air transport companies which had been running at a loss during the previous many years.

India enjoys the privilege of maintaining regular service to Aden, Afghanistan, Bangkok, Burma, Cairo, Ceylon, Geneva, London, Nepal, Pakistan, Paris, Rome and Singapore.

The number of aircraft holding current *certificate of registration* was 547 (in January, 1956) out of which only 210 (38·8%) held certificate of airworthiness.

In 1955 planes of the Civil Aviation Department flew (*approximately*) 21,141,700 aircraft miles,—the corresponding figures for 1954 are given within brackets—(19,713,600), for 114,803

hours (116,962), with 462,463 passengers (427,524). They also carried 43,630·46 tons of freight (38,318·93) and 4,789·56 tons of mail (4,707·21). The available ton/mile capacity for 1955 was 73,807,476 (61,913,766), the total Load ton/mile being 55,732,250 for 1955 and 40,382,336 for 1954.

Aerodromes

There were 78 aerodromes in India on 1. 9. 54 of which the following are classed as "*International*" :

Bombay (Santa Cruz) ; Calcutta (Dum Dum) ; Delhi (Palam).

The *Major* aerodromes are : Agartala (Tripura) ; Ahmedabad ; Begumpet (Hyderabad) ; Delhi (Safdarjang) ; Gauhati ; Madras (St. Thomas Mt.) ; Nagpur.

The *Intermediate* aerodromes are : Allahabad ; Amritsar ; Aurangabad (Hyderabad) ; Bagdogra (West Bengal) ; Balurghat (West Bengal) ; Banaras ; Baroda ; Barrackpore ; Bhavnagar ; Bhopal ; Bhuj (Kutch) ; Bombay (Juhu) ; Coimbatore ; Cuttack (Bhubaneswar) ; Gaya ; Indore ; Jaipur ; Junagarh (Keshod) ; Lucknow (Amausi) ; Madurai ; Mangalore (Bajpe) ; Mohanbari (Assam) ; Patna ; Porbandar (Saurashtra) ; Rajkot ; Tezpur (Assam) ; Trivandrum ; Vijayawada ; Vishakhapatnam.

The *Minor* aerodromes are : Akola ; Asansol ; Bareilly ; Belonia (Assam) ; Bilaspur ; Chakulia (Bihar) ; Cuddapah (Andhra) ; Donakonda (Madras) ; Gorakhpur (Kusmi) ; Jhansi ; Jharsuguda (Orissa) ; Jabalpur ; Kailashahar (Assam) ; Kamalpur (Assam) ; Kanpur ; Khandwa ; Khowait (Assam) ; Kohlapur ; Kotah ; Lalitpur (U.P.) ; Manipur Road (Assam) ; Mysore ; North Lakhimpur (Assam) ; Palanpur (Bombay) ; Pasighat (Assam) ; Raipur ; Rajahmundry ; Ramanathapuram ; Ranchi ; Saharannpur ; Shella (Assam) ; Sholapur ; Tanjore ; Tiruchirapalli ; Udaipur ; Vellore ; Warangal.

PAKISTAN

ROADS

Total mileage : 58,009 miles ; "High" Type 8,352 miles ; "Low" Type 49,657 miles.

These exclude Municipal, District Board and M. E. S. Roads.

Motor Vehicles (1952)

Private Cars 34,021 ; Motor Cycles 6,738, Buses 6,301, Trucks 9,820 ; Taxis 1,764 ; Miscellaneous 252. *Total* 58,896.

Road Mileage

	High grade	Low grade	Total
East Pakistan	757	25,138	25,895
Punjab	4,387	12,302	16,689
N.-W. F. P.	999	1,405	2,404
Sind	758	1,436	2,194
Baluchistan	661	1,398	5,869
Baluchistan States Union	—	1,810	
Bahawalpur	88	1,925	2,013
Khairpur	57	971	1028
Frontier Regions	370	1,045	1,415
Karachi	275	227	502
Total	8,325	49,657	58,009

RAILWAYS

Pakistan has a railway *route mileage* of 7,058 of which (*a*) North-Western Railway in West Pakistan has 5,362 miles (Broad gauge : 4,561 miles, Metre gauge : 318 miles, and Narrow gauge : 482 miles) and Eastern Bengal Railway in East Pakistan has 1,696 miles (Broad gauge : 544 miles, Metre gauge : 1,132 miles, and Narrow gauge : 20 miles).

With regard to *Finance*, *Traffic Receipts* amounted to Rs. 45 crores in 1952-53 and the Revised Budget for 1953-54 and Budget Estimates for 1954-55 showed Rs. 45 crores and Rs. 46 crores, respectively. The *Working Expenses* were Rs. 38 crores in 1952-53 and the Revised Budget for 1953-54 and Budget Estimates for 1954-55 showed Rs. 39 crores and Rs. 40 crores, respectively, showing a surplus balance of Rs. 7 crores for 1952-53 and Rs. 6 crores each in the Revised Budget and Budget estimates of 1953-54 and 1954-55.

SHIPPING TONNAGE

		No.	g. r. t.	% of Total
Below	1,000	7	3,557	2·5
Between	1,000 and 2,000	1	1,306	·93
Between	2,000 and 3,000	nil	...	...
Between	3,000 and 4,000	2	6,430	4·6
Between	4,000 and 5,000	5	22,806	16·2
Between	5,000 and 6,000	5	25,863	18·4
Between	6,000 and 7,000	2	13,122	9·3
Between	7,000 and 8,000	8	58,631	41·8
Between	8,000 and 9,000	1	8,787	6·2
	Total	31	140,502	

Of the 31 ships 27 are cargo vessels, 2 are combined passenger-cum-cargo, 1 is an oil-tanker and 1 is a deep-sea tug.

Tonnage handled—in 000's (1953)

	1951-52	1952-53
Karachi	3,778	3,995
Chittagong	1,649	1,705
Chalna	249	426

INLAND WATERWAYS

Navigable Inland Waterways in East Pakistan are 2,670 miles, approximately. About 1,000 self-propelled vessels owned by 100 public and private carriers ply on them besides a large number of country crafts. The largest, the Joint Steamer Co. handle about 75% of the total cargo.

AVIATION

The important aerodromes in West Pakistan are at Karachi, Lahore, Quetta, Peshawar, Hyderabad (Sind) and Multan and in East Pakistan are at Dacca, Chittagong and Sylhet. The two main operating air companies are the Pak Air Services and the Orient Airways.

CHAPTER XI

PORTS

The coast lines of India extending over 3,500 miles (4,000 miles including the Island coasts) from Kutch to West Bengal have, because of their respective positions on either side of the mainland, been known as the Western and the Eastern Coast of India. The major part of the Western Coast has been sub-divided into the Konkan Coast running from Daman on the north bordering Thana, Kolaba, Ratnagiri districts of Bombay State upto and including Goa. The coast line of the North Kanara (Bombay), the South Kanara and Malabar districts (Madras) and Travancore-Cochin State has been known as the Malabar Coast.

The East Coast extending from Cape Comorin to the mouths of the Mahanadi River in Orissa is known as the Coromandel Coast. The portion between Cape Comorin and the mouth of the Krishna River on the fringe of Tirunelveli, Ramnathapuram, Tanjore, the South Arcot, Chingleput (Madras) and Guntur (Andhra) districts is known by the Karnata (Carnatic) Coast and the Northern Circars Coast covers the border of the Krishna, the West Godavari, the East Godavari, Visakhapatnam, Srikakulam (in Andhra), Ganjam, Puri and Cuttack (in Orissa) districts lying between the mouth of the Krishna and the mouths of the Mahanadi.

India is fortunate in having 227 ports declared open under the Indian Ports Act, out of which about 157 are '*Working Ports*'. Of the total number, 6 are '*Major*', 22 '*Intermediate*' and 67 '*Minor*' ports, the rest can only provide improvised facilities as 'sub-ports' for the purposes of occasional but small trade or for carrying passengers, etc.

It is not very easy or feasible to draw a line distinguishing the 'intermediate' and the 'minor' ports. The Ministry of Transport in its *Report on the Survey of Minor Ports in India*, has, however, tried to enumerate, on the lines of the Ports (Technical) Committee, the broad characteristics that mark the different categories of the ports of India.

According to the said Report a **Major Port** is "capable of taking in ocean-going steamers with a registered tonnage of 4,000 or more and berthing them alongside the wharves." They are directly under the control of the Central Government. The **Intermediate Ports** are classed as such because of their "capacity to handle 100,000 tons or more of cargo per year or are otherwise important". The third group, the **Minor Ports,** can "handle cargo tonnage below 100,000 tons but not less than 1,500 tons or which have an importance for any other reason such as passenger amenity, customs or naval requirements, etc."

The number and the different categories of Ports in the coastal States of India may be tabulated in the following manner :—

State	Total	Working	Major	Intermediate	Minor
Kutch	7	7	...	1	1
Saurashtra	60	29	...	5	9
Bombay	87	80	2	4	40
Travancore-Cochin	9	7	1	5	1
Madras	54	30	2	7	13
Orissa	9	3	...	...	3
West Bengal	1	1	1	...	...
Total	227	157	6	22	67

The rest are of little significance but can serve as touching points of sailing vessels and have been left out of account in the above list.

In 1954-55 the total number of vessels that entered the different ports of India with cargo (including a few of the Intermediate Ports) was 2,744 of which 2,347 were *steamers* and 397 were *sailing vessels.* The total tonnage of these vessels was 9,223,335 and 43,788, resepectively. Likewise the vessels that cleared with cargo were 3,647 in number, 2,632 steamers and 1,015 sailing vessels of 9,400,759 and 100,613 tonnage, respectively. The value of total *Exports* including *Re-export* of Foreign Merchandise and 'Treasure' was Rs. 579,66,79,493 and of *Imports,* including 'Treasure' was Rs. 617,40,14,109.

Both foreign and costal trade of India is expected to rise with further development of the internal resources, natural and

industrial, of the country. More facilities for handling the additional products at sea coasts are necessary. It is also that the possibilities of future wars of vast magnitude are not ruled out altogether when more berths at intermediate ports and improvised facilities at minor ports would be essential for successful execution of the war. There are immense possibilities of improvement of the ports and the Government of India have rightly directed their efforts to this end. Kandla (Kutch) is going to be a major port. Some other ports of Kutch and Saurashtra, such as Bedi Bunder, Navlakhi, Bhavnagar and Okha of Bombay are enjoying their respective shares of attention and would rise to the status of major ports in the course of a few years. Such ports and a fairly large number, such as Mangalore, Calicut, Cuddalore, Kakinada, Alleppey, Broach, Koilthottum, Ghogha, Dahanu, Dabhol, Ratnagiri, Billimora, Jaitapur, Vengurla, Honavar, Coondapur, Badagara, Masulipattam, Azhikkal, Dhanuskodi, Tadri, Malwan deserve special attention in view of their present positions of importance and the future possibilities of improvement. Loss of Karachi has forced India to resort to measures for the speedy improvement of the Kutch and Saurashtra ports and this has met with considerable success.

It would be an inestimable boon as the ports would beautify her shores, the coast line dotted with attractive and useful spots with cities and business centres growing apace. Everything developing according to plan, the day is not far off when by her peculiar position as a central spot in the Eastern Hemisphere, at the head of the Indian Ocean, between Africa on the West and Malay and Australia on the other side at a distance of a few thousand miles, India will attract more trade and rise in greater importance.

PORTS ON THE INDIAN COAST

Achra (Bombay): A *minor port* on the Achra River, 172 miles south of Bombay in Ratnagiri District.

Albert Victor (Saurashtra): In the former Bhavnagar State, on the south-west corner of the Gulf of Cambay. It is a *minor port* situated at a distance of about 120 miles from Bhavnagar. Once an important passenger port, now used for *importing* mainly

cotton seeds, timber and tiles and *exporting* onions amongst other articles.

Alibag (Bombay): Situated at about a distance of 22 miles south of Bombay in Kolaba District on the northern bank of the Alibag Creek. The principal *exports* are fish, timber, etc., and *imports* : oils, cotton, ghee, etc.

Alleppey or ALLAPALLI (Travancore-Cochin): An **intermediate port** about 33 miles south of Cochin and 610 miles south of Bombay. It is the second important port of Travancore-Cochin. The staple *imports* are building and engineering materials, chemicals, dyeing and tanning substances, machinery, salt, textiles, foodgrains, etc., and the *exports* chiefly comprise coir and coir products, jute, sand, oil, spices, firewood, etc.

Andaman (Bay of Bengal) GROUP of PORTS : Anson, Campbell, Movat, Macpherson, Temple Sound on the west coast ; Port Blair, Cornwallis, Meadows, Stewart Sound, Elphinstone Harbour and Colebrook Passage on the east coast. Almost all the ports can be visited by steamers. The principal *exports* are timber, coconut, hemp, rubber, aloe, turmeric, red ochre, etc., and *imports* : foodgrains, kerosene, cotton goods, etc.

Ankola (Bombay): A *minor port* on the Ankola Creek, about 18 miles south of Karwar and 283 miles south of Bombay. The trade through this port is rather small.

Arnala or DANTIVRA (Bombay) : 8 miles north of Bassein, off the mouth of the Vaitarana River in Thana District. The chief *imports* are Mangalore tiles, oilcakes, cement, etc. ; and *exports* : firewood, fish, bananas, etc.

Azhikkal (Madras): In Malabar District about 7 miles north of Cannanore ; situated at the mouth of the Baliapatnam River. The chief *exports* are timber, coconuts, dry salted fish, fish oil, coir ropes, planks and sleepers, etc., and *imports* : salt.

Badagara (Madras) : A *minor port* in Malabar District about 23 miles north of Calicut, 93 miles south of Mangalore and 10 miles south of Tellicherry. The chief item of *imports* is salt and those of *exports* : coconut, copra and pepper.

Baindur (Madras) : In Malabar District on the Baindur River ; about 76 miles north of Mangalore. The principal items of *imports* are salt and Mangalore tiles, and *exports* : firewood, fish, timber, etc.

Balasore (Orissa) : On the Burhabalang River about 16 miles inside from the sea. The chief *imports* are cotton yarn and textiles, kerosene, coal and general goods ; and *exports* : handloom products, tobacco, foodgrains, etc.

Bandra (Bombay) : Situated seven miles north of Bombay in Thana District at the mouths of the Mahim Creek and the Bandra Creek. Trade is absolutely limited to indigenous products, such as, timber, firewood, coir, etc.

Bankote (Bombay) : A *minor port* on the Bankote Creek about 66 miles south of Bombay ; at about two miles inside from the mouth of the Savitri River, in Ratnagiri District. *Imports* are mainly composed of coconuts, salt, betelnuts, Mangalore tiles, foodgrains and cereals, kerosene ; and *exports* : rice, firewood, bricks, onions, myrobalans, etc.

Bassein (Bombay) : A *minor port* situated within three miles from the entrance of the creek and 29 miles north of Bombay. It is losing much of its importance due to rising difficulties of sandy bars. Trade is limited to coastal ports handling mainly wood, salted fish, cereals, etc.

Bedi (Saurashtra) : An **intermediate port** four miles from Jamnagar on the southern side of the gulf of Kutch ; about 372 miles north-west of Bombay and about 50 miles north-east of Okha. It may be taken as a cluster of three minor ports, *viz.*, Salaya, Sika and Jodiya. The principal *imports* are cotton seeds, kerosene, cement, tiles, gunny bags, timber ; and *exports* : salt, garlic, pulses, ghee, cement, etc.

Belikeri (Bombay) : A *minor port* but it is more known as a health resort. It is situated on the mouth of the Belikeri Creek, in the North Kanara District, 14 miles south of Karwar. Trade both imports and exports is of no great importance.

Beypore (Madras) : Is a sub-port of KOZHIKODE and is about 6 miles south of it.

Bhagwa (Bombay) : Is situated about 20 miles north of Surat (in Surat District) on the Sena Creek, two miles inside the channel.

Bhatkal (Bombay) : A *minor port* situated on the Sherabi River in the North Kanara District, 90 miles south of Marmagao and forms the southernmost port of Bombay State. It may serve as an opening of Bhadravati District (Mysore) which is endowed with many resources. The small trade at present consists of *imports* of foodgrains, pulses, tiles, coconut oil, oil-cakes, cotton seed, cutlery, etc., and *exports* : wood, cashew-nuts, salt, dry fish, wood, etc.

Bhavnagar (Saurashtra) : An **intermediate port**, the most developed of the State, situated on a creek of the same name, the estuary of the Malubhar River. Its importance lies in the fact that it is the nearest port in Saurashtra for Rajasthan and parts of North Gujarat. It handles *imported* cargoes of foodgrains, coal, cotton, cotton textiles, timber, metal-wares, chemicals, etc. and *exports* onions, groundnuts, oilcakes, oil, cotton, etc. The Bhavnagar Group of Ports comprise Talaja, Mahuva, Albert Victor, Bherai and Jafarabad.

Bheemanipattam or BHIMLIPATAM (Andhra) : Situated on the Gosthani River, about 22 miles north of Visakhapatnam in the same district. It is mainly the *exports* of jute, groundnuts, myrobalans, niger seed, hemp, palmyra fire, gingelly seed, etc. which have added a good deal of importance to this *minor port*. The *imports* are negligible.

Billimora or BULIMORA (Bombay) : A *minor port* situated about 12 miles inside the Ambika Creek, in Surat District, and 31 miles south of Surat. It is about 135 miles north of Bombay by the coast. The chief *imports* are onions, tiles, oils, fish, etc., and *exports* comprise foodgrains, pulses, oil, oilcake, bricks, jaggery, firewood, tamarind, bamboos, etc.

Bombay : The *Bombay Harbour* : The most important **major port** in India on her west coast handling the highest quantity of merchandise both exports and imports. It is situated midway between Karachi and Cochin ports, the distanee from the two being 580 and 505 miles, respectively. As a harbour it is

one of the best in the world with the city of Bombay behind, to which both nature and man have combined to add beauty and elegance in an abundant measure.

In 1954-55 not less than 1,075 steamers of a total of 5,024,738 tonnage entered and 903 steamers of a total of 1,013,172 tonnage cleared with cargoes.

Broach (Bombay): An **intermediate port** situated at a distance of about 176 miles from Bombay, coastwise, in the district of Broach. It occupies a position about 32 miles inside the Gulf of Cambay and on the river Narbada which is navigable during all the seasons of the year. Of the intermediate ports of Bombay, Broach holds the second place in importance which handles *imports* of coconuts, dates, tiles, timber, oils, stones, etc., and *exports* of cotton, pulses, bamboos, cotton seeds, teak wood.

Bulsar (Bombay): A *minor port* situated on the Auranga River in Surat District, at a distance of about 104 miles north of Bombay by the sea-coast. Trade is rather insignificant, mainly confined to Mangalore tiles as *imports* and timber as *exports*.

Calcutta (West Bengal): The *Calcutta Harbour*: It is far into the land through the Hooghly at a distance of about 80 miles from the mouth of the river. It is the second **major port** of India, second only to Bombay. It has gained enormous importance due to *exports* of jute products, tea, coal and metal products. In 1954-55, 341 steamers of a total of 1,221,335 tonnage entered and 510 steamers of a total of 1,849,766 tonnage cleared with cargoes to different countries.

Calicut or KOZHIKODE (Madras): An **intermediate port** in Malabar District; about 76 miles north of Cochin and 504 miles south of Bombay by the coast. It is an open sea roadstead with a great cargo handling capacity. The chief *imports* are foodgrains, dates, kerosene, cotton textiles, and *exports*: tea, pepper, timber, coir, copra, coffee, ginger, etc.

Calimere (Topputurai Point, Madras): On the Coromandel Coast is a port of very minor importance in Tanjore District, *importing* lunemedalla logs and *exporting* bricks.

Calingapattam (Andhra) : A *minor port* on the Coromandel Coast, in Srikakulam District, about 72 miles north of Visakhapatnam and 388 miles north-east of Madras, both coastwise. It is situated on the southern side of the Vamsadhara River. The main *exports* are groundnut and jute ; *imports* are negligible.

Cambay (Bombay) : A *minor port* situated about 235 miles north of Bombay by the coast, in Kaira District, on the north-eastern head of the Gulf of Cambay and the estuary of the Mahe River. The principal *imports* are timber and tiles ; and *exports* : tobacco, wheat, etc.

Cannanore (Madras) : A *minor port* in Malabar District, about 39 miles north of Calicut and 77 miles south of Mangalore.

Chandbali (Orissa) : It is only a *minor* river *port* 15 miles inland through the Baitarna River and 38 miles from the sea anchorage. It is connected with Cuttack by a navigable river. The principal *imports* are cotton textiles, gunny bags, salt, kerosene, etc. Rice is the main *exportable* goods.

Cochin Harbour (Travancore-Cochin) : A **major port** on Malabar Coast (with the Willingdon Island) "is situated 580 miles south of Bombay in the centre of Kerala.....the finest natural harbour in the East". One of the three major ports, the other two being Bombay and Marmagao, on the west coast of India. In 1954-55 steamers of a total of 738,640 tonnage numbering 179 entered and 255 steamers of a total of 1,013,172 tonnage cleared with cargoes valued at Rs. 31,84,15,309 and Rs. 53,96,81,498 respectively. The principal *exports* are : coir produce, tea, coconut oil, rubber, cashew-kernels, etc. and *imports* : coal, foodgrains, cashew-nuts, petroleum, seeds, oilcakes, etc., etc.

Colachel or KOLACHEL (Travancore-Cochin) : Situated at about 30 miles south of Trivandrum and 22 miles north of Cape Comorin, it forms the southernmost port of the State. The principal *exports* are sand and palmyra fibre, monazite, zircon, rutile, ilmenite sands, dry fish, etc.

Coondapur (Madras) : A *minor port* about 60 miles north of Mangalore in the South Kanara District, on the west coast of

the Gangooli River. Salt, copra, gram, pulses and sugar are the principal *imports* ; while *exports* comprise tiles, firewood, timber, fish, coir, etc.

Cuddalore (Madras) : An **intermediate port** situated about 18 miles north of Porto Novo and 13 miles south of Pondicherry and 105 miles south of Madras by the coast, is the principal port and headquarters of the South Arcot District. The chief *imports* are coal, betelnuts, timber, foodgrains, palmyra rafters, etc. and the *exports* : groundnut kernel, groundnut oil, cotton textiles, earthen-ware, etc.

Cuttack (Orissa) : On the Mahanadi, 50 miles inside from the mouth ; about 254 miles south-west of Calcutta. It has lost much of its importance due to the development of trade by rail.

Dabhol (Bombay) : A *minor port* in Ratnagiri District, about 85 miles south of Bombay on the Vashishti River (about a mile inside from its mouth). Tiles, salt, foodgrains are the principal *imports*, while myrobalans, wood and timber, betelnuts are chief articles of *export*.

Dahanu or DAHAM (Bombay) : A *minor port* on the northern bank of the Khonda Creek (Thana District) and 64 miles north of Bombay. Timber, charcoal, etc. are *exported* and *imports* are quite negligible.

Daman (Goa) : A Portuguese Port on the Damanganga River, about 92 miles north of Bombay. The chief *imports* are wines and spirits, groceries, onions, etc., while *exports* are restricted to timber, salt, etc.

Dehej (Bombay) : A *minor port* in Broach District, on the Ban Creek, 12 miles north of Broach and 6 miles from Jambusar towards south-west. The principal *imports* are animals, timber, tiles, building materials and *exports* are animals.

Deogad or DEVGAD (Bombay) : A *minor port* at the mouth of the creek of that name, in Ratnagiri District, about 160 miles south of Bombay and 40 miles of Ratnagiri by the sea-coast. The principal *exports* are mangoes, sugarcane, myrobalans, hemp, and *imports* : foodgrains, kerosene, etc.

Devipatnam (Madras) : In Ramnathapuram District on the Palk Strait. It is 25 miles north of Pamban and 17 miles south of the Tondi Ports. As a port, it has almost no significance but is looked upon as a place of pilgrimage.

Dhanushyakodi or DHANUSKODI (Madras) : A *minor port* in Ramnathapuram District on the south-eastern tip of Rameswaram Island at the end of the Palk Strait. It is 82 miles and 132 miles north-east of Tuticorin and of Cape Comorin, respectively. It is really the last tip of land on the eastern coast of India, Rameswaram Island being connected with the mainland by a bridge 1½ miles long. It is a very important port from the point of view of passenger traffic. The principal items of *imports* are arecanuts, hides and skins. *Exports* comprise dried fish, onions, vegetables, cotton textiles, etc.

Dholera (Bombay) : It is a *minor port* in Ahmedabad District on the western side to the entrance of the Sabarmati River, in the western area of the Gulf of Cambay. It is about 215 miles north-north-west of Bombay. The chief *imports* are coconuts, bamboos, cotton seeds, etc. and *exports* : mustard, sesamum, ghee, chillies, etc.

Diu (Saurashtra) : It is a Portuguese settlement. The port is situated about 158 miles from Bombay by the coast. As a port it has no significance except that some quantities of fish and poultry are *exported* from time to time.

Dwarka (Bombay) : In Amreli District, a *minor port* at the mouth of the Gomti Creek between Porbandar and Okha—21 miles south-east of the latter. The *exports* are wool, cement, fish, etc.

Ghogha (Bombay) : A tidal port situated on the western side of the Gulf of Cambay in Ahmedabad District. The principal items of *imports* are kerosene, cotton seed, etc., while *exports* are onions, sand, clays, pulses, chillies, etc. It has been recognised as a "*minor port*" of Bombay.

Gopalpur (Orissa) : A *minor port* in Ganjam District ; the last port at the south-eastern end of Orissa State. It is 102 miles north-east of Visakhapatnam. *Imports*, principally, are gram, dhal, piecegoods, wine, sugar, cotton yarn, matches,

etc., and *exports* : seeds, grains, turmeric, coconuts, cashew-nuts, etc. The hinterland of Gopalpur is rich in agricultural and forest produce.

Hangarkatta or BARKUR (Madras) : A *minor port* in the South Kanara District situated at the mouth of the Hangarkatta (Sitanadi) River at a distance of 12 miles south and 48 miles north of Coonadpoor and Mangalore, respectively. The principal *imports* are salt, grain, vegetable oil, etc., and *exports* comprise chiefly tiles, timber, firewood and only a few others.

Harnai (Bombay) : Bombay is about 72 miles north and Dabhol, 15 miles south of this *minor port* in Ratnagiri District. It handles onions, sugar, kerosene, foodgrains, etc. as *imports* and myrobalans, betelnuts, fresh and salted fish, etc. as *exports*.

Honavar or HONAWAR (Bombay) : A *minor port* in the north Kanara District situated at the mouth of the Shiravati River at a distance of 297 miles and 32 miles south of Bombay and Karwar, respectively. The *import* cargo consists of tiles, oils, foodgrains, suggar, coffee, piecegoods, etc., and the *exports* : salted fish, nuts, etc.

Jafarabad (Saurashtra) : A *minor port* belonging to the former Janjira State on the Jafarabad Bay. It is 60 miles south-west of Bhavnagar and about 125 miles north-west of Bombay. It is, as a port, of no significance, dealing in *export* of local produce such as cotton, salt, etc.

Jaigad or JAYAGAD (Bombay) : A *minor port* at the mouth of the river Shastri in Ratnagiri Distsict, 172 miles south of Dabhol by the coast. The chief items of *imports* are rice and other foodgrains, tiles and general merchandise ; and *exports* comprise timber, myrobalans, mangoes, etc.

Jaitapur (Bombay) : A *minor port* in Ratnagiri District on the Rajapuri River about a mile inside from the mouth. The distance from Ratnagiri is about 23 miles towards south. General cargo, foodgrains and tiles are articles of *imports* while *exports* comprise hemp, bamboos, mangoes and mango pickles, etc.

Jakhau (Kutch) : On the south-western coast of Kutch. *Imports* comprise foodgrains, cotton seeds, groundnut oil, timber, etc. and *exports* : bones, skin and hair of animals, millets, etc.

Jodiya (Saurashtra) : One of the *minor ports* of the Bedi Group on the southern side of the Gulf of Kutch. *Imports* are kerosene, seeds, tiles, timber, etc.

Kakinada or COCANADA (Madras) : An **intermediate port** in the West Godavari District, situated at a distance of 80 miles and 277 miles south of Visakhapatnam and Madras, respectively. Chief *imports* are petrol, kerosene, fuel oil, etc. The *exports* are rice, paddy, tobacco, palmyra fibre, bones, oilseeds, etc.

Kallayi (Madras) : Is situated 5 miles south and 8 miles north of Tellicherry and Badagara, respectively, in Malabar District. It occupies a position on the north of the river Mahe. The cargo handled by the port is tiles as *imports* and coconuts, coir, mango planks, etc. as principal *exports*.

Kalyan (Bombay) : A *minor port* in Thana District, situated a few miles north of Bombay. It handles small cargo of *imports* of fish, tiles, timber, etc., and *exports* of bricks, sand and only a few others.

Kandla Harbour (Kutch) : Regarded as a **major port,** it is situated on the Kandla Creek about 5 miles from the mouth of the Creek. Kandla is about 80 miles north-east of Okha. The principal *imports* are kerosene, sugar, building materials, metal-wares, etc.

Karanja (Bombay) : A *minor port* in Kolaba District, south-east of Bombay Harbour *importing* kerosene, petrol, sugar, etc. and *exporting* salt, etc.

Karwar (Bombay) : An **intermediate port** on the Karwar Bay in the North Kanara District at the mouth of the Kalinadi River. It is about 42 miles south of Marmagao. The chief *imports* are general cargo, tiles, etc. ; while the *exports* comprise timber, firewood, potatoes, fish, etc.

Kasargod (Madras) : A *minor port* in the South Kanara District on the Chandragiri River. It is 21 miles south of Managalore by the coast. The *import* is almost nil so far as foreign articles are concerned and the intercoastal trade relates to chillies, grain, etc., and timber is found in the *export* list.

Kavi (Bombay): A *minor port* situated on the south of Cambay, at the mouth of the river Mahe. It has a fairly good trade in groundnut, oil, coir, chillies on the *import* side while cotton, timber, earthen-ware are found in the *export* list.

Kelwa (Bombay): A *minor port* practically of no importance in Thana District on the Danda Creek, midway between Dahanu and Bassein. *Imports* are coke and coal ash and *exports*: chunam.

Kilakarai (Madras): On the Gulf of Mannar between Dhanuskodi and Tuticorin in Ramnathapuram District on the east coast of India. The principal *imports* are chanks, timber, tiles, arecanuts, etc. and *exports*: firewood, palmyra products, chanks, etc.

Kirnapani (Bombay): One of the *minor ports* situated in the south of Bombay in Kolaba District *importing* tiles, mangoes, chunam, etc., and *exporting* coconuts, betelnuts, wood, bamboos, etc.

Kodinar (Saurashtra): A *minor port* almost on the southern tip of Saurashtra, a few miles south-east of Verawal.

Koilthottum (Travancore-Cochin): About 35 miles south of Alleppey by coast. There is practically no *import* but considerable quantities of beach sands, monazite and ilmenite, etc. are *exported* to foreign countries.

Kolak (Bombay): In Surat District, situated on the north of Bombay Port at a distance of about 100 miles. The principal items of *imports* are tiles, fish, cement, oils, etc., and *exports*: teak, coal, fish, cotton, etc.

Koteswar (Kutch): A very small port on the extreme north-west tip of Kutch, about 25 miles south-west of Lakhpat. The chief *imports* are rice, kerosene, cotton seeds, etc., and *exports*: charcoal, gypsum and other minerals.

Kulasekarapatnam or KULASEKHARAPATTINAM (Madras): In Tirunelveli on the Gulf of Mannar about 24 miles south of Tuticorin. The chief *imports* are timber, tiles, fruits (dates, etc.); and *exports*: salt, baskets, mats, palmyra products, sand, etc.

Kumbla (Madras): Situated at the mouth of the Shiriya

River in Malabar District, 7 miles north of Kasargod and 13 miles south of Mangalore. Trade is very small consisting of coconuts, coir, fish, etc.

Kumta or KUMPTA (Bombay): A *minor port* in the North Kanara District; 290 miles south of Bombay and is much closer to Karwar, the distance being only 25 miles towards south. It is occupying a position just at the mouth of the creek of the same name. The *imports* comprise mainly of foodstuffs, oils, hardware, etc., and *exports*: timber, bamboos, chillies, betelnuts, soapnuts, etc.

Laccadive Islands (Arabian Sea): On the west coast of India, they are suitable for anchorage and all of them (nine) can be visited by steamers. Minicoy, the most important of the southern group of islands serves as the most important port. Principal *imports* are foodgrains, rice, salt, and *exports*: coconuts and coir, corals, shells, copra, jaggery, etc.

Lakhpat (Kutch): It is on the north-western point of Kutch, not very far from Koteswar on the Kori Creek at its extreme east. The principal *imports* are foodgrains, kerosene, cotton textiles, etc.; and *exports*: minerals, cotton, wheat, etc.

Madras (Harbour): On the east coast of India it is one of the **major ports** of India, the other two of greater importance being Bombay and Calcutta. In 1954-55 a total number of 656 steamers of a total of 1,834,900 tonnage entered and 875 steamers of a total of 2,233,304 tonnage cleared with cargoes from the port. On the *export* side groundnuts, cotton seeds, hides and skins, cotton textiles, yarns and cereals figure prominently.

Mahe (Madras): On the Mahe River between Badagara and Tellicherry, the first being situated at about 7 miles south and the second being 4 miles north of the Port. There is nothing to mention about *imports* in particular while the *exports* are pepper, coconut, dried fish, etc.

Mahuwa or MAHUVA (Saurashtra): It is one of the Bhavnagar group of *minor ports*, situated on the Bay of the same name, and is about 140 miles north of Bombay by the sea-coast. The general *imports* are cotton seeds, tiles, timber and *exports*: onions, cotton, foodgrains, etc.

Malpe (Madras) : A *minor port* at the mouth of the Malpe River in the South Kanara District, 42 miles north of Mangalore and about 12 miles south of Coondapur. The principal *imports* are salt, grains, kerosene metal-wares, coconut oil, etc., and *exports* : fish, fish manure, tiles, timber, coir, etc.

Malwan (Bombay) : One of the *minor ports*, in Ratnagiri District, south of Bombay by about 278 miles on the Malwan Bay and about 58 miles south of Ratnagiri. The chief *imports* are foodgrains, cloth, pulses, onions, kerosene, sugar, etc. and *exports* comprise fish, gunnies, bamboos, cashew-kernels, coconuts, *biris*, etc., etc.

Mandvi (Kutch) : An important **intermediate port** in Kutch and is situated at the mouth of the Rukmavati River where it debouches into the Gulf of Kutch, bstween Koteswar on the north-west and Mundra on the south-east at a distance of 24 miles from Okha on the opposite side of the Gulf. The *imports* constitute grains, kerosene, cement, sugar, jaggery, hardware, etc. and *exports* : maize, wool, oilcakes, groundnut, etc.

Mandwa (Bombay) : A very small port to the south of Bombay in Kolaba District handling *imports* of general cargo and *exporting* firewood, grass, etc.

Mangalore (Madras) : An **intermediate port** in the North Kanara District between Malpe about 27 miles to the north and Azikkal about 60 miles to the south, coastwise, is situated near the mouths of two rivers, viz., the Netravati and the Gurupur. It is about 388 miles south of Bombay. It is the southern terminus of the passenger traffic on the Konkan coast. It handles a fairly large volume of trade, the *imports* being mainly composed of piecegoods, firewood, salt, dry fruits, millets, coir, hardware, vegetable oil, cashew-kernels, chunam, shells, grains, gram, gunnies, etc. ; and *exports* : tiles, coffee, cashew-nuts, timber, copra, pepper, ginger, cardamom, betelnuts, timber, etc.,

Mangrol (Saurashtra) : It is one of the *minor ports* of the Verawal Group, situated about 19 miles north-west of Verawal and at about the same distance towards the south-east of Navibandar. The trade through this port is very small chiefly composed of general cargo, cotton textiles as *imports* and foodgrains, groundnut, onion, chillies, etc. as *exports*.

Marmagao (Bombay): Regarded a **major port** in Goa, 110 miles south of Ratnagiri and situated at the mouth of the Zunwari River. It is 42 miles north of Cochin. Both foreign and Indian steamers can touch the port and it handles a considerable quantity of cargo. The principal *imports* are coal, petroleum, tiles, etc. and *exports* comprise salt, copra, coconut, manganese ore, etc.

Masulipattam (Andhra): An **intermediate port** in Guntur District, on the eastern coast (Coromandel) of India at the mouth of the Krishna River. It is situated midway between Visakhapatnam to the north and Madras at about 190 miles to the south-west. About *imports* there is nothing in particular except general cargo, such as glassware, cement, etc.. and the *exports* principally are rice, paddy, groundnut, oilcakes, castor seed, coriander, etc.

Matwad (Bombay): One of the *minor ports* to the north of Bombay in Surat District, rather close to Navsari. The principal *imports* are tiles and bricks and *exports*: dry fish, firewood, etc.,

Mora (Bombay): A *minor port* to the south of Bombay, in Kolaba District. The small trade that it has is in cement, firewood as *imports* and salt as *exports*.

Mulki (Madras): Situated within 20 miles of Mangalore to the north and on the Mulki River in the South Kanara District. The principal *imports* are salt, tiles, foodgrains, coconut oil, etc.; and *exports*: fish, fish manure, timber, firewood, etc.

Mundra (Kutch): It is situated at a distance of 16 miles from Mandvi, on the south coast of Kutch alongside the Bocha Creek. The *imports* constitute foodgrains, kerosene, cement, sugar, jaggery, etc., and the *exports* principally are maize, wool, oilcakes, cotton, etc.

Murdeshwar (Bombay): Between Honavar and Bhatkal in the North Kanara District. There is practically no trade worth the name.

Murud-Janjira (Bombay): A *minor port*, the first from Bombay at a distance of about 44 miles towards south. It is

in Kolaba District situated on the Rajpuri Bay. The principal *imports* are tea, salt, spices, tobacco, etc. and *exports* comprise firewood, betelnuts, myrobalans, etc.

Nagapattam or NAGAPATTINAM (Madras): An **intermediate port** in Tanjore District on the Coromandel Coast. It is to the south of Porto Novo by about 75 miles and of Cuddalore by 70 miles and very close to Calimere. As a port it has lost much of its former importance and has now betelnuts and miscellaneous articles as *imports*; and groundnut, tobacco, rice, onions. piece-goods, etc. as *exports*.

Nangoan (Bombay): A *minor port*, south of Bombay in the North Kanara District where foreign trade is negligible. The principal *imports* are salt, oils, etc., and *exports* consist of timber, coconuts, etc.

Navlakhi (Saurashtra): An **intermediate port**, one of the finest lighterage port of India, on the northern part of Saurashtra (in the former Morvi State) near the head of the Gulf of Kutch, and almost on the opposite side of Kandla in Kutch. There is a huge passenger traffic between the two ports. The chief *exports* are salt, seeds, bonemeal, oilcakes, cotton textiles, etc., and *imports*: cotton seeds, tiles, coconuts, foodgrains, hardware, coal, sugar, etc.

Navsari (Bombay): A *minor port* in Surat District on the Purna River at a distance of about 125 miles from Bombay towards the north. Vessels have to pass 12 miles inside the river to touch the port, but silting up of the river has diverted trade to Matwad. The principal *imports*, at present, are tiles, onions, cement, oil seeds, etc., and *exports*: cotton, building materials, cotton seeds, etc.

Nawabunder or NAVIBANDAR (Saurashtra): One of the *minor ports* of the Verawal Group on west coast of Saurashtra on the Daru Creek, at about 9 miles south of Porbandar; between Mangrol and Porbandar. Trade is not large and consists of groundnuts, foodgrains, cotton as *exports*, and kerosene, cotton textiles, sugar, etc. as *imports*.

Nicobar (in the Bay of Bengal): A group of islands having several good anchorage and ports such as the Nancowry Port,

and one between Pulo Milo and Little Nicobar. Of the *exports*, coconuts figure prominently.

Okha (Bombay) : The finest of all the **intermediate ports** in India, is situated in Bombay at its north-west corner at the mouth of the Gulf of Kutch. It is an all-weather deep-water harbour in the former Baroda State. It is now a part of Amreli District of Bombay.

There is a considerable quantity of foreign trade and official records show the volume of combined trade of Saurashtra, Okha and Kutch. In 1954-55 a total of 96 steamers and 223 sailing vessels of a total tonnage of 403,722 and 23,614, respectively, entered, and 89 steamers and 49 sailing vessels of a total tonnage of 310, 766 and 4,676, respectively, cleared with cargoes from this port. The chief *imports* are petroleum, mineral oils, foodgrains, coal, dates and miscellaneous goods, and *exports*, cement, salt, re-export of petroleum and mineral oils, chemicals, salt by-products, etc.

Palshet (Bombay) : In Ratnagiri District between Dabhol and Ratnagiri, and is 85 miles south of Bombay coastwise. It is rather an unimportant port with coastal *imports* of foodgrains, tiles, etc., and *exports* of betelnuts, myrobalans, etc.

Pamban (Madras) : A *minor port*, in Ramnathapuram District, has a peculiar importance of its own for forming a link between the Gulf of Mannar and the Palk Bay. It is situated on the north-west of the Island of Rameshwaram. The principal *imports* are salt, rice, live turtles, etc., and *exports* : fish, fish products, firewood, coconuts, etc.

Panwel or PANVEL (Bombay) : A *minor port* almost the first on the south of Bombay, in Kolaba District. The trade is chiefly restricted to kerosene, cement, etc. as *imports* ; and rice, bricks, etc. as *exports*.

Ponani or PONNANI (Madras) : A *minor port*, in Malabar District, situated at the mouth of the Ponani River ; 28 miles south of Calicut ; rather between Beypore and Erunakulam (Travancore-Cochin). The principal *imports* are rice, salt, fish, date, sugar, and *exports* : coconuts, coir, timber, tiles, etc.

Pondicherry (Madras): On the Coromandel Coast, surrounded by the South Arcot District. It is 13 miles north and about 73 miles south of Cuddalore and Madras, respectively. *Imports* consist of electrical goods, wines, sugar, general merchandise; and *exports*: groundnuts, bonemeal, cotton yarn and piecegoods, onions, tea, earthenware, etc.

Porbandar (Saurashtra): An **intermediate port** situated at an open roadstead at about the middle of the west coast of Saurashtra, on the north of Navibandar. The principal *imports* are foodgrains, timber, cotton seed, dates, sugar, molasses, kerosene, etc. and *exports*: salt, cement, ghee, clay, seeds and oils, hosiery, matches, etc.

Porto Novo (Madras): A *minor port*, in the South Arcot about 12 miles south of Cuddalore at the mouth of the Vellar River. There is very little prospect of further improvement in future trade than at present. The chief *imports* are betelnuts, sago logs; and the *exports* comprise rice, onions, earthenware, etc.

Purangad (Bombay): In Ratnagiri District, between Ratnagiri, about 10 miles to the north, and Vijaydurg, to the south, is a port of very minor importance. The principal *imports* are foodgrains, salt and general merchandise; and *exports*: soapnuts, mangoes, pulses, cotton, etc.

Puri (Orissa): A *minor port* on the east coast of India, to the south-west of Cuttack and about 275 miles south-west of Calcutta. Trade is insignificant and is almost limited to rice and a few others as *exports*.

Quilon (Travancore-Cochin): A very ancient but *minor port*, between Alleppey and Trivandrum, about 42 miles south of the former and 44 north of the latter. The *imports* comprise mainly raw cashew-nuts, cotton, tobacco, coal, salt, paddy, etc.; and *exports*: (processed) cashew-nuts, coir, coconuts, tiles, fish, ilmenite sands, coir-mats, etc.

Rajpuri (Bombay): A *minor port* near Bhatkal, almost at the southern limit of Bombay on the coast in the North Kanara District. The principal *imports* constitute foodgrains, tea, salt, tobacco, etc., and *exports*: firewood, betelnuts, myrobalans, etc.

Ratnagiri (Bombay) : An **intermediate port** situated at a distance of about 120 miles south of Bombay ; in Ratnagiri District between Jaigad and Vijaydurg at the mouth of the Kajali River. The principal *imports* are foodgrains, salt and general merchandise ; and *exports* : pulses, soapnuts, mangoes, cotton, myrobalans, groundnuts, etc.

Revdanda (Bombay) : A *minor port* between Murud (Janjira) and Dabhol, in Ratnagiri District 32 miles south of Bombay and at about 3 miles inside the mouth of the Kundalika River. The principal *imports* are kerosene, pulses, tiles, tea, spices, etc.

Sadashivgad (Bombay) : A *minor port* situated a few miles north of Karwar and south of Marmagao in the North Kanara District. *Imports* are mostly restricted to tiles and miscellaneous cargo ; and *exports* to timber and firewood.

Salaya (Saurashtra) : One of the *minor ports* of the Bedi Group on the Gulf of Kutch about 25 miles to the south-east of Okha, on the Salaya Creek. It can also be used as a good harbour. Of the *imported* articles cotton seeds, kerosene, cement, tiles, figure prominently and of the *exports* : salt, garlic, pulses, ghee, etc. deserve special mention.

Sika (Saurashtra) : One of the *minor ports* of the Bedi Group and is 12 miles west of the Bedi Bunder on the southern side of the Gulf of Kutch. The trade through this port is inconsiderable and gunny bags, kerosene, sugar and cotton seeds are the principal *imports*, and cement, oil seeds (groundnuts, castor), cotton seeds are the principal *exports*.

Sriwardhan (Bombay) : A very small port in Bombay between Janjira (Murud) and Bankot in Ratnagiri District, where the principal *imports* comprise nuts, oils, pulses, etc. and the *exports* : wood, myrobalans, etc.

Surat (Bombay) : Between Broach and Matwad on the south-east bank of the Tapti River ; it is 145 miles north of Bombay by the coast. It is a *minor port* and the principal *imports* are ghee, onions, coconuts, tiles, pulses, wet dates, etc. ; and *exports* are cotton, bamboos, teak, pulses, cotton seeds, etc.

Tadri (Bombay) : A *minor port* in the North Kanara District at the mouth of the Agnashini River. Karwar is only

29 miles north of Tadri and Honavar (south of Kumta) is the next important port on its south. Tadri has a small trade of tiles, oils, kerosene, foodgrains, metalwares, etc. as *imports*; and timber, salt, nuts, chillies, saffron, pepper, sandalwood, etc. as *exports*.

Talaja (Saurashtra): A *minor port* of the Bhavnagar group on the Mahuva Bay *importing* cotton seeds, tiles and timber and *exporting* onions.

Tarapur (Bombay): An unimportant port about 70 miles north of Bombay in Thana District with very little trade. It is merely a fishing centre and fish is nearly all the *exports* and tiles and oilcakes are the only *imports*.

Tellicherry (Madras): A *minor* rather an **intermediate port** between Cannanore 12 miles in the north and Badagara, 8 miles towards the south, in Malabar District. Once used to be an all-weather port it has, in recent years, lost a good deal of its former importance. The principal *imports* are salt, salted fish, tiles, foodgrains, kerosene, sugar and miscellaneous other articles. The *exports* comprise mainly of canes, coconuts, pepper, timber, coffee, salted fish, sandalwood, etc.

Thana (Bombay): In Thana District one of the *minor ports* to the north by only a few miles of Bombay and very near Kalyan. Salt, tiles and teak, etc., are the principal *imports*; and clay, firewood, timber, etc. are the *exports*.

Tirumalavasal (Madras): In Tanjore District on the east coast of Madras. It is about 40 miles north of Nagapattam. It is a port of no importance at present. Rice was one time almost the sole *exports* by the port.

Tivari (Bombay): Between Jaigarh on the north and Ratnagiri, 10 miles to the South in Ratnagiri District. The *imports* are chiefly foodgrains, tiles, etc., and *exports*: paddy, mangoes, fish, etc.

Tondi (Madras): Almost midway between Point Calimere and Pamban and Dhanuskodi on Palk Bay in Ramnathapuram District. It is a port of little or no importance at present. Rice and Burma teak were one time principal *imports*; while *exports* were negligible.

Trivandrum (Travancore-Cochin) : On the capital city of the State, it is nearly halfway between Quilon and Cape Comorin on the western coast of India, and is only 34 miles south of the former. It is a port of minor or no importance ; the *imports* consist mainly of foodgrains, cotton textiles ; and *exports* of fish, salt, tapioca, mattings, etc. are reported.

Trombay (Bombay) : New Marine Oil Terminal between Thana and Verswa having Thana on the north. It has come into prominence due to the installation of big oil refineries in the locality. The principal *imports* are bricks, firewood, timber, etc. and *exports* : paddy, bricks, etc.

Tuna (Kutch) : On the northern side of the Gulf of Kutch, between Kandla on the east and Mundra on the west, 3 miles inside the Nakti Creek from the mouth. Principal *imports* are foodgrains, kerosene, sugar, etc., and *exports* : cotton, hides and skins, etc.

Tuticorin (Madras) : An **intermediate port,** one of the most important ones of Madras situated between Dhanuskodi and Cape Comorin on the east coast of India, on the Gulf of Mannar in Tirunelveli District. It forms the southern most port of India and is about 70 miles south-west of Palk Straits. Of the several items of *imports* grains, coal and cotton, machinery, coconuts deserve special mention and of the *exports* : onions, chillies, tea, salt, senna leaves, sheep and goats, cotton goods, dried fish, etc. are prominent.

Umbergaon (Bombay) : A *minor port* situated at about 10 miles and 75 miles north of Dahanu and Bombay, respectively, in Thana District at the mouth of the Varoli River. Onions, fish, timber, cement, coir, coconuts, salted fish , etc. are the chief *imports* ; and *exports* comprise chiefly timber, firewood, fish salted and dry, fish oil, etc.

Umersadi (Bombay) : In Surat District about 8 miles south of Bulsar on the Umersadi Creek. It is a port of no special importance and the *imports* usually comprise dry fish, onions, tiles, etc., and *exports* oil-cake, timber, bricks, etc.

Vengurla (Bombay) : A *minor port* of Bombay, in Ratnagiri District, about 10 miles south and 30 miles north of

Malvan and Marmagao, respectively. The *imports* are foodgrains, tiles, cashsew-nuts, matches, general merchandise ; and *exports* are coconut oil, cashew-kernels, tobacco, groundnuts, seeds, etc.

Verawal (Saurashtra): An **intermediate port** (an open roadstead) situated almost at the southern tip between Mangrol on the north and Kodinar on the south-east. The chief *imports* are cotton seed, coal, coconuts, dates, timber, tiles, kerosene, sugar, etc., and *exports*, groundnuts, onions, garlic, oil-cake, limestone, chillies, firewood, oil seeds, wool, etc.

Verswa or VERSOVA (Bombay): A *minor port* north of Bombay (within 15 miles) in Thana District, where the *imports* are fish, timber, sand, lime, wet and dry fish, etc., and *exports* : fish, ghee, etc.

Vijaydurg (Bombay): A *minor port* on the Vijaydurg Creek in Ratnagiri District between Ratnagiri 28 miles to the north and Malwan about the same distance to the south. There is very little trade either exports or imports and while mangoes, bamboos, myrobalans, salted fish in small quantities may be cited as articles of *export*, there is practically nothing accountable for *imports*.

Visakhapatnam (Madras): A **major port** in the District of the same name on the eastern coast (Coromandel) at the mouth of the Maonderu River at about 370 miles north-east of Madras. It has become famous for its shipyard, the only of its kind in India. The *imports* are foodgrains, cotton textiles, sugar, etc. ; and *exports* comprise manganese ore, groundnut kernels myrobalans, tobacco, palmyra fibre, etc.

There are a few Ports which are not quite negligible like a host of others and are of *minor* and / or *casual importance* :

Adirampatnam (Madras): in Tanjore District, 190 miles south-west of Madras ; **Ammapatnam** (Madras): also in Tanjore District. **Barkur** is also known as HANGARKATTA, P. 300 ; **Baruva** or BARWA (Andhra): In Visakhapatnam District, about 34 miles south of Gopalpur and 50 miles north of Calingapattam ; **Bingi** (Bombay): on the Bingi Bay, about 4 miles south of Karwar in the North Kanara District ; **Boria** (Bombay) about 96 miles south of Bombay in Ratnagiri District. **Cape**

Comorin : the southernmost point of India ; **Chendya** (Bombay) in the North Kanara District, 9 miles south of Karwar ; **Chorwad** (Saurashtra) : about 10 miles north-west of Verawal. **Dantivra :** Same as ARNALA, P. 293 ; **Janjira :** Same as MURUD-JAINJIRA at P. 306 : **Kalal** (Bombay) : about 88 miles north of Bombay in Thana District ; **Karikal** or KARAIKKAL (Madras) : in Tanjore District on the bank of the Arasalar River ; **Kolachel :** same as COLACHEL P. 297 ; **Kovalam** (Travancore-Cochin) ; **Kozhikode**—See CALICUT P. 296 ; **Manakudy** (Travancore-Cochin) ; **Manjeswar** (Madras) : in the South Kanara District between Mangalore and Kasargod, which are respectively, 7 miles to the south and 13 miles to the north of this port ; **Manori** (Bombay) : a few miles north of Bombay ; **Maroli** (Bombay) : in Thana District 85 miles north of Bombay and close to Umergaon which is only a few miles towards the south ; **Munabhum** (Travancore-Cochin) ; **Narsapur** (Madras) : in the West Godavari District on the bank of the Vasista Godavari (one of the estuaries of the Godavari) ; **Satpati** (Bombay) : in Thana District at the mouth of the Dudh River ; **Tankari** (Bombay) : in Broach District 12 miles south-east of Kavi.

PAKISTAN

The two important ports of Pakistan are Karachi (on the Arabian Sea) and Chittagong (on the Bay of Bengal).

Karachi is a natural harbour with the best advantages for the purpose in its favour. It serves a very wide area covering Afghanistan, Persia, Baluchistan and the West Punjab. The principal *exports* are cotton, oil seeds, wheat, wool, hides and skins, bones, etc. The *imports* on the other hand are cotton manufactures, machinery, sugar, metals and ores, oil, chemicals, etc. Karachi is undergoing considerable improvements and its capacity for handling a larger number of ships is making speedy progress.

The *minor ports* of Sind are Shah Bunder, Sokhi Bunder and Kedi Bunder.

Chittagong serves the whole of East Pakistan and handles jute, rice, hides and skins as the principal items of *exports* and cotton textiles, machinery, metals, chemicals, sugar, salt, cotton as *imports*. It is situated at the mouth of the Karnafuli River. Improvements to the port are being carried under foreign experts and mainly with foreign investment. The capacity of the port has rapidly increased since the State of Pakistan came into existence.

The **Chalna Port** in Khulna has not fulfilled the expectations of its supporters. It is situated at a distance of about 80 miles inland from the sea on the Pusoar River. It is capable of handling about 500,000 tons of cargo and the principal *exports* are jute, and coal is the principal *import*. The two *minor ports* of East Pakistan are COX'S BAZAR and NOAKHALI.

CHAPTER XII

FOREIGN TRADE

The total foreign trade of India (1954-55) exceeds Rs. 1,200 crores a year of which exports of Indian Merchandise comprise Rs. 581 crores and Rs. 5'7 crores by sea and land route, respectively. The corresponding value of imports are Rs. 610 crores and Rs. 23'39 crores showing a deficit balance of Rs. 29 crores and Rs. 17'69 crores, respectively.

With regard to imports, the *Mineral Oils* form the biggest single item amounting to Rs. 82'86 crores with *Machinery and Millwork* closely following with Rs. 81'62 crores. Fortunately for India the imports of *Grain, Pulse and Flour* have been steadily decreasing coming down to Rs. 68 crores from Rs. 228 crores in 1951-52. The disquieting feature is the sudden increase of import of *Rice not in the husk* from Rs. 13 crores in 1953-54 to Rs. 55 crores in 1954-55. There has been a remarkable improvement in the food position in recent years but the time is still not ripe for indulging in complacency. Rise in import of sugar is another feature which should not escape attention. It discloses that 364,596 tons have had to be imported against 10 tons of the value of Rs. 22 crores and Rs. 11 thousands, respectively. So far as *Textile Raw Materials* are concerned, imports of both *Jute* and *Cotton* seem to be very high being of the value of Rs. 13 crores and Rs. 59 crores, respectively. Efforts that are being made are likely to reduce the imports of both but scope for such reduction lies more in the sphere of cotton than in that of jute.

Before "Independence" the *Manufactured Articles* formed 58'2 per cent of the total imports which have come down to 49 per cent in 1954-55 with tendency for a lower proportion in comparison to other forms of import. When India will be able to manufacture a good deal more of Machinery, especially the *Prime Movers*, the imports under Manufactured Articles will necessarily go down. Indian industrial efforts have begun exerting influence in this respect and the case of *Chemical Manure—Sulphate of Ammonia*, in particular, may be cited as a case in point. So late as 1953-54

the imports under this head amounted to 69,525 tons valued at Rs. 2,13 lakhs, which has been reduced to 83 tons at Rs. 29 thousand only. One can confidently hope that Rs. 1,86 laks and Rs. 1,48 lakhs spent over importing *Penicillin and its products* would be reduced to the minimum in near future as the Indian factory has gone into production. This feature will naturally appear in other spheres and what else remains is not likely to be a matter of any great concern.

In both imports and exports United Kingdom occupies the pride of place with 24 per cent and 32·3 per cent, respectively, U.S.A. holds the second place in both with 13·4 per cent and 15·2 per cent respectively. The hope of U.S.A. of capturing Indian market for her manufactured goods has not materialised though her exports to India exceeded that of United Kingdom by Rs. 42 lakhs in 1947-48, *i.e.*, during the troubled year of PARTITION her exports India being Rs. 120·59 crores against U. K. 120.17 crores. Compared with U. K. and U. S. A. there is scarcely any good third, the trade being distributed among a large number of countries.

The weakness of the *export* trade lies in the fact that on two articles, *i.e.*, *Tea* and *Jute Manufactures*, hinge the fate of nearly half (48·3%) of the whole of Indian export. The difficulties regarding supply of raw jute caused by "the Partition" has been nearly overcome but the chances of a keener competition is very large ; so is also the case with *Tea*. The recent boom in export of *Cotton Manufactures* may be short-lived for obvious reasons.

Before "Independence" *Manufactured Articles* formed 48·2 per cent of the total exports and these have gone down to 42·8 per cent in 1954-55. India has shown remarkable strength in shaking off the shock of "the Partition" inasmuch as she has been able to enhance her exports considerably. Making some provision for enhancement of price, the value of exports of Indian Merchandise in pre-Partition days and of 1954-55 stands as follows :

	Exports '000-Rs.	Imports '000-Rs.
1946-47	297,86,18	287,74,95
1954-55	572,30,37	610,59,52

India's *trade* by *land route* comprises a few articles of considerable value, the others, though large in number, are quite negligible. On the *imports* side, Jute from Pakistan cost Rs. 12·97 crores and Fruits, fresh and dried, from Afghanistan Rs. 4·06 crores combined to form 72·8 per cent of the total imports. *Hides and Skins* (Rs. 49·37 lakhs) and *Kapok* (Rs. 32 lakhs) deserve notice.

Regarding *Exports*, barring *Coke and Coal* (Rs. 2·13 crores) and *Tea* (Rs. 52 lakhs) there is not much to mention, the total value of exports being Rs. 5·73 crores only.

Indian trade inspite of its important position in international commerce has yet a very large scope for expansion. Two vast countries, the U. S. S. R. and China have only been barely tapped; the present trade being only a fraction of what might result in future. It is a happy sign that imports from and exports to these countries are gradually looking up and if there be no sudden flare up in any part of the world, the progress may confidently be well maintained.

Indian trade with U. S. S. R. and China is given below :—

Imports from

(Rupees in Thousands)

	1952-53	1953-54	1954-55
U. S. S. R.	24,18	50,71	1,61,13
China	13,17,29*	98,57	1,56,78

* Out of this amount 'Rice in the husk' covered Rs. 12,34,45 (thousand).

Exports to

(Rupees in Thousands)

	1952-53	1953-54	1954-55
U. S. S. R.	85,41	1,15,20	2,11,68
China	41,25	79,67	2,79,35

There are other countries which at present do only a nominal trade with India but which are likely to assume bigger shape thereby improving India's present balance of payment position in the course of a few years.

Foreign Trade by Sea

(Rupees in Thousands)

	Imports	Exports	Re-exports*
1952-53	644,91,08	553,49,50	5,73,96
1953-54	549,12,13	518,35,08	4,84,82
1954-55	610,59,52	572,30,37	5,45,51

* Exports of Foreign Merchandise (The above figures are exclusive of imports of Treasure which amounted to Rs. 13·74 crores and Rs. 9·40 crores in 1953-54 and 1954-55, respectively).

Foreign Trade According to Customs Zones in India

IMPORTS—EXCLUDING 'TREASURE'

(Rupees in Thousands)

	1953-54	1954-55	per cent
West Bengal	150,41,21	163,97,13	26·8
Madras	69,71,54	71,80,10	11.8
Travancore-Cochin	33,67,86	31,84,15	5·0
Bombay	284,95,27	325,58,50	53·3
Saurashtra, Okha and Kutch	9,47,27	16,17,26	2·6
Delhi Air Port	88,98	1,21,97	·3
Total	549,12,14	610,59,52	

Exports (Indian Merchandise)

(Rupees in Thousands)

	1953-54	1954-55	per cent
West Bengal	254,12,42	299,16,49	52·2
Madras	86,55,19	78,66,18	13·7
Travancore-Cochin	50,34,02	53,96,81	9·4
Bombay	123,00,02	134,18,60	23·1
Saurashtra, Okha and Kutch	3,86,69	5,39,07	·9
Delhi Air Port	46,74	93,22	·2
Total	518,35,08	572,30,37	

Value and Share of Different Classes of Goods in the Total Imports (1954-55)

	'000-Rs.	per cent
Food, Drink and Tobacco	116,08,47	19·0
Raw Materials and produce and Articles mainly unmanufactured	187,32,78	30·6
Articles wholly or mainly manufactured	304,48,72	49·0
Postal Articles and baggage not specified	2,67,13	·4

Value and Share of Different Classes of Goods in the Total Exports (1954-55)

	'000-Rs.	per cent
Food, Drink and Tobacco	198,60,29	34·7
Raw Materials and produce and Articles mainly unmanufactured	118,33,02	20·6
Articles mainly or wholly manufactured	250,64,89	43·8
Postal Articles	4,18,96	·7

Principal Items of Imports and their percentage share in the Total (1954-55)

Total Imports Rs. 610,59,51,802

	'000-Rs	per cent
Oils—Vegetable, mineral and animal	90,00,67	14·7
Machinery of all kinds including belting for machinery	83,26,06	13·6
Grain, Pulse and Flour	68,00,65	11·1
Cotton, raw and waste	58,44,74	9·5
Vehicles (excluding Locomotives for Railways)	33,80,03	5·5
Chemicals, Drugs and Medicines	31,87,89	5·2
Metals—Iron, Steel and manufactures thereof	30,14,88	4·9
Metals other than Iron and Steel	26,13,61	4·3
Sugar	21,97,99	3·4
Dyes and Colours	19,68,89	3·0
Cutlery, Hardware, Implements and Instruments (excluding Electrical Instruments and Apparatus)	17,71,83	2·9
Paper, Pasteboard and Stationery	16,37,45	2·2

Principal Items of Exports and their percentage share in the Total (1954-55)

(Rupees in Thousands)

Tea : Rs. 146,53,76 (25·6%) ; Jute yarns and manufactures : Rs. 123,97,00 (22·7%) ; Cotton yarns and manufactures : Rs. 66,21,21 (11·61%) ; Oils—Vegetable, Mineral and Animal : Rs. 21,14,54 (3·6%) ; Cotton, raw and waste : Rs. 20,14,35 ; (3·5%) ; Metalic Ores, etc. : Rs. 19,05,19 (3·4%) ; Hides or Skins—tanned or dressed : Rs. 19,03,48 (3·4%) ; Fruits and Vegetables : Rs. 13,01,62 (2·3%) ; Gums, Resins and Lac : Rs. 11,55,65 (2·0%) ; Spices : Rs. 11,30,70 (1·9%) ; Tobacco : Rs. 11,07,46 (1·9%) ; Wool : Rs. 8,61,05 (1·5%) ; Hides and Skins—raw : Rs. 7,13,28 (1·2%) ; Chemicals, Drugs and Medicines : Rs. 4,47,37 (8%) ;

Value and Share of each Country in the total Exports (1954-55)

COMMONWEALTH COUNTRIES :

(Rupees in Thousands)

United Kingdom : Rs. 184,74,52 (32·3%) ; *Australia* : Rs. 24,44,84 (4·2%) ; *Canada* : Rs. 17,37,00 (3·0%) ; *Ceylon* : Rs. 16,92,86 (2·9%) ; *Nigeria* : Rs. 8,87,11 (1·4%) ; *Anglo-Egyptian Sudan* : Rs. 7,03,36 (1·2%) ; *Singapore* : Rs. 6,87,86 (1·2%) ; *Kenya* : Rs. 6,78,25 (1·2%) ; *Aden* : Rs. 6,75,68 (1·1%) ; *New Zealand* : Rs. 4,53,11 (·8%) ; *Tanganyika* : Rs. 4,45,71 (·8%) ; *Federation of Malaya* : Rs. 3,64,81 (·6%) ; *Kuwait* : Rs. 3,38,44 (·6%) ; *Hong Kong* : Rs. 3,35,34 (·6%).

FOREIGN COUNTRIES :

(Rupees in Thousands)

U. S. A. : Rs. 87,38,11 (15·2%) ; *Burma* : Rs. 15,85,43 (2·8%) ; *Japan* : Rs. 15,66,28 (2·7%) ; *Germany, Western* : Rs. 14,51,54 (2·5%) ; *Netherlands* : Rs. 12,86,74 (2·2%) ; *Argentine Republic* : Rs. 12,50,81 (2·2%) ; *Egypt* : Rs. 8,17,70 (1·4%) ; *Irish Republic* : Rs. 7,66,94 (1·3%) ; *Italy* : Rs. 6,38,20 (1·1%) ; *Belgium* : Rs. 6,12,16 (1·1%) ; *Indonesia* : Rs. 5,53,08 (·9%) ; *Iran* : Rs. 5,27,13 (·9%) ; *France* : Rs. 5,18,22 (·9%) ; *Cuba* : Rs. 4,79,34 (·8%) ; *Ethiopia* : Rs. 3,29,08 (·6%) ; *Saudi Arabia* : Rs. 3,05,11 (·5%) ; *China* : Rs. 2,79,35 (·5%).

Value and Share of each Country in the total Imports (1954-55)

[*Countries with less than '5 per cent of the total trade have been omitted.*]

	'000-Rs.	per cent
COMMONWEALTH COUNTRIES :		
United Kingdom	146,88,48	24·0
Baherin Islands	20,20,64	3·3
Australia	19,55,44	3·2
Kenya	18,39,03	3·3
Singapore	15,55,18	2·5
Canada	10,13,43	1·6
Ceylon	7,45,96	1·2
Federation of Malaya	5,82,11	·9
Anglo-Egyptian Sudan	3,05,40	·5
FOREIGN COUNTRIES :		
U. S. A.	81,60,71	13·4
Burma	57,32,63	9·4
Germany, Western	38,72,55	6·3
Egypt	19,68,47	3·2
Italy	19,42,44	3·2
Japan	18,90,96	3·1
Yemen	17,41,49	2·8
France	13,95,37	2·3
Netherlands	13,59,01	2·2
Switzerland	10,16,15	1·6
Belgium	9,32,42	1·5
Sweden	6,03,39	·9
Iran	4,30,29	·7
Mozambique	4,29,13	·7

Number and Tonnage of Vessels from and to Foreign Countries

The **number** of (steam) **vessels,** including their **repeated voyages,** that **entered** and **cleared** with *cargoes* from and to **foreign** (as well as COMMONWEALTH) **countries** were (1954-55) 2,347 and 2,632, respectively. As each repeated voyage has been counted as a separate voyage, it means that the actual number of ships was much less than the accounts show.

Of the countries that made the largest number of voyages, both incoming and outgoing, U. K. holds the pride of place. It entered with 56·3 per cent (4,632,240 tons) of total cargo in 42·2 per cent (990) of vessels and cleared with 45·8 per cent (4,308,783 tons) of the total cargo in 36·2 per cent (953) of

vessels. In the absolute handling of cargoes India's position is that while using 18·5 per cent (434) of vessels, it entered with 8·8 per cent (723,077 tons) of cargo and left with 9·3 per cent (910,443 tons) while using 23·1 per cent (606) of the total vessels.

In respect of total handling of cargo, U.S.A. almost strikes a balance, *i.e.*, 5·2 per cent (124) of the vessels and 7·0 per cent (582,210 tons) of cargo in the incoming and 5·9 per cent (155) of vessels and 7·4 per cent (701,851 tons) of cargo in the outgoing voyages. Japan has the same advantageous position strangely though, with Norway. In the inward voyages Japan (146 vessels) and Norway (144 vessels) each has 6 per cent of vessels and 6·7 per cent (550,529 tons) and 7·3 per cent (599,515 tons) of cargo and in the outward voyages Japan has 8 per cent (219) and Norway 4 per cent (105) of vessels and of cargo carried the figures are 8·7 per cent (824,302 tons) and 4·2 per cent (393,966 tons), respectively. There is not much of U.S.S.R. and Chinese ships at ports in India which are likely to appear in appreciable number in the near future. The respective position of the other countries will be found in the following table :—

Number and Tonnage of Vessels, including their REPEATED VOYAGES, that ENTERED and CLEARED with CARGOES from and to FOREIGN COUNTRIES :

Other than Country Crafts (1954-55)

	Entered				Cleared			
	No. of V.	%	Tons	%	No. of V.	%	Tons	%
Indian	434	18·5	723,077	8·8	606	23·1	910,443	9·3
British	990	42·2	4,632,240	56·3	953	36·2	4,308,783	45·8
America	124	5·2	582,210	7·0	155	5·9	701,851	7·4
French	16	·7	63,289	·8	11	·4	45,902	·5
German	33	1·4	131,796	1·6	38	1·4	141,817	1·5
Italian	58	2·5	256,981	3·2	74	2·8	317,787	3·3
Norwegian	146	6·0	599,515	7·3	105	4·0	393,966	4·2
Japanese	144	6·0	550,529	6·7	219	8·0	824,302	8·7
Other Nations	402	17·0	1,683,698	8·3	471	17·9	1,755,908	18·7
Total	2,347		8,223,335		2,632		9,400,759	
Country Crafts								
Indian	201		20,351		752		71,682	
British	4		168		14		588	
Foreign	192		23,269		249		28,343	

Number of trips from and to each Country with Volume of Cargo in its Trade with India (1954-55)

Steam Vessels

	Entered		Cleared	
	V.	Tons	V.	Tons
United Kingdom	302	1,534,161	219	1,181,501
Aden	42	169,358	41	155,185
Pakistan (West)	78	281,294	166	535,111
Pakistan (East)	51	215,661	126	521,547
Ceylon	276	245,421	490	699,362
Singapore	79	297,826	81	303,434
Hongkong	43	244,194	51	266,381
Un. of S. Africa	5	20,902	11	59,721
Kenya	13	55,463	14	58,103
Canada	15	70,035	31	143,441
Australia	84	525,470	78	479,225
Other Commonwealth Countries	164	731,270	117	440,223
Total	**1,152**	**4,391,055**	**1,425**	**4,843,234**
U. S. S. R.	6	19,475	2	2,471
Germany (West)	78	319,611	46	182,277
Netherlands	19	78,609	28	103,189
Belgium	16	69,495	13	51,230
France	30	122,499	17	67,557
Italy	50	207,795	39	166,494.
Saudi Arabia	96	542,531	46	164,316
Iraq	92	318,909	81	278,093
Iran	27	123,393	27	88,667
Burma	148	452,967	129	375,609
Indonesia	14	54,617	23	107,043
Thailand	1	4,695	3	7,904
Japan	189	667,932	203	746,181
China	7	13,968	5	14,206
Egypt	18	58,660	20	64,856
Mozambique	13	57,347	11	46,477
U. S. A.	239	1,112,525	318	1,393,892
Other Foreign Countries	152	607,252	106	696,663
Total	**1,195**	**4,832,280**	**1,207**	**4,557,525**
Grand Total	*2,347*	*9,223,335*	*2,632*	*9,400,759*

Sailing Vessels

While the steam vessels carried the bulk of merchandise, the sailing vessels also played their part and a total of 397 trips of such vessels brought 43,788 tons and a total of 1,015 trips cleared with 100,613 tons of cargo during 1954-55.

The number of countries is rather small and so far as the number of trips of sailing vessels that *entered* the Indian ports with cargo is concerned, Iraq comes first with 157 followed by Ceylon, viz., 114, carrying 18,338 tons and 14,639 tons of cargo, respectively. On the other hand the number of trips of vessels that cleared with cargo was 769 for Ceylon and 14 for Iraq, the volume of cargo being 73,399 tons and 1,390 tons, respectively.

Of the other countries that had some share in carrying trade in the sailing vessels, Pakistan, Kenya, Saudi Arabia and Iran can almost complete the list of countries that have any appreciable contribution towards the total.

PAKISTAN

FOREIGN TRADE

The chief **exports** of Pakistan are mainly composed of Jute, Cotton and Tea and in 1955-56, of Jute goods. In respect of jute, Pakistan is the biggest producer in the world and in cotton, her position is very comfortable. The following tables give the quantity and value of the staple exports and the principal buyers of such articles :

Principal Exports (1954-55)

(Rupees in crores)

	Unit	Quantity	Value
Jute	'000-bales	5,139·3	59·80
Cotton	" "	713·1	29·60
Wool	'000 lbs.	24,400·0	5·00
Hides	'000 pieces	1,280·0	·85
Skins	" "	7,216·0	1·93
Tea	'000 lbs.	26,020·0	5·58

Principal Buyers of Raw Produce : (1954-55)

Jute ('000 bales) : Indian Union : 1,360·8 ; U. K. : 790·7 ; France : 438·1 ; etc.

Cotton ('000 bales) : Japan : 267·6 ; China : 59·9 ; Hongkong : 88·8 ; etc.

Hides ('000 pieces) : Indian Union : 648 ; U. K. : 163 ; Italy : 85 ; etc.

Skins ('000 pieces): U. S. A. : 2,303 ; Italy : 361 ; U. K. : 924 ; Germany : 1,377 ; etc.

Tea ('000 lbs.) : U. K. : 22,324 ; Afghanistan : 1,612 : etc.

Wool ('000 lbs.) : U. S. A. : 9,408 ; U. K. : 7,928 ; etc.

Of the principal **imports** approximately valued at Rs. 125 crores a year, *Textiles*—Yarns and Manufactures, cover about 33 per cent followed by *Machinery* and Vegetable and Mineral *Oils*. The other noticeable imports are : Metals (Iron and Steel, and manufactures thereof), Vehicles, Drugs and Medicines, Electrical goods, Paper, Pasteboard and Stationery, etc.

The United Kingdom supplies about 30 per cent of the (imported) articles the value of which equals the combined exports of Japan and India to Pakistan. U. S. A. is just fourth in the list.

PAKISTAN-INDIA TRADE

The principal items of *Exports* from India to Pakistan are Coal, Vegetable Oils, Fruits and Vegetables, Drugs and Medicines, Machinery, Provisions, Cotton Piecegoods, Vehicles, etc. and of *Imports* : Raw Jute, Fish, Raw Hides and Skins, etc.

CHAPTER XIII

INLAND TRADE

The annual inland or inter-State trade of India is of great magnitude and exceeds many times both the quantity and value of the foreign or international trade for which dependable statistics are availabe. From the very nature of the case it is not possible to keep any account of the inland trade because the borders of several States are crossed by carts and country boats with loads, big or small, of which nothing definite is known. The volume of such trade can at best be a mere guess work. Moreover, no account is kept, of the huge traffic carried on within each block. There are also a large number of articles outside those given below which enter into the daily transactions of all classes of people in every walk of life.

What has been tried in this section is to give an account of the inland trade carried by the Railways and Steamer Services of the Indian Union. The goods carried partly by rail and partly by river, when booked through and carried by steamers working in conjunction with railways, has been recorded by the railway administration concerned. In the case of purely river-borne trade the traffic between (1) Calcutta, (2) Assam, (3) West Bengal (excluding Calcutta), (4) Bihar and (5) Uttar Pradesh (the United Provinces) is registered by the Steamer Companies entrusted with the handling of the cargo.

The volume of trade recorded hereunder relates to (1) the trade of one State with other States ; (2) the trade of the five Principal Port Towns, viz., (i) Calcutta, (ii) Bombay, (iii) Goa, (iv) Madras Chief Port and (v) certain small areas comprising the minor ports of Madras with the States in which they are situated and with other States ; (3) the trade between such principal port towns. The former Indian States are covered by the trade blocks represented by the old Provinces and the States.

In making use of this section, it has to be remembered that the States as have been given hereunder represent the Old

Provinces of India and they are Assam, West Bengal, Bihar, Orissa, United Provinces, Punjab, Delhi, Central Provinces (Madhya Pradesh), Bombay and Madras. The other five Trade Blocks are (i) Rajasthan (Rajputana), (ii) Madhya Bharat, Vindhya Pradesh and Bhopal (corresponding generally to the former Central India States), (iii) Hyderabad (the Nizam's Dominions), (iv) Mysore and (v) Kashmir and Jammu.

As the inland trade is still being registered on the basis of delimitation of the former Provinces and Indian States, the old designations have been retained in preference to the changed ones.

Abbreviations : Ch. P.—*Chief Port* ; M. P.—*Minor Ports* ; *P. A.—Port Area* ; *C. I.—Central India.* Madhya Bharat—Madhya Bharat, Vindhya Pradesh and Bhopal. Mds.—$82\frac{2}{7}$ lbs.

[Figures are for 1954-55 and those which relate to Assam, West Bengal, Bihar, U. P. and Calcutta are incomplete for want of returns from N.-E. Railway for the period July 1954 to March 1955.]

ANIMALS

(A) Cattle

Total Exports : 259,185 Nos.

[Figures within brackets denote nos. in *thousands*]

Chiefly **Exported :**

From PUNJAB (65) *to* U. P. (30) ; Bombay (13) ; Calcutta (12) ; etc.

From BIHAR (62) *to* Calcutta (43) ; West Bengal (17) ; etc.

From U. P. (34) *to* Calcutta (17) ; W. Bengal (11) ; etc.

From RAJASTHAN (20) to Delhi (9) ; Punjab (4) ; etc.

Other important exporting areas : Madras ; Mysore ; Delhi ; Hyderabad ; etc.

(B) Sheep and Goats

Total Exports : 978,200 *Nos.*

[Figures within brackets denote nos. in *thousands*]

Chiefly **Exported :**

From RAJASTHAN (539) *to* Bombay (503) ; Delhi (29) ; etc.

From U. P. (233) *to* Calcutta (176) ; Bombay ; etc.

From BIHAR (115) *to* Calcutta (114) ; etc.

Other important exporting areas : Madhya Bharat ; Hyderabad ; etc.

BAJRA

Total Exports : 3,391,700 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From UTTAR PRADESH (1,803) *to* Bombay (845) ; Bombay Port (393) ; Punjab (358) ; Rajasthan (123) ; etc.

From RAJASTHAN (647) *to* Bombay (536) ; Bombay Port ; etc.

From PUNJAB (449) *to* Bombay (298) ; Bombay Port (57) ; U. P. (40) ; etc.

From MADHYA BHARAT (209) *to* Bombay (105) ; Punjab (38) ; Bombay Port (31) ; etc.

Other important exporting areas : Madhya Pradesh ; Bombay.

BONES

Total Exports : 2,345,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported**

From UTTAR PRADESH (653) *to* Calcutta (261) ; West Bengal (137) ; Madras (73) ; Rajasthan (38) ; etc.

From PUNJAB (306) *to* W. Bengal (192) ; Bombay Port (80) ; Rajasthan (49) ; U. P. (45) ; Delhi (32) ; etc.

From BOMBAY (240) *to* Bombay Port (133) ; Madras (52) ; Rajasthan (19) ; etc.

From BIHAR (223) *to* W. Bengal (145) ; Calcutta (77) ; etc.

From RAJASTHAN (217) *to* Bombay Port (132) ; Bombay ; etc.

From MADRAS (156) *to* Madras Ch. P. (114) ; Madras M. P. (34) ; etc.

From HYDERABAD (147) *to* Madras Ch. P. (310) ; etc.

From MADHYA PRADESH (122) *to* Bombay Port (32) ; Madras (22) ; etc.

Other important exporting areas : Orissa ; Delhi ; Madhya Bharat ; Mysore ; etc.

CEMENT

Total Exports : 46,535,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BIHAR (12,820) *to* W. Bengal (5,764) ; Calcutta (4,141) ; U. P. (1,820) ; Orissa (887) ; etc.

From RAJASTHAN (10,015) *to* U. P. (3,704) ; Delhi (2,975) ; Punjab (1,577) ; Bombay (748) ; Madhya Bharat (564) ; etc.

From MADRAS (8,642) *to* Madras M. P. (4,284) ; Madras P. Ch. (1,500) ; Mysore (1,105) ; Calcutta (407) ; etc.

From MADHYA PRADESH (3,866) *to* U. P. (1,914) ; Bombay (918) ; Madhya Bharat, etc. (298) ; etc.

From HYDERABAD (4,673) *to* Bombay (3,423) ; Madras (803) ; Bombay Port (437) ; etc.

From PUNJAB (2,265) *to* Delhi (1,025) ; U. P. (876) ; etc.

Other important exporting areas : Orissa ; Bombay ; Madhya Bharat, etc. ; etc.

COAL and COKE

Total Exports : 546·6 *million maunds*

[Figures within brackets denote quantities in *million* mds.]

Chiefly **Exported :**

From BIHAR (261·4) *to* West Bengal (51·6) ; U. P. (51·0) ; Calcutta (41·5) ; Punjab (29·8) ; Delhi (14·8) ; Rajasthan (13·2) ; Orissa (7·7) ; Madhya Bharat, etc. (7·4) ; etc.

From WEST BENGAL (176·3) *to* Calcutta (94·5) ; Bihar (33·1) ; U. P. (16·7) ; Bombay (8·0) ; Punjab (6·8) ; Delhi (5·9) ; Rajasthan (5·7) ; etc.

From MADHYA PRADESH (51·5) *to* Madhya Bharat, etc. (13·5) ; Madras (2·7) ; etc.

From HYDERABAD (16·7) *to* Madras (11·2) ; Mysore (2·3) ; Madras Ch. P. (2·1) ; etc.

From MADHYA BHARAT, Etc. (11·8) *to* Bombay (6·5) ; Madhya Pradesh (3·7) ; etc.

From ORISSA (5'8) *to* Madras (2'5) ; Bombay (1'3) ; Madras M. P. (1'3) ; etc.

Other important exporting areas ; Uttar Pradesh ; Madras Chief Port and Madras Minor Ports ; etc.

COFFEE

Total Exports : 302,448 *maunds*

[Figures within brackets denote quantities in maunds.]

Chiefly **Exported :**

From MADRAS (90,548) to Madras M. P. (44,360) ; Madras Ch. P. (30,794) ; Bombay Port (2,734) ; Hyderabad (3,536) ; Bombay (3,602) ; Orissa (1,895) ; Mysore (1,290) ; Calcutta (1,191).

From MYSORE (36,355) to Madras (26,382) : Madras Ch. P. (4,706) ; Bombay (1,987) ; Madras M. P. (1,815).

From MADRAS M. P. (136,600) *to* Madras (117,105) ; Madras Ch. P. (16,693) ; Mysore (1,812) ; etc.

Other important exporting areas : Hyderabad ; Madras Chief Port ; Bombay ; etc.

COTTON

(1953-54)

Total Exports : 15,921,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BOMBAY STATE (7,106) *to* Bombay (6,045) of which Bombay Port (3,477), Gujarat (2,294), etc. Uttar Pradesh (349) ; Madras (240) ; Mysore (136) ; Madhya Bharat (131) ; Punjab (64) ; etc.

From MADHYA PRADESH (3,273) *to* Bombay Port (1,880) ; Uttar Pradesh (245) ; Madras (394) ; Calcutta (176) ; Madhya Pradesh (134) ; West Bengal (41) ; Punjab (20) ; etc.

From PUNJAB (2,327) *to* Bombay (850) ; Bombay Port (779) ; U. P. (706) ; Calcutta (153) ; Punjab (180) of which Delhi (119) ; Madhya Bharat (68) ; Rajasthan (45) ; etc.

From MADRAS (1,626) *to* Madras (1,425) of which Southern District (579), Central Districts (483), Madras Port (130) ; Mysore (150) ; Bombay ; etc.

From MADHYA BHARAT (539) *to* Bombay (242) of which Bombay Port (183) ; U. P. (133) ; etc.

From RAJASTHAN (495) *to* Bombay Port (372) ; U. P. (51) ; etc.

From HYDERABAD (415) *to* Madras (192) of which Southern Districts (55), Madras Port (71) ; Bombay (141) ; Bombay Port (26) ; etc.

Other important exporting areas : Madras ; U. P. ; etc.

COTTON (Indian) PIECEGOODS

Total Exports 6,556,240 *bales*

[Figures within brackets denote quantities in *thousand* bales.]

Chiefly **Exported :**

From BOMBAY (2,539·5) *to* Bombay Port (970) ; U. P. (242) ; Delhi (206) ; Calcutta (193) ; Punjab (175·2) ; Rajasthan (144) ; Madras (128) ; Madhya Pradesh (102) ; Bihar (95) ; Madras Ch. P. (90) ; Hyderabad (65) ; Mysore ; etc.

From BOMBAY PORT (1,742) *to* Calcutta (294) ; Uttar Pradesh (327) ; Bihar (170) ; Punjab (158) ; Madras Ch. P. (113) ; Delhi (173) ; Rajasthan (95·3) ; Bombay (92) ; Madras (88) ; Madhya Pradesh (79) ; Madhya Bharat (44) ; etc.

From MADHYA BHARAT (683) *to* U. P. (170) ; Bombay (155) ; Punjab (85) ; Delhi (79·9) ; Bombay (31) ; Madhya Pradesh (25) ; Calcutta (10) ; etc.

From CALCUTTA (320) *to* Assam (132) ; Bihar (99) ; Orissa (41) ; Uttar Pradesh (10·0) ; West Bengal (16) ; Delhi (12) ; etc.

From MADHYA PRADESH (247) *to* Bombay Port (123) ; Punjab (32) ; Calcutta (23) ; Orissa (13·2) ; Bihar (12·1) ; Delhi (11) ; U. P. (9·1) ; etc.

From UTTAR PRADESH (203) *to* Bihar (74) ; Calcutta (41) ; Punjab (27) ; Bombay Port (24) ; Delhi (19) ; Madhya Bharat Vindhya Pradesh and Bhopal (9) ; etc.

From MADRAS (124) *to* Madras M. P. (61); Bombay Port (19·1); Madras Ch. P. (15·4); etc.

MADRAS Ch. P. (113) *to* Madras (57·3); Mysore (10·5); Kashmir and Jammu (10·5); Bombay Port (6·7); U. P. (6).; etc.

From DELHI (113) *to* Bombay Port (35); Uttar Pradesh (20·6); Punjab (16·3); Calcutta (14); Bihar (8); etc.

From MYSORE (97) *to* Madras (41); Bombay (12); Bombay Port (10); Calcutta (4); Hyderabad (3); etc.

Other important exporting areas : Orissa ; Rajasthan ; etc.

(COTTON) TWIST & YARN (Indian)

Total Exports : 1,849,600 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADRAS (790) *to* Madras M. P. (374); Calcutta (76); Madras Ch. P. (67); Bombay Port (57); Bombay (47); Madhya Pradesh (37); U. P. (36); Hyderabad (36); etc.

From BOMBAY PORT (170) *to* Bombay (55); Uttar Pradesh (26); Hyderabad (16); Madhya Pradesh (12); etc.

From BOMBAY (161) *to* Madras (55); Hyderabad (25); Bombay Port (24); U. P. (14); etc.

From CALCUTTA (134) *to* Assam (57); W. Bengal (26); etc.

From RAJASTHAN (101) *to* Bombay (65); Bombay Port (13); Delhi (11); etc.

From MYSORE (95) *to* Bombay (50); Madras (22); Hyderabad (15); etc.

Other important exporting areas : Uttar Pradesh ; Madhya Bharat ; Madras Ports ; etc.

FRUITS (Dried)

Total Exports : 5,029,083 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADRAS (1,725) *to* Bombay (517); Hyderabad (200); Madras U. P. (246); Madras M. P. (217); Madhya Pradesh (132); Bombay Port (131); Rajasthan (54); Orissa (50); Delhi (46); West Bengal (44); Uttar Pradesh (31); etc.

From BOMBAY PORT (1,404) *to* Bombay (432) ; Madhya Pradesh (212) ; Madhya Bharat (206); Hyderabad (102) ; Rajasthan (107) ; U. P. (93) ; Madras Ch. P. (65) ; Madras (48) ; Punjab (54) ; Calcutta (23) ; etc.

From MYSORE (795) *to* Bombay (530) ; U. P. (65) ; Bombay Port (59) ; Madras Ch. P. (54) ; Delhi (39) ; Madras (17) ; Hyderabad (16) ; Madhya Bharat (11) ; Rajasthan (7) ; etc.

From MADRAS M. P. (370) *to* Madras (151) ; Madhya Pradesh (76) ; Bombay (46) ; U. P. (21) ; Hyderabad (17) ; Delhi (10) ; etc.

From BOMBAY (158) *to* Rajasthan (41) ; Delhi (37) ; Bombay Port (15) ; Hyderabad (26) ; Punjab (10) ; Madhya Bharat (11) ; etc.

From DELHI (133) *to* Bombay Port (83) ; Uttar Pradesh (14) ; Rajasthan (13) ; Bombay (8) ; etc.

From ORISSA (100) *to* Bihar (26) ; West Bengal (19) ; Uttar Pradesh (11) ; Madhya Pradesh (10) ; Delhi (9) ; Madras (8) ; Punjab (5) ; etc.

From PUNJAB (96) *to* Bombay Port (33) ; Uttar Pradesh (23) ; Calcutta (13) ; Bihar (12) ; etc.

WEST BENGAL (51) *to* Bihar (35) ; Uttar Pradesh (7) ; Bombay Port (3) ; etc.

GHEE

Total Exports : 80,460 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADRAS (38) *to* Calcutta (18) ; Bihar (5) ; etc.

From UTTAR PRADESH (21) *to* Calcutta (18) ; etc.

Other important exporting areas : Bombay ; Bihar ; etc.

GLASS

Total Exports : 1,509,889 *maunds*

[Figures within brackets indicate quantities in *thousand* mds.]

Chiefly Exported :

From UTTAR PRADESH (419) *to* Delhi (99) ; Punjab (66) ; Bombay (63) ; Bihar (33) ; Madras Ch. P. (27) ; Rajasthan (22) ;

Bombay Port (19) ; Madhya Bharat, etc. (16) ; Hyderabad (12) ; Madhya Pradesh (12) ; etc.

From CALCUTTA (198) *to* Bihar (32) ; Madras Ch. P. (29) ; Delhi (24) ; Mysore (21) ; Madras (15) ; etc.

From BIHAR (184) *to* Calcutta (42) ; Madras (20) ; U. P. (19) ; Madras Ch. P. (19) ; Delhi (17) ; Mysore (16) ; etc.

From BOMBAY PORT (135) *to* Bombay (58) ; Madras Ch. P. (17) ; Delhi (11) ; etc.

From Bombay (130) *to* Bombay Port (52) ; Punjab (26) ; Madras Ch. P. (10) ; etc.

From WEST BENGAL (120) *to* Bombay Port (23) ; Punjab (18) ; Madras Ch. P. (17) ; Bihar (11) ; etc.

Other important exporting areas : Orissa ; Hyderabad ; Madras Chief Port ; etc.

GRAM

(Includes Gram Products)

Total Exports : 16,892,000 *maunds*

[Figures within brackets indicate quantities in *thousand* mds.]

Chiefly **Exported :**

From PUNJAB (5,760) *to* Madras (1,588) ; U. P. (1,000) ; Madras Ch. P. (691) ; Mysore (531) ; Bombay (522) ; Delhi (315) ; Madras M. P. (307) ; Calcutta (200) ; Bombay Port (188) ; Rajasthan (124) ; etc.

From MADHYA PRADESH (2,623) *to* Madras (1,066) ; Bombay Port (344) ; Madras M. P. (331) ; Bombay (298) ; Madras Ch. P. (257) ; Calcutta (134) ; etc.

From UTTAR PRADESH (1,994) *to* Bombay (312) ; Bombay Port (296) ; Madras (247) ; Bihar (110) ; Calcutta (91) ; etc.

From HYDERABAD (1,678) *to* Madras (950), Madras M. P. (277) ; Madras Ch. P. (235) ; etc.

From RAJASTHAN (1,140) *to* Bombay (302) ; Madras (298) ; Mysore (196) ; Madras Ch. P. (94) ; etc.

Other important exporting areas : Madras ; Madhya Bharat ; Orissa ; Bihar ; Bombay ; etc.

GUNNY BAGS & CLOTH

Total Exports : 3,473,400 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly Exported :

From CALCUTTA (845) *to* Bihar (158) ; Uttar Pradesh (149) ; Madhya Pradesh (106) ; Punjab (79) ; Orissa (69) ; Madras (65) ; West Bengal (64) ; etc.

From WEST BENGAL (505) *to* Bihar (154) ; Madhya Pradesh (69) ; Bombay Port (59) ; Bombay (43) ; Rajasthan (44) ; etc.

From BIHAR (379) *to* U. P. (84) ; Rajasthan (54) ; Calcutta (49) ; Punjab (42) ; Bombay (38) ; Madras (30) ; Madhya Pradesh (30) ; Delhi (23) ; etc.

From UTTAR PRADESH (359) *to* Rajasthan (127) ; Bombay (55) ; Madhya Bharat, etc. (48) ; Punjab (44) ; Madhya Pradesh (36) ; Delhi (21) ; etc.

From BOMBAY PORT (305) *to* Bombay (201) ; Hyderabad (35) ; Rajasthan (28) ; Madhya Pradesh (21) ; Madhya Bharat ; etc.

From MADRAS (283) *to* Madras M. P. (132) ; Hyderabad (52) ; Mysore (27) ; Madras Ch. P. (24) ; etc.

Other important exporting areas : Bombay ; Delhi ; etc.

GUR, JAGGERY & GUR SHAKKAR

Total Exports : 9,931,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly Exported :

From UTTAR PRADESH (5,898) *to* Bombay (1,619) ; Rajasthan (1,578) ; Punjab (1,172) ; Madhya Pradesh (419) ; Madhya Bharat, etc. (381) ; etc.

From MADRAS (1,368) *to* Madhya Pradesh (462) ; Madras M. P. (270) ; Hyderabad (211) ; Bombay (133) ; Bihar (44) ; Orissa (32) ; etc.

From PUNJAB (903) to Bombay (233) ; Rajasthan (188) ; Madhya Pradesh (130) ; U. P. (178) ; Calcutta (95) ; etc.

From DELHI (629) *to* Rajasthan (462) ; Bombay (80) ; etc.

From BOMBAY (404) to Hyderabad (103) ; Madras (84) ; Madhya Pradesh (83) ; Mysore (60) ; Bombay Port (43) ; etc.

Other important exporting areas : Bihar ; Hyderabad ; Madhya Pradesh ; etc.

HEMP

(Indian and other Fibres excluding Jute)

Total Exports : 745,196 *maunds*

[Figures within brackets indicate quantities in *thousand* mds.]

Chiefly **Exported :**

From UTTAR PRADESH (229) *to* Calcutta (187) ; Punjab (12) ; etc.

From MADHYA PRADESH (107) *to* Calcutta (41) ; Madras (28) ; Uttar Pradesh (23) ; etc.

From MADRAS M. P. (79) *to* Madras (69) ; U. P. (7) ; etc.

From ORISSA (73) *to* Madras (27) ; Calcutta (22) ; W. Bengal (17) ; etc.

From MADRAS (72) *to* Madras M. P. (60) ; West Bengal (7) ; Calcutta (2) ; etc.

From BOMBAY PORT (45) *to* Bombay (37) ; Madras (3) ; etc.

From BOMBAY (41) *to* Calcutta (23) ; Bombay Port (12) ; etc.

Other important exporting areas : Bihar ; Punjab ; Madhya Bharat ; etc.

HIDES (RAW)

Total Exports : 1,157,990 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From UTTAR PRADESH (293) *to* Madras Ch. P. (66) ; Calcutta (60) ; Rajasthan (42) ; Madras (26) ; Punjab (34) ; Bombay ; etc.

From BIHAR (291) *to* Calcutta (190) ; West Bengal (58) ; Uttar Pradesh (26) ; etc.

From WEST BENGAL (115) *to* Calcutta (104) ; Madras Ch. P. (6) ; Madras (3) ; etc.

From ORISSA (80) *to* Madras (46) ; Madras Ch. P. (18) ; Calcutta (9) ; etc.

From CALCUTTA (89) *to* Madras Ch. P. (46) ; Madras (37) ; etc.

Other important exporting areas : Madras ; Assam ; etc.

HIDES AND SKINS—TANNED AND DRESSED

Total Exports : 279,650 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From UTTAR PRADESH (49) *to* Bombay Port (13) ; Calcutta (11) ; Bombay (5) ; Madhya Bharat (3) ; etc.

From CALCUTTA (47) *to* U. P. (24) ; Punjab (6) ; Bihar (5) ; etc.

From MADRAS CH. P. (41) *to* Madras (19) ; Punjab (6) ; Bihar (5) ; U. P. (2) ; etc.

From BOMBAY PORT (28) *to* Bombay (19) ; U. P. (2) ; etc.

From MADRAS (22) *to* Madras Ch. P. (15) ; M. P. (4) ; etc.

Other important exporting areas : West Bengal ; Hyderabad ; Bombay ; etc.

IRON & STEEL

(Bars, Sheets, Girders, Etc.)

Total Exports : 46,733,500 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BIHAR (16,759) *to* Calcutta (4,672) ; Uttar Pradesh (2,279) ; Bombay Port (1,836) ; West Bengal (1,523) ; Punjab (1,097) ; Madras Ch. P. (804) ; Bombay (712) ; etc.

From WEST BENGAL (12,434) *to* Calcutta (4,739) ; Uttar Pradesh (1,840) ; Punjab (1,135) ; Bihar (982) ; Delhi (676) ; Bombay Port (602) ; Madras (561) ; Bombay (471) ; Madras Ch. P. (338) ; Rajasthan (167) ; Madhya Pradesh (342) ; Madhya Bharat (124) ; etc.

From CALCUTTA (7,105) *to* West Bengal (2,274) ; Bihar (1,380) ; Uttar Pradesh (743) ; Assam (531) ; Delhi (418) ; Madras (391) ; Orissa (328) ; Punjab (286) ; Madras Ch. P. (284) ; Madhya Pradesh (222) ; etc.

From BOMBAY PORT (3,719) *to* Bombay (1,582) ; Madras (363) ; Madhya Pradesh (354) ; Hyderabad (283) ; Punjab (260) ; Uttar Pradesh (190) ; Rajasthan (140) ; Madras Ch. P. (117) ; Madhya Bharat, etc. (99) ; Mysore (78) ; etc.

From MADRAS CHIEF PORT (1,511) *to* Madras (1,067) ; Mysore (222) ; Madras M. P. (151) ; Bombay (28) ; Hyderabad (26) ; etc.

From UTTAR PRADESH (917) *to* Delhi (295) ; Punjab (157) ; Madhya Bharat (89) ; Rajasthan (73) ; Bihar (63) ; Bombay (55) ; Calcutta (41) ; Madras (30) ; Madhya Pradesh (34) ; etc.

From MYSORE (843) *to* Madras (321) ; Madras Ch. P. (207) ; Bombay (109) ; Bombay Port (68) ; Madras M. P. (62) ; Hyderabad (39) ; etc.

From BOMBAY (788) *to* Bombay Port (371) ; Madras (67) ; Hyderabad (45) ; Rajasthan (31) ; Uttar Pradesh (27) ; etc.

Other important exporting areas : Madhya Pradesh ; Punjab ; Delhi ; Orissa ; etc.

JOWAR

Total Exports : 8,455,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADHYA PRADESH (2,194) *to* Bombay (1,067) ; Hyderabad (506) ; Bombay Port (342) ; Madras (175) ; etc.

From MADHYA BHARAT (1,930) *to* Bombay (957) ; Madras (266) ; Hyderabad (254) ; Bombay Port (251) ; U. P. (79).

From RAJASTHAN (1,505) *to* Bombay (800) ; Madras (258) ; Bombay Port (247) ; U. P. (95) ; etc.

Other important exporting areas : Uttar Pradesh ; Bombay Port ; etc.

JUTE (RAW)

(Loose)

Total Exports : 2,299,100 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From ASSAM (2,177) *to* Calcutta (2,160) ; etc.

From BIHAR (51) *to* Uttar Pradesh (36) ; W. Bengal (10) ; etc.

From WEST BENGAL (21) *to* Bihar (8) ; Calcutta (8) ; etc.

(Pucca Bales)

Total Exports : 4,335,400 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BIHAR (1,715) *to* Calcutta (1,159) ; West Bengal (541) ; Madhya Pradesh (6) ; etc.

From ORISSA (876) *to* W. Bengal (420) ; Calcutta (227) ; Madras (187) ; etc.

From WEST BENGAL (872) *to* Calcutta (847) ; etc.

From MADRAS (525) *to* W. Bengal (422) ; Calcutta (93) ; etc.

From CALCUTTA (247) *to* West Bengal (223) ; etc.

LAC AND SHELLAC

Total Exports : 359,238 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADHYA PRADESH (156) *to* Calcutta (117) ; Uttar Pradesh (20) ; Bihar ; etc.

From BIHAR (106) *to* Calcutta (103) ; West Bengal (2) ; etc.

From CALCUTTA (31) *to* BIHAR (21) ; Uttar Pradesh ; etc.

From MADHYA BHARAT, ETC. (14) *to* Calcutta (12) ; etc.

Other important exporting areas : Uttar Pradesh ; Orissa ; etc.

MAIZE

Total Exports : 2,764,610 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From RAJASTHAN (1,131) *to* Punjab (381) ; Bombay (293) ; Delhi (215) ; Bihar (178) ; etc.

From UTTAR PRADESH (760) *to* Punjab (563) ; Bihar (186).

From MADHYA BHARAT (543) *to* Bombay (241) ; Punjab (197).

Other important exporting areas : Madhya Pradesh ; Bombay ; Delhi ; etc.

MANGANESE ORE

Total Exports : 27,274,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADHYA PRADESH (15,822) *to* Madras M. P. (11,377) ; Bombay Port (4,503) ; etc.

From BIHAR (3,731) *to* Calcutta (2,840) ; W. Bengal (889) ; etc.

From BOMBAY (3,759) *to* Bombay Port (3,585) ; Goa (173).

From MADRAS (2,271) *to* Madras M. P. (1,466) ; Goa (681) ; Madras Ch. P. (87) ; etc.

From MYSORE (1,271) *to* Madras Ch. P. (971) ; Bombay Port (292) ; etc.

MILLETS

(Other than Jowar and Bajra)

Total Exports : 31,170 *maunds*

Chiefly **Exported :**

From BOMBAY (16,186) *to* Bombay Port (14,254) ; etc.

Other important exporting areas : Assam ; Rajasthan ; Bombay Port ; etc.

MOLASSES

Total Exports : 1,201,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From UTTAR PRADESH (406) *to* Punjab (173) ; West Bengal (129) ; Bihar (83) ; Assam ; etc.

From BOMBAY (222) *to* U. P. (109) ; Calcutta (32) ; West Bengal (19) ; Madras ; etc.

From BIHAR (188) *to* Calcutta (75) ; West Bengal (70) ; Assam (33) ; etc.

From MADHYA BHARAT, ETC. (99) *to* Uttar Pradesh (33) ; Rajasthan (27) ; Bombay (14) ; etc.

From MADRAS (87) *to* Madras Ch. P. (28) ; Calcutta (26) ; Mysore (26) ; etc.

Other important exporting areas : Hyderabad ; W. Bengal ; etc.

MYROBALANS

(Dyes and Tans)

Total Exports : 798,215 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADHYA PRADESH (505) *to* Madras M. P. (281); Uttar Pradesh (129); West Bengal (35·3); Bombay Port (17·9); Calcutta (7·6); Punjab (6·8); Bombay (6·5); Bihar (5); etc.

From BOMBAY (86) *to* Bombay Port (35); Madras (27); Mysore (14); Hyderabad (3); etc.

From ORISSA (75) *to* Madras M. P. (38); Calcutta (13); Madras (5); West Bengal (4); etc.

From MADHYA BHARAT (57) *to* Madras M. P. (33); Uttar Pradesh (16); West Bengal (5); etc.

From MADRAS (42) *to* Madras M. P. (30); Madras Ch. P. (8); Calcutta; etc.

From BIHAR (11) *to* Calcutta (5); West Bengal (5); etc.

Other important exporting areas : W. Bengal; Mysore; etc.

OIL—CASTOR

Total Exports: 690,100 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BOMBAY (434) *to* Bombay Port (423); Madhya Bharat, etc. (3); Rajasthan; etc.

From HYDERABAD (121) *to* Bombay Port (66); Orissa (16); etc.

From UTTAR PRADESH (33) *to* Delhi (14); W. Bengal (12); Calcutta (4); etc.

From BOMBAY PORT (23) *to* Bombay (13); Madras Ch. P. (2); etc.

From MADRAS (17) *to* Madras M. P. (6); Bihar (3); etc.

From RAJASTHAN (16) *to* Madhya Bharat (16).

Other important exporting areas: Bihar; Madhya Pradesh; Madhya Bharat; etc.

OIL—COCONUT

Total Exports : 903,984 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADRAS M. P. (385) *to* Madras (213) ; Bombay (76) ; Madras Ch. P. (15) ; Madhya Bharat ; etc.

From Madras (167) *to* Hyderabad (35) ; Bihar (34) ; Madhya Pradesh (31) ; West Bengal (10) ; etc.

From BOMBAY PORT (157) *to* Bombay (88) ; Madhya Pradesh (21) ; Madhya Bharat (17) ; Rajasthan (10) ; Uttar Pradesh (9).

From CALCUTTA (119) *to* Assam (39) ; Bihar (38) ; Uttar Pradesh (15) ; W. Bengal (14) ; Orissa (10) ; etc.

Other important exporting areas : Mysore ; Bombay ; Bihar ; etc.

OIL—GROUNDNUT

Total Exports : 4,654,600 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BOMBAY (1,763) *to* Bombay Port (727) ; Delhi (696) ; Uttar Pradesh (238) ; Rajasthan (29) ; Madhya Bharat (23) ; etc.

From MADRAS (1,181) *to* Madras Ch. P. (556) ; Calcutta (162) ; W. Bengal (97) ; Madras M. P. (71) ; Orissa (67) ; Madhya Pradesh (56) ; U. P. (56) ; Bombay Port (49) ; Bihar (31) ; etc.

From HYDERABAD (875) *to* Bombay Port (527) ; Bombay (110) ; Uttar Pradesh (73) ; Madhya Pradesh (70) ; Delhi (20) ; W. Bengal (17) ; etc.

From BOMBAY PORT (86) *to* Bombay (29) ; Madhya Bharat (9) ; Uttar Pradesh (9) ; Calcutta (8) ; etc.

From CALCUTTA (177) *to* Assam (105) ; Bihar (45) ; W. Bengal (23) ; etc.

From MYSORE (171) *to* Bombay (138) ; etc.

Other important exporting areas : Madhya Pradesh ; Madhya Bharat ; etc.

OIL—OTHERS

(Other than Castor, Coconut and Groundnut)

Total Exports : 2,040,960 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From UTTAR PRADESH (606) *to* Bihar (229) ; Calcutta (159) ; W. Bengal (39) ; Punjab (35) ; Delhi (35) ; Orissa (31) ; Bombay (28) ; Assam (22) ; etc.

From BOMBAY PORT (203) *to* Madhya Pradesh (68) ; Bombay (58) ; U. P. (24) ; Madhya Bharat (22) ; etc.

From CALCUTTA (195) *to* Assam (109) ; W. Bengal (34) ; Bihar (31) ; etc.

From MADHYA PRADESH (185) *to* Bombay Port (74) ; Uttar Pradesh (28) ; Bihar (26) ; etc.

From MADHYA BHARAT (173) *to* Bombay Port (106) ; Delhi (26) ; Uttar Pradesh (20) ; etc.

From MADRAS (140) *to* Madras M. P. (80) ; Hyderabad (12) ; Bihar (11) ; etc.

From BOMBAY (146) *to* Bombay Port (74) ; U. P. (18) ; Bihar (11) ; etc.

From RAJASTHAN (93) *to* Bombay Port (45) ; W. Bengal (10) ; U. P. (8) ; etc.

OILCAKE—CASTOR

Total Exports : 406,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From HYDERABAD (213) *to* Madras (181) ; Bombay (28) ; etc.

From BOMBAY PORT (128) *to* Bombay (117) ; etc.

From UTTAR PRADESH (10) *to* Bihar (5) ; W. Bengal (2) ; etc.

Other important exporting areas : Madhya Bharat ; Bihar ; Mysore ; etc.

OILCAKES (Other than CASTOR)

Total Exports : 9,282,300 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From HYDERABAD (1,483) *to* Madras (1,050) ; Bombay (139) ; Madras M. P. (120) ; Madras Ch. P. (64) ; Mysore (47) ; Madhya Pradesh (22) ; etc.

From BOMBAY PORT (1,230) *to* Bombay (1,129) ; Madras (66) ; Madhya Bharat (8) ; etc.

From UTTAR PRADESH (1,180) *to* Punjab (642) ; W. Bengal (204) ; Bihar (121) ; Delhi (69) ; Madhya Bharat, etc. (58) ; etc.

From BOMBAY (1,100) *to* Madras (380) ; Bombay Port (276) ; Hyderabad (76) ; Madras M. P. (74) ; Uttar Pradesh (49) ; Delhi (49) ; Madhya Bharat (47) ; etc.

From MADHYA PRADESH (864) *to* Bombay (196) ; Bombay Port (190) ; Calcutta (99) ; Bihar (97) ; Delhi (59) ; Uttar Pradesh (46) ; Madras (44) ; West Bengal (27) ; etc.

From MADRAS (655) *to* Madras M. P. (417) ; Madras Ch. P. (117) ; Mysore (49) ; Bombay (36) ; Calcutta (10) ; etc.

From BIHAR (505) *to* W. Bengal (436) ; Punjab (37) ; Calcutta (13) ; Uttar Pradesh (7) ; etc.

OILSEEDS—CASTOR

Total Exports : 752,140 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From HYDERABAD (311) *to* Bombay Port (290) ; Madras (14).

From BOMBAY (266) *to* Bombay Port (247) ; Rajasthan (13).

From BIHAR (65) *to* Calcutta (30) ; West Bengal (17) ; Bombay Port (14) ; etc.

Other important exporting areas : Madras ; Madhya Pradesh.

OILSEEDS—COTTON

Total Exports : 6,651,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADHYA PRADESH (2,398) *to* Punjab (1,077) ; Uttar Pradesh (484) ; Bombay (314) ; Bombay Port (241) ; Rajasthan (207) ; etc.

From BOMBAY (2,233) *to* Bombay Port (678) ; Rajasthan (651) ; Punjab (583) ; Madras (218) ; etc.

From HYDERABAD (734) *to* Bombay Port (381) ; Punjab (101); Bombay (94) ; Madras (55) ; Rajasthan (55) ; U. P. (40) ; etc.

From MADRAS (377) *to* Bombay Port (103) ; Bombay (85) ; Madhya Pradesh (43) ; Punjab (40) ; etc.

Other important exporting areas : Punjab ; Madhya Bharat ; Mysore ; etc.

OILSEEDS—GROUNDNUT

Total Exports : 5,185,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BOMBAY (2,830) *to* Bombay Port (2,288) ; Madhya Pradesh (302) ; Madras (139) ; Uttar Pradesh (30) ; etc.

From MADRAS (909) *to* Madras Ch. P. (628) ; Madras M. P. (169) ; Bombay Port (44) ; etc.

From HYDERABAD (815) *to* Bombay Port (612) ; Madras Ch. P. (78) ; Madras (63) ; etc.

From PUNJAB (167) *to* Uttar Pradesh (157) ; etc.

From MYSORE (120) *to* Madras (50) ; Bombay Port (31) ; Madras Ch. P. (31) ; etc.

From MADHYA BHARAT (91) *to* Rajasthan (39) ; Uttar Pradesh (27) ; etc.

Other important exporting areas : Bihar ; Orissa ; Rajasthan ; etc.

OILSEEDS—LINSEED

Total Exports : 1,334,300 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BIHAR (371) *to* Calcutta (325) ; Uttar Pradesh (19) ; West Bengal (27).

From UTTAR PRADESH (275) *to* Calcutta (110) ; Punjab (94) ; Bihar (28).

From MADHYA BHARAT, ETC. (263) *to* Madhya Pradesh (129) ; Uttar Pradesh (87) ; Rajasthan (17) ; Calcutta (15) ; etc.

From HYDERABAD (193) *to* Bombay Port (132) ; Madhya Pradesh (48) ; etc.

From MADHYA PRADESH (76) *to* Calcutta (23) ; Bombay Port (15) ; U. P. (15) ; etc.

From BOMBAY (71) *to* Bombay Port (41) ; Madhya Pradesh (27) ; etc.

Other important exporting areas : West Bengal ; Orissa ; Bombay Port ; etc.

OILSEEDS—RAPE & MUSTARD

Total Exports : 4,067,100 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From UTTAR PRADESH (1,812) *to* Calcutta (1,316) ; Bihar (326) ; West Bengal (131) ; Delhi (21) ; etc.

From PUNJAB (1,185) *to* Calcutta (456) ; West Bengal (201) ; Uttar Pradesh (124) ; Bihar (76) ; etc.

From BOMBAY (281) *to* Bombay Port (111) ; Calcutta (89) ; West Bengal (14) ; etc.

From MADHYA PRADESH (214) *to* West Bengal (87) ; Calcutta (86) ; Bihar (12) ; etc.

From BIHAR (156) *to* Calcutta (79) ; West Bengal (73) ; etc.

From RAJASTHAN (111) *to* Uttar Pradesh (49) ; Calcutta (21) ; West Bengal (16) ; etc.

Other important exporting areas : Orissa ; Delhi ; Calcutta ; etc.

OILSEEDS—TIL or JINJILI

(Sesamum)

Total Exports : 1,619,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADHYA PRADESH (417) *to* Madras (122) ; Madras Ch. P. (65) ; Bombay (52) ; Bombay Port (47) ; Punjab (38) ; Uttar Pradesh (26) ; etc.

From BOMBAY (279) *to* Bombay Port (79) ; Madras (58) ; Rajasthan (44) ; Madras Ch. P. (38) ; Delhi (27) ; etc.

From HYDERABAD (224) *to* Madras (117) ; Madras Ch. P. (43) ; Bombay Port (35) ; etc.

From UTTAR PRADESH (218) *to* Madras (60) ; Madras Ch. P. (54) ; Delhi (24) ; Punjab (22) ; Bombay Port (19) ; Rajasthan (10) ; etc.

From MADHYA BHARAT (135) *to* U. P. (32) ; Madras (24) ; Rajasthan (19) ; Bombay Port (12) ; etc.

From MYSORE (103) *to* Madras (56) ; Madras Ch. P. (18) ; Bombay Port (17) ; etc.

Other important exporting areas : Madras ; Orissa ; etc.

PULSES

(Other than Gram and Gram Products)

Total Exports : 16,119,712 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From UTTAR PRADESH (3,869) *to* Calcutta (886) ; Madras (794) ; Bihar (677) ; Mysore (403) ; Madras Ch. P. (198) ; West Bengal (180) ; Punjab (130) ; Bombay Port (121) ; Madras M. P. (109).

From MADHYA PRADESH (3,471) *to* Bombay Port (1,240) Madras (634) ; Calcutta (462) ; Bombay (308) ; Madras M. P (247) ; Madras Ch. P. (224) ; U. P. (131) ; Orissa (91) Bihar (78) ; W. Bengal (71).

From BIHAR (1,629) *to* Calcutta (739) ; Assam (604) ; W. Bengal (206) ; etc.

From BOMBAY (1,610) *to* Bombay Port (1,105) ; Mysore (128) ; Delhi (86) ; U. P. (82) ; etc.

From HYDERABAD (988) *to* Bombay Port (408) ; Mysore (265) ; Madras (140) ; Bombay (74) ; Calcutta (33) ; U. P. (26) ; etc.

From MADHYA BHARAT, ETC. (867) *to* Madras (254) ; Bombay Port (171) ; Bombay (150) ; U. P. (103) ; etc.

Other important exporting areas : Calcutta ; Rajasthan ; West Bengal ; Orissa ; etc.

RICE IN THE HUSK

Total Exports : 7,752,900 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From ORISSA (2,630) *to* W. Bengal (868) ; Calcutta (439) ; Madras (382) ; Madras M. P. (108) ; etc.

From WEST BENGAL (2,588) *to* Calcutta (2,549).

Other importont exporting areas : Madras : Madhya Pradesh.

RICE NOT IN THE HUSK

Total Exports : 35,579,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADRAS (11,689) *to* Madras M. P. (5,855) ; Madras Ch. P. (2,209) ; Bombay (1,279) ; Bombay Port (952) ; Mysore (928) ; Hyderabad (371) ; etc.

From MADHYA PRADESH (4,229) *to* Bombay Port (1,030) ; Bihar (976) ; Bombay (627) ; Madras M. P. (526) ; W. Bengal (185) ; U. P. (166) ; Madras (145) ; etc.

From ORISSA (3,483) *to* Madras M. P. (1,034) ; Calcutta (657) ; Hyderabad (380) ; Bihar (275) ; West Bengal (249) ; Madras Ch. P. (98) ; etc.

From WEST BENGAL (3,780) *to* Calcutta (2,764) ; Bihar (400) ; Bombay Port (181) ; U. P. (113) ; Madras M. P. (92) ; etc.

From MADRAS M. P. (3,415) *to* Madras (2,262) ; Hyderabad (122) ; Mysore (110) ; etc.

From CALCUTTA (1,922) *to* U. P. (1,338) ; W. Bengal (338) ; Assam (86) ; etc.

From UTTAR PRADESH (1,689) *to* Bombay (396) ; Bombay Port (365) ; Delhi (314) ; Calcutta (222) ; Rajasthan (168) ; Punjab (74) ; etc.

From BOMBAY PORT (1,504) *to* Bombay (952) ; Punjab (340) ; Hyderabad (195) ; etc.

Other important exporting areas : Hyderabad ; Bihar ; Bombay ; etc.

RUBBER (RAW)

Total Exports : 36,185 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From CALCUTTA (15) *to* West Bengal (14) ; etc.

From MADRAS (17) *to* Madras M. P. (15) ; etc.

Other important exporting areas : Madras Port ; Bombay Port ; etc.

SALT

Total Exports : 25,133,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BOMBAY (10,666) *to* Uttar Pradesh (4,103) ; Madhya Pradesh (1,729) ; Hyderabad (1,644) ; Madhya Bharat, etc. (1,197) ; Bihar (780) ; Punjab (447) ; Madras (234) ; Mysore (238) ; etc.

From CALCUTTA (6,490) *to* Bihar (3,433) ; West Bengal (1,357) ; Assam (622) ; etc.

From MADRAS MINOR PORTS (2,569) *to* Madras (1,795) ; Mysore (359) ; Orissa (174) ; Madhya Pradesh (15·4) ; etc.

From RAJASTHAN (3,401) *to* Punjab (1,994) ; Uttar Pradesh (632) ; Delhi (616) ; etc.

From MADRAS (2,105) *to* Orissa (1,002) ; Hyderabad (502) ; Mysore (251) ; Bihar (214) ; Madhya Pradesh (115) ; etc.

SKINS (RAW)

Total Exports : 626,770 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly Exported :

From BOMBAY (172) *to* Madras (83) ; Bombay Port (73) ; Madras Ch. P. (5) ; etc.

From DELHI (64) *to* Bombay Port (36) ; Madras Ch. P. (15) ; etc.

From UTTAR PRADESH (51) *to* Calcutta (21) ; Bombay Port (11) ; etc.

From MADHYA PRADESH (48) *to* Madras (24) ; Madras Ch. P. (15) ; Bombay Port (4) ; etc.

From RAJASTHAN (47) *to* Bombay Port (17) ; Delhi (12) ; etc.

Other important exporting areas : Bihar ; Madras ; Mysore ; etc.

HIDES and SKINS (TANNED and LEATHER)

Total Exports : 279,650 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly Exported :

From MADRAS Ch. P. (48) *to* Madras (15) ; Hyderabad (14) ; etc.

From BOMBAY (40) *to* Bombay Port (19) ; Madras Ch. P. (8) ; Madras (2) ; etc.

From MADRAS (29) *to* Madras Ch. P. (12) ; etc.

From BOMBAY PORT (27) *to* Uttar Pradesh (12) ; Bombay (6) ; Madhya Pradesh ; etc.

From Calcutta (15) *to* Uttar Pradesh (11) ; Bihar (2) ; etc.

Other important exporting areas : U. P. ; Hyderabad ; etc.

SUGAR (Excluding Khandsari)

Chiefly Exported :

From UTTAR PRADESH (7,277) *to* Punjab (1,919) ; Bombay (1,696) ; Delhi (1,496) ; Rajasthan (910) ; Madhya Bharat, etc. (453) ; Madhya Pradesh (392) ; Calcutta (195) ; Bihar (69) ; etc.

From BOMBAY PORT (6,706) *to* Bombay (1,829); Punjab (1,219); Delhi (1,059); Madhya Pradesh (1,029); U. P. (840); Madhya Bharat (434); etc.

From CALCUTTA (3,142) *to* Bihar (1,541); W. Bengal (739); Assam (474); Orissa (190); etc.

From MADRAS Ch. P. (2,123) *to* Madras (1,326); Mysore (235); Bombay (81); etc.

From BIHAR (1,339) *to* Calcutta (529); West Bengal (384); Bombay (160); Assam (98); etc.

From BOMBAY (930) *to* Bombay Port (481); Hyderabad (196); Madhya Pradesh (164); etc.

Other important exporting areas: Madras; Delhi; Mysore.

SUGAR (Khandsari)

Total Exports: 550,100 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported:**

From UTTAR PRADESH (493) *to* Punjab (238); Rajasthan (192); Delhi (33); etc.

From DELHI (26) *to* Rajasthan (21); Punjab (3); etc.

Other important exporting areas: Bihar; Madras; etc.

TEA

Total Exports: 4,731,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported:**

From ASSAM (2,329) *to* Calcutta (2,178); W. Bengal (145); etc.

From CALCUTTA (1,033) *to* Bombay (230); Madhya Pradesh (140); West Bengal (130); Bombay Port (124); Punjab (103); Hyderabad (82); Uttar Pradesh (78); Bihar (47); etc.

Other important exporting areas: West Bengal; Madhya Pradesh; etc.

TEAK

Total Exports: 977,100 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported:**

From MADHYA PRADESH (252) *to* Madras (64); Madras Ch. P. (27); U. P. (25); Bihar (25); W. Bengal (22); etc.

From HYDERABAD (178) *to* Madras (156); etc.

From CALCUTTA (83) *to* West Bengal (49); Bombay (9); Bombay Port (7); etc.

From MADRAS (102) *to* Madras M. P. (38); Bombay (14); Madras Ch. P. (13); etc.

From MADRAS MINOR PORTS (97) *to* Madras (64); Madras Ch. P. (12·2); etc.

Other important exporting areas: W. Bengal; Orissa; Mysore; etc.

TIMBER (Other than TEAK)

Total Exports : 21,719,000 *maunds*

[Figures within brackets denote quantities in *thousand mds.*]

Chiefly **Exported :**

From ORISSA (3,542) *to* Calcutta (850); Bihar (751); West Bengal (713); Punjab (468); Uttar Pradesh (249); Madras (221); Madhya Pradesh (122); etc.

From MADHYA PRADESH (3,225) *to* Bombay (624); Calcutta (537); Uttar Pradesh (428); Bombay Port (355·6); Delhi (343); Punjab (160); Madras (160); Rajasthan (142); West Bengal (86); Madhya Bharat, etc. (16); etc.

From BIHAR (2,225) *to* West Bengal (802); Uttar Pradesh (448); Calcutta (476); Punjab (201); Delhi (92); Madhya Pradesh (88); Rajasthan (42); etc.

From UTTAR PRADESH (2,007) *to* Punjab (1,349); Delhi (201); Rajasthan (191); etc.

From MADRAS MINOR PORTS (1,946) *to* Madras (1,486); Mysore (236); Madras Ch. P. (156); etc.

From PUNJAB (1,943) *to* Delhi (488); Uttar Pradesh (447); Bombay Port (391); Bombay (204); Rajasthan (133); West Bengal (93); Calcutta (61); Bihar (60); etc.

From WEST BENGAL (1,397) *to* Calcutta (834); Uttar Pradesh (212); Delhi (155); Bihar (112); etc.

From MADRAS (1,092) *to* Madras M. P. (382); Madras Ch. P. (282); Bombay (162); etc.

Other important exporting areas: Madhya Bharat; Hyderabad; Bombay; etc.

TOBACCO (Raw)

Total Exports : 2,430,200 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From MADRAS (1,035) *to* Madras M. P. (598) ; Madras Ch. P. (109) ; Hyderabad (82) ; Mysore (63) ; Uttar Pradesh (46) ; Calcutta (43) ; Bombay Port (33) ; Bombay (17) ; etc.

From BOMBAY (658) *to* Bombay Port (178) ; Madhya Pradesh (143) ; Madras (57) ; Madhya Bharat (49) ; Uttar Pradesh (47) ; Bihar (44) ; Rajasthan (32) ; Calcutta (28) ; etc.

From BIHAR (182) *to* Uttar Pradesh (92) ; Calcutta (38) ; West Bengal (22) ; Assam (18) ; etc.

From CALCUTTA (172) *to* Uttar Pradesh (73) ; Orissa (40) ; Bihar (37) ; West Bengal (15) ; etc.

From UTTAR PRADESH (132) *to* Punjab (76) ; Rajasthan (30) ; etc.

Other important exporting areas : Mysore, Madhya Pradesh ; etc.

WHEAT

Total Exports : 13,761,000 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From UTTAR PRADESH (3,103) *to* Calcutta (1,888) ; Delhi (306) ; Bombay Port (262) ; Bombay (241) ; W. Bengal (214) ; Bihar (132) ; etc.

From PUNJAB (2,169) *to* Delhi (1,989) ; Bombay Port (38) ; U. P. (34) ; etc.

From RAJASTHAN (1,491) *to* Bombay (667) ; Bombay Port (230) ; Delhi (166) ; Madhya Bharat (155) ; Mysore (126) ; Madhya Pradesh (77) ; etc.

From CALCUTTA (1,460) *to* Bihar (631) ; W. Bengal (630) ; Orissa (115) ; Assam (46) ; etc.

From BOMBAY (1,237) *to* Bombay Port (888) ; Mysore (193) ; Madras (79) ; etc.

Other important exporting areas : Hyderabad ; Madhya Pradesh ; Madras ; etc.

WHEAT FLOUR

Total Exports : 2,711,713 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From BOMBAY PORT (879) *to* Bombay (304) ; Mysore (144) ; Madras (129) ; Madras Ch. P. (115) ; etc.

From CALCUTTA (871) *to* Assam (367) ; W. Bengal (230) ; Bihar (115) ; etc.

From PUNJAB (477) *to* Delhi (460) ; etc.

From UTTAR PRADESH (123) *to* Bihar (50) ; Madhya Bharat (16) ; etc.

Other important exporting areas : Bombay, Madhya Bharat, Madras Ch. P., etc.

WOOL (Raw)

Total Exports : 487,170 *maunds*

[Figures within brackets denote quantities in *thousand* mds.]

Chiefly **Exported :**

From RAJASTHAN (188) *to* Bombay Port (129) ; Bombay (22) ; Punjab (15) ; Delhi (14) ; etc.

From PUNJAB (75) *to* Bombay Port (50) ; U. P. (10) ; etc.

From DELHI (54) *to* Bombay (24) ; Bombay Port (27) ; etc.

Other important exporting areas : Calcutta ; Bombay ; West Bengal ; etc.

CHAPTER XIV

JOINT-STOCK COMPANIES

In 1952-53 there were 29,312 Joint-Stock Companies with a PAID-UP *Capital* of Rs. 8,97·57 crores. The Authorised Capital was Rs. 30,92·58 crores and Subscribed Capital Rs. 9,99·67 crores.

Of the various Groups, *Trading and Manufacturing* has both the largest *Number* (17,859 or 60·9% of the total) and *Paid-up Capital* (Rs. 4,01·29 crores or 44·7% of the total). *Mills and Presses*, and *Banking, Loans and Insurance* have 21·2% (Rs. 1,90·60 crores) and 10·0% (Rs 89·84 crores) of the *Paid-up Capital* and 7·8% (2,310) and 7·8% (2,286) of the total *number* of Companies, respectively. These three combined have 75·9% of the total *Paid-up Capital* and 76·5% of the total *Number* of Companies. The respective position of different Groups of Concerns is shown in the following statements :

DIFFERENT CATEGORIES OF COMPANIES

(Rupees are in Lakhs and represent Paid-up Capital.)

(Percentages are of the total Number and Paid-up Capital of Companies.)

I. Banking, Loans and Insurance : Nos. 2,286 (7·8%)—Rs. 89,84 (10·0%) ; (II) Transit and Transport : Nos. 1,887 (6·4%)—Rs. 62,03 (6.9%) ; (III) Trading and Manufacturing : Nos. 17,859 (60·9%)—Rs. 4,01,29 (44·7%) ; (IV) Mills and Presses : Nos. 2,310 (7·8%)—Rs. 1,90,60 (21·2%) ; (V) Tea and other Planting Companies : Nos. 854 (2·9%)—Rs. 34,90 (3·9%) ; (VI) Mining and Quarrying : Nos. 873 (2·9%)—Rs. 44,97 (5·0%) ; (VII) Estate, Land and Buildings : Nos. 892 (3·0%)—Rs. 28,00 (3·3%) ; (VIII) Breweries and Distilleries : Nos. 47 (·16%)—Rs. 1,93 (·2%) ; (IX) Sugar including Jaggery manufacture : Nos. 201 (·7%)—Rs. 27,71 (3·1%) ; (X) Hotels, Theatres, Entertainments : Nos. 1,671 (5·7%)—Rs. 12,71 (1·4%) ; (XI) Companies

other than those specified above : Nos. 432 (1·4%)—Rs. 3,58 (·3%). **Total : Nos. 29,312—Rs. 8,97,57(00,000)**

STATEWISE DISTRIBUTION OF JOINT-STOCK COMPANIES

(Rupees in Lakhs)

The Number and Paid-up Capital of Companies in Part "A" States are 24,899 (84·9%) and Rs. 7,47,48 (83·3%) ; in Part "B" States : 2,887 (9·8%) and Rs. 1,15,52 (12·8%) and in Part "C" States : 1,526 (5·2%) and Rs. 34,57 (3·8%).

Distributed amongst the States the share of each in respect of *Number* and the amount of *Paid-up* Capital is as follows :

(Rupees in Lakhs)

Part "A" States :

Madras : Nos. 3,570 (12·2% of total)—Rs. 71,26 (7·9% total) ; Bombay : Nos. 5,102 (17·4%)—Rs. 2,95,08 (32·9%) ; West Bengal : Nos. 11,508 (39·1%)—Rs. 2,87,89 (34·0%) ; Uttar Pradesh : Nos. 1,696 (5·7%)—Rs. 34,64 (3·8%) ; Punjab : Nos. 1,194 (4·0%)—Rs. 14,75 (1·6%) ; Bihar : Nos. 525 (1·8%)—Rs. 26,94 (3·0%) ; Madhya Pradesh : Nos. 701 (2·3%)—Rs. 7,56 ; Assam : Nos. 402—Rs. 4,33 and Orissa : Nos. 201—Rs. 5,01.

(Rupees in Lakhs)

Part "B" States :

Hyderabad : Nos. 205—Rs. 13,77 ; Mysore : Nos. 476—Rs. 21,94 ; Travancore-Cochin : Nos. 1,001—Rs. 21,43 ; Madhya Bharat : Nos. 230—Rs. 21,24 ; Rajasthan : Nos. 537—Rs. 19,68 ; Saurashtra : Nos. 250—Rs. 13,25 and PEPSU : Nos. 188—Rs. 4,20.

(Rupees in Lakhs)

Part "C" States :

Ajmer : Nos. 46—Rs. 1,16 ; Delhi : Nos. 1,378—Rs. 29,76 ; Coorg : Nos. 10—Rs. 90 ; Himachal Pradesh ; Nos. 13—Rs. 49 ; Vindhya Pradesh : Nos. 18—Rs. 9 ; Bhopal : Nos. 25—Rs. 1,46 ; Manipur : Nos. 12—Rs. 17 ; Tripura : Nos. 12—Rs. 19 and Kutch : Nos. 12—Rs. 33.

Joint-Stock Companies by Categories and States, Number, (Paid-up) Capital and percentage Share.

I. Banking, Loan and Insurance :

A. Categories :

(Rupees in Lakhs)

(*a*) Banking : Nos. 703 (30·7%)—Rs. 37,59 (42·8%) ; (*b*) Loan : Nos. 196 (8·6%)—Rs. 6,10 (6·7%) ; (*c*) Investment and Trust : Nos. 616 (27·0%)—Rs. 30,02 (33·4%) ; (*d*) Nidhis and Chit Associations : Nos. 426 (18·6%)—Rs. 2,37 (2·6) ; (*e*) Insurance : Nos. 345 (15·0%)—Rs. 13,76 (15·3%).

B. States :

(*i*) Madras : Nos. 651 (28·5%)—Rs. 10,23 (11·4%) ; (*ii*) Bombay : Nos. 314 (13·7%)—Rs. 27,03 (30·0%) ; (*iii*) West Bengal : Nos. 615 (26·4%)—Rs. 20,61 (22·9%) ; (*iv*) Travancore-Cochin : Nos. 247 (10·8%)—Rs. 3,53 (3·9%) ; (*v*) Rajasthan : Nos. 100 (4·3%) —Rs. 7,17 (8·0%) ; (*vi*) Delhi : Nos. 57 (3·5%)—Rs. 8,30 (9·2%) ; etc.

The above *six* States account for 87·2 per cent of the total number (2,286) and 85·4 per cent of the total paid-up Capital, viz., Rs. 89,83,(94,165).

II. Transit and Transport :

A. Categories :

(Rupees in Lakhs)

(*a*) Navigation : Nos. 116 (6·1%)—Rs. 17,41 (28·0%) ; (*b*) Railways and Tramways : Nos. 30 (1·6%)—Rs. 5,65 (9·1%) ; (*c*) Motor Traction, Dealing and Manufacturing : Nos. 1,518 (80·4%)—Rs. 23,19 (37·4%) ; (*d*) Docks, Harbours, Shipping, Landing and Warehousing : Nos. 21 (1·1%)—Rs. 1,86 (3·0%) ; Others : Nos. 202 (10·7%)—Rs. 13,93 (22·4%).

B. States :

(*i*) West Bengal : Nos. 564 (28·9%)—Rs. 17,68 (28·5%) ; (*ii*) Bombay : Nos. 282 (14·9%)—Rs. 26,02 (41·9%) ; (*iii*) Madhya Pradesh : Nos. 231 (12·2%)—Rs. 86 (1·4%) ; (*iv*) Madras : Nos. 228 (12·1%)—Rs. 4,44 (7·1%) ; (*v*) Punjab : Nos. 153 (8·0%)—Rs. 1,52 (2·4%) ; (*vi*) Delhi : Nos. 110 (5·8%)—Rs. 2,93 (4·7%) ; etc.

The above *six* States account for 81·9 per cent of the total number (1,887) and 86 per cent of the total paid-up Capital, viz., Rs. 62,03, (06,522).

III. Trading and Manufacturing :

A. Categories :

(Rupees in Lakhs)

(*a*) Mutual Trading Associations : Nos. 152 (·8%)—Rs. 2,89 (·7%) ; (*b*) Printing, Publishing and Stationery : Nos. 1,713 (9·3%) —Rs 13,87 (3·5%) ; (*c*) Chemicals and Allied Trades : Nos. 1,640 (9·2%)—Rs. 47,43 (11·8%) ; (*d*) Iron, Steel and Shipbuilding : Nos. 677 (3·7%)—Rs. 35,45 (8·8%) ; (*e*) Engineering : Nos. 1,141 (6·4%) —Rs. 25,55 (6·3%) ; (*f*) Tanneries and Leather Trades : Nos. 187 (1·0%)—Rs. 3,95 (·98%) ; (*g*) Canvas and India Rubber Trades : Nos. 76—Rs. 4,02 (1·1%) ; (*h*) Public Service Companies—Gas, Water, Electric Light, Power and Telephone : Nos. 423 (2·3%)— Rs. 38,95 (9·7%) ; (*i*) Clay, Stone, Cement, Lime, etc. : Nos. 337 (1·9%)—Rs. 28,47(7·0%) ; (*j*) Glass : Nos. 158 (·8%)—Rs. 4,37 (1·0%) ; (*k*) Ice and Aerated Water : Nos. 153—Rs. 2,73 ; (*l*) Agencies (including Managing Agency Companies) : Nos. 2,985 (16·7%)—Rs. 41,93 (10·4%) ; (*m*) Tea-box and Cabinet Manufacturing : Nos. 78—Rs. 31 ; (*n*) Tobacco (Cigars, etc.) : Nos. 94— Rs. 8,24 (2·0%) ; (*o*) Soap, Candles, etc. : Nos. 100—Rs. 288 : (*p*) Brass and Copperware : Nos. 53—Rs. 1,29 ; (*q*) Aluminiumware : Nos. 25—Rs. 4,05 (1·0%) ; (*r*) Match : Nos. 57—Rs. 2,90 ; (*s*) Others : Nos. 7,810 (43·7%)—Rs. 1,31,99 (32·8%).

B. States :

(*i*) West Bengal : Nos. 7,142 (40·0%)—Rs. 1,36,08 (33·9%) ; (*ii*) Bombay : Nos. 3,357 (18·8%)—Rs. 1,36,11 (33·9%) ; (*iii*) Madras : Nos. 1,816 (10·2%)—Rs. 27,01 (6·7%) ; (*iv*) Uttar Pradesh : Nos. 1,263 (7·1%)—Rs.14,48 (3·6%) ; (*v*) Delhi : Nos. 936 (5·2%)—Rs. 11,81 (2·9%) ; (*vi*) Bihar : Nos. 351 (1·9%) —Rs. 19,18 (4·7%).

The above *six* States account for 83·2 per cent of the total number (17,859) and 85·7 per cent of the total paid-up capital, viz., Rs. 4,01,28, (77,567).

IV. Mills and Presses :

A. Categories :

(Rupees in Lakhs)

(*a*) Cotton Mills : Nos. 651 (28·2%)—Rs. 1,08,54 (56.9%) ; (*b*) Cotton Ginning, Pressing, Baling, etc. : Nos. 203 (8·8%)—Rs, 5,78,51 (3·0%) ; (*c*) Jute Mills : Nos. 111 (4·8%)—Rs. 28,70 (15·0%) ; (*d*) Jute Presses, etc. : Nos. 76 (3·3%)—Rs. 2,74 (1·4%) ; (*e*) Mills for Wool, Silk, Hemp, etc. : Nos. 176 (7·6%)—Rs. 12,34 (6·5%) ; (*f*) Paper Mills : Nos. 67 (2·9%)—Rs. 10,23 (5·3%) ; (*g*) Rice Mills : Nos. 156 (6·7%)—Rs. 1,37 (·7%) ; (*h*) Flour Mills : Nos. 52 (2·2%) —Rs.3,14 (1·6%) ; (*i*) Saw and Timber Mills : Nos. 155 (6·7%)—Rs. 1,51 (·8%) ; (*j*) Oil Mills : Nos. 378 (16·3%)—Rs. 12,05 (6·3%) ; (*k*) Others : Nos. 285 (12·0%)—Rs. 4,21 (2·0%).

B. States :

(*i*) West Bengal : Nos. 806 (34·9%)—Rs. 49,31 (25·8%) ; (*ii*) Bombay : Nos. 528 (22·1%)—Rs. 67,64 (35·5%) ; (*iii*) Madras : Nos. 319 (13·8%)—Rs. 17,94 (9·4%) ; (*iv*) Uttar Pradesh : Nos. 134 (5·8%)—Rs. 10,42 (5·4%) ; (*v*) Punjab : Nos. 59 (2·5%)—Rs. 1,88 (·9%) ; (*vi*) Travancore-Cochin : Nos. 56 (2·4%)—Rs. 1,07 (·5%).

The above *six* States account for 81·5 per cent of the total number (2,310) and 86·5 per cent of the total paid-up capital, *viz.*, Rs. 1,90,60, (34,434).

V. Tea and Other Planting Companies :

A. Categories :

(Rupees in Lakhs)

(*a*) Tea : Nos. 557 (65·2%)—Rs, 25,80 (73·9%) ; (*b*) Coffee and Cinchona : Nos. 24 (2·8%)—Rs. 1,16 (3·3%) ; (*c*) Rubber : Nos. 65 (7·6%)—Rs. 4,16 (11·9%) ; (*d*) Others : Nos. 208 (24·3%)—Rs. 3,78 (10·8%).

B. States :

(*i*) West Bengal : Nos. 458 (53·6%)—Rs. 19,38 (55·5%) : (*ii*) Madras : Nos. 128 (15·0%)—Rs. 5,96 (15·0%) ; (*iii*) Travancore-Cochin : Nos. 99 (11·6%)—Rs. 5,34 (15·2%) ; (*iv*) Assam : Nos. 90 (10·5)—Rs. 2,33 (6·7%).

The above *four* States account for 90·7 per cent of the total number (854) and 92·4 per cent, of the total paid-up capital, viz., Rs. 34,90 (04,072).

VI. Mining and Quarrying :

A. Categories :

(Rupees in Lakhs)

(*a*) Coal : Nos. 458 (52·5%)—Rs. 21,68 (48·2%) : (*b*) Gold : Nos. 6 (·7%)—Rs. 87 (2·0%) ; (*c*) Iron Ore : Nos. 6 (·7%)—Rs. 10,49 (23·3%) ; (*d*) Stone and Marble Quarries : Nos. 43 (5·0%)—Rs. 3,13 (7·0%) ; (*e*) Manganese : Nos. 4—Rs. 3 ; (*f*) Mica : Nos. 80 (9·1%) —Rs. 2,11 (4·7%) ; (*g*) Petroleum : Nos. 22 (2·5%)—Rs. 2,06 (4·6%) ; (*h*) Others : Nos. 254 (29·0%)—Rs. 4,60 (10·2%).

B. States :

(*i*) West Bengal : Nos. 614 (70·3%)—Rs. 24,28 (54·0%) ; (*ii*) Bombay : Nos. 58 (6·6%)—Rs. 13,50 (30·0%) : (*iii*) Bihar : Nos. 45 (5·1%)—Rs. 1,47 (3·2%) ; (*iv*) Mysore : Nos. 9 (1·0%) —Rs. 2,16 (4·8%) ; (*v*) Hyderabad : Nos. 9 (1·0%)—Rs. 1,20 (2·7%).

The above *five* States account for 84·0 per cent of the total number (873) and 94·7 per cent of the total paid-up capital, viz., Rs. 44,96, (98,138).

VII. Estate, Land and Buildings : (Rupees in Lakhs)

(*i*) West Bengal : Nos. 550 (61·7%)—Rs. 12,52 (44·7%) ; (*ii*) Bombay : Nos. 147 (16·5%)—Rs. 11,60 (41·4%) ; (*iii*) Madras : Nos. 58 (6·5%)—Rs. 1,45 (5·2%) ; etc.

The above *three* States have 84·7 per cent of the total number (892) and 91·3 per cent of the total paid-up capital, viz., Rs. 27,99, (77,005).

VIII. Breweries and Distilleries : (Rupees in Lakhs)

(*i*) West Bengal : Nos. 19 (40·4%)—Rs. 67 (35·0%) ; (*ii*) Punjab : Nos. 7 (14·9%)—Rs. 58 (30·2%) ; (*iii*) Uttar Pradesh : Nos. 4 (8·5%)—Rs. 2 ; (*iv*) Bombay : Nos. 3 (6·4%)—Rs. 5 ; (*v*) Madras : Nos. 2 (4·3%)—Rs. 11 (5·6%).

The above *five* States have 74·5 per cent of the total number (47) and 70·8 per cent of the total paid-up capital, Rs. 1,92 (88,654).

IX. Sugar (including Jaggery) Manufacture: (Rupees in Lakhs)

(*i*) West Bengal : Nos. 56 (27·8%)—Rs. 4,00 (14·4%) ; (*ii*) Uttar Pradesh : Nos. 42 (10·9%)—Rs. 5,80 (20·9) ; (*iii*) Bombay : Nos. 36 (17·9%)—Rs. 6,27 (22·6%) : (*iv*) Madras : Nos. 20 (9·9%)—Rs. 1,57 (5·6%) ; (*v*) Punjab : Nos. 12 (5·9%)—Rs. 1,81 (6·5%) ; (*vi*) Bihar : Nos. 9 (4·5%)—Rs. 3,68 (15·0%) ; etc.

The above *six* States account for 77 per cent of the total number (201) and 85 per cent of the total paid-up capital, viz., Rs. 27,71, (38,923).

X. Hotels, Theatres and Entertainments : (Rupees in Lakhs)

(*i*) West Bengal : Nos. 613 (36·7%)—Rs. 3,20 (25·2%) ; (*ii*) Bombay : Nos. 291 (17·4%)—Rs. 4,62 (36·3%) ; (*iii*) Madras : Nos. 225 (13·4%)—Rs. 1,52 (12·0%) ; (*iv*) Uttar Pradesh : Nos. 87 (5·2%)—Rs. 32 (2·5%) ; (*v*) Punjab : Nos. 80 (4·8%)—Rs. 64 (5·0%).

The above *five* States account for 77·5 per cent of the total number (1,671) and 81 per cent of the total paid-up capital, viz., Rs. 12,71, (27,447).

XI. Companies other than those specified above :

(Rupees in Lakhs)

(*i*) Madhya Pradesh : Nos. 98 (22·7%)—Rs. 11 (3·1%) ; (*ii*) Madras : Nos. 86 (20·0%)—Rs. 34 (9·5%) ; (*iii*) West Bengal : Nos. 71 (16·4%)—Rs. 14 (4·0%) ; (*iv*) Bombay : Nos. 54 (12·5%)—Rs. 1,75 (48·9%) ; (*v*) Uttar Pradesh : Nos. 30 (7·0%)—Rs. 71 (19·7%).

The above *five* States account for 78·6 per cent of the total number (432) and 84·2 per cent of the total paid-up capital, viz., Rs. 3,58, (11,328).

CHAPTER XV

INDUSTRY

Industry in India together with what is known as "Services" contributes a good deal towards the National Income and provides work for 32,367,000 people of both sexes. National Income derived from different categories of industries is estimated at Rs. 731 crores (6·9% of the total). There is no satisfactory census of small scale and cottage industries and even the account that relates to "big" industries is anything but complete.

Coming to the "Manufacturing" industries proper, it is found that Processing and Manufacture of Foodstuffs, Textiles, Leather, etc., provide food (and employment) to 5,510,000 workers and their dependents ; Processing and Manufacture of Metals, Chemicals, etc. to 1,237,000 ; Processing and Manufacture of miscellaneous articles to 2,429,000 and Construction and Utilities to 1,586,000.

Compared with these huge figures the number of 'Workers' employed in *Factories* is rather small, *i.e.*, 1,495,876 (1952) and "Persons other than Workers" number only 152,627. There is a large number of other industries in addition to those given below but no details of which are available from the official records. Some of these have been picked up from stray notes published here and there and furnished with so much information as was possible to collect.

States, Industries and Capital :

In 1952 the total NUMBER of FACTORIES of 29 broad groups of Industries was 7,155 with a total CAPITAL of Rs. 730·77 crores of which Rs. 300·94 crores represent FIXED and Rs. 429·83 crores as WORKING CAPITAL. Of the various States, BOMBAY leads with 22·4% (1,593) of the total Factories and (Rs. 237·83 crores) 32·4% of the total Capital. WEST BENGAL has almost an equal share 21·6% (1,539) and 21·5% (Rs. 157·77 crores) in both the number of factories and the total Capital. The State of MADRAS has 20·6% (1,473) of the number of Factories and only 10·3% (Rs.73·55 crores) of the total Capital. UTTAR PRADESH

has the advantage of a smaller number, 590 (8%) of Factories and larger share in the total Capital, *i.e.*, 10·5% (Rs. 76·98 crores). BIHAR has a still larger Capital Rs. 93·26 crores (12·7%) for a still smaller number of Factories (396). MADHYA PRADESH and PUNJAB are the two other industrially advanced States in respect of both the number of Factories and total Capital ; but DELHI, in spite of its small area, is in a better position because the number of Factories is only 200 and Capital Rs. 10·39 crores. The respective positions of the States will be found in the following table :—

Registered Factories, Fixed, Working and Total Capital by States (1952)

State	No. of Factories	Fixed Capital '000-Rs.	Working Capital '000-Rs.	Total Capital '000-Rs.	of % total
Bombay	1,593	81,72,53	1,56,10,96	2,37,83,49	32·4
West Bengal	1,539	74,18,70	83,58,57	1,57,77,27	21·5
Madras	1,473	32,37,14	41,17,55	73,54,68	10.3
Uttar Pradesh	590	23,38,17	53,59,50	76,97,67	10·5
Bihar	396	47,23,90	46,02,59	93,26,49	12·7
Madhya Pradesh	333	8,51,79	12,81,54	21,33,33	4·3
Punjab	430	5,14,59	7,24,45	12,39,04	1·6
Delhi	200	3,89,94	6,49,34	10,39,28	—
Orissa	134	6,49,90	3,23,05	9,72,95	—
Saurashtra	127	8,03,62	10,03,42	18,07,05	2·4
PEPSU	104	3,36,43	2,93,43	6,29,86	—
Assam	108	1,67,73	1,67,04	3,34,76	—
Travancore-Cochin	n. a	n. a	n. a	n. a	—
Rajasthan	97	3,99,16	3,42,36	7,41,52	—
Ajmer	8	48,23	79,99	1,28,22	—
Himachal Pr.	3	18,02	57,95	75,97	—
Vindhya Pr.	13	10,76	3,05	13,82	—
Kutch	7	13,54	7,95	21,49	—
Coorg	...	...	...	...	
Total	7,155	3,00,94,15	4,29,82,74	7,30,76,89	

Number of total Employees (Workers, and others) in Factories by States (1952)

State	Workers	Persons other than Workers	Total	% of Total
Bombay	5,12,942	31,390	5,44,332	33·0
West Bengal	4,28,313	45,148	4,73,461	28·7
Madras	1,61,997	17,318	1,79,315	10·8
Uttar Pradesh	1,50,915	16,412	1,67,327	10·1
Bihar	89,138	21,853	1,10,991	6·7
Madhya Pradesh	45,978	5,912	51,890	—
Punjab	22,328	3,161	25,499	—
Delhi	21,222	2,694	23,916	—
Orissa	12,977	1,833	14,810	—
PEPSU	6,911	1,510	8,421	—
Saurashtra	20,175	2,291	22,466	—
Assam	5,413	1,260	6,673	—
Travancore-Cochin	...	...	...	—
Ajmer	5,917	276	6,193	—
Rajasthan	10,335	1,359	11,694	—
Himachal Pradesh	724	140	864	—
Vindhya Pradesh	101	45	146	—
Kutch	420	25	445	—
Total	14,95,816	1,52,627	16,48,443	—

Industries—Fixed and Working Capital—by Types

Cotton Textiles claim the largest Capital, viz., Rs. 243·07 crores (33·2% of the total) for 491 mills. There is a large gap between the first and the second industry in respect of the Capital invested and Sugar, though second, is far behind with Rs 72·07 crores (9·8%) for 147 factories. The third position is occupied by Jute Textiles, Rs. 58·74 crores (9·4%) for 109 mills. Some others in order of importance are General Engineering and Electrical Engineering with an investment of Rs. 60·59 crores (9·3%) for 2,021 factories, *viz.*, a comparatively small investment, Rs. 3 lakhs

on an average, for a factory. Chemical factories have Rs. 58·74 crores (8·0%) as Capital for 276 ; Iron and Steel, Rs. 54·76 crores (7·5%) for 137 ; Cement : Rs. 21·11 crores (3%) for 19 ; Aluminium, Copper and Brass : Rs. 18·21 crores (2·5%) for 234 ; Paper and Paperboard : Rs. 16·76 crores (2·2%) for 43 ; Edible Hydrogenated Oils : Rs. 14·01 crores (1·9%) for 33 ; Rice Mills : Rs. 12·59 crores (1·7%) for a fairly big number, *viz.*, 1,436. The other industries have still smaller amount of Capital, much less than one per cent of the total irrespective of the number of units belonging to an individual group. As far as has been possible the relative position of all industries, their number, capital invested, production, etc. have been given under each industry.

States and Industries—Number and Working Capital

(*Figures* **outside** *the brackets denote* **Number** *of factories and those that are within,* **Working Capital** *in* **Lakhs of Rupees.**)

Ajmer : Biscuit ; Cotton Mill : 4 (Rs. 1,03) ; General Engineering : 2 ; Sugar ; etc.

Assam : General Engineering and Electrical Engineering : 18 (Rs. 37) ; (Vegetable) Oil : 30 (Rs. 93) ; Plywood : 7 (Rs. 76) ; Rice Mill : 43 (Rs. 56).

Of minor importance : Aluminium, Brass, Copper, etc ; Cotton Mill ; Distilleries and Breweries ; Iron and Steel ; Glass ; Match : 2 ; Tanning ; Wheat Mill.

Bihar ; Aluminium, Brass, Copper, etc. : 5 (Rs. 5,01) ; Biscuit : 6 (Rs. 36) ; Cement : 5 (Rs. 4,52) ; Ceramics : 8 (Rs. 1,61) ; Chemicals : 14 (Rs. 25,77) ; Distilleries & Breweries : 6 (Rs. 33) ; General Engineering : 91 (Rs. 3,53) ; Glass : 11 (Rs. 1,30) ; Iron & Steel : 4 (Rs. 31,93) ; Jute Mill : 3 ; (Vegetable) Oil : 60 (Rs. 99) ; Rice Mill : 120 (Rs. 1,55) ; Sugar : 32 (Rs. 12,60) ; Wheat Mill : 14 (Rs. 85).

Of minor importance : Bicycle ; Cotton : 3 ; Electric Lamp ; Hydrogenated Oil ; Paper & Paperboard : 2 ; Plywood ; Soap : 2 ; Tanning ; Woollen Mill.

Bombay : Aluminium, Brass, Copper, etc. : 80 (Rs. 5,21) ; Bicycle : 5 (Rs. 1,14) ; Biscuit : 27 (Rs. 1,42) ; Cement : 2 ;

(*Figures* **outside** *the brackets denote* **Number** *of factories and those that are within,* **Working Capital** *in* **Lakhs of Rupees.**)

Ceramics : 9 (Rs. 46) ; Chemicals : 101 (Rs. 17,27) ; Cotton Mill : 249 (Rs. 145,77) ; Distilleries & Breweries : 4 (Rs. 32) ; Electric Lamp : 2 ; Electric Fan : 2 ; General Engineering : 498 (Rs. 23,43) ; Fruit Processing : 9 (Rs. 74) ; Glass : 25 (Rs. 1,43) ; Iron and Steel : 13 (Rs. 1,15) ; Match : 5 ; (Hydrogenated) Oil : 11 (Rs. 5,59) ; (Vegetable) Oil : 224 (Rs. 4,94) ; Paint & Varnish : 13 (Rs. 1,04) ; Paper and Paperboard : 15 (Rs. 1,46) ; Plywood : 2 ; Soap : 18 (Rs. 4,77) ; Starch : 6 (Rs. 50) ; Sugar : 15 (Rs. 10,88) ; Tanning : 7 (Rs. 18) ; Wheat Mill : 7 (Rs. 47) ; Woollen Mill : 8 (Rs. 4,08).

Of minor importance : Rice Mill : 3.

Delhi : Aluminium : 9 (Rs. 8) ; Bicycle : 6 ; Biscuit : 4 (Rs. 36) ; Ceramics : 10 (Rs. 19) ; Chemicals : 10 (Rs. 1,06) ; Cotton Mill : 10 (Rs. 6,32) ; Electric Fan : 3 ; General Engineering : 125 (Rs. 1,24) ; Iron & Steel : 7 (Rs. 10) ; Wheat Mill : 6 (Rs. 16).

Of minor importance : Fruit Processing ; (Vegetable) Oil : 4 ; Hydrogenated Oil : 2 ; Paint & Varnish : 2 ; Soap ; etc.

Himachal Pradesh : Distilleries & Breweries : 2 ; General & Electrical Engineering ; etc.

Kutch : Cotton Mill ; General and Electrical Engineering : 3 ; Match ; (Vegetable) Oil : 2 ; etc.

Madras : Aluminium, Brass, Copper, etc. 18 (Rs. 1,13) ; Bicycle : 2 ; Biscuit : 12 (Rs. 30) ; Cement : 5 (Rs. 5,04) ; Ceramics : 3 (Rs. 12) ; Chemicals : 30 (Rs. 2,84) ; Cotton Mill : 99 (Rs. 34,42) ; Fruit Processing : 2 ; General Engineering : 153 (Rs. 4,88) ; Glass : 8 (Rs. 17) ; Jute Mill : 4 (Rs. 1,66) ; Match : 11 (Rs. 76) ; (Vegetable) Oil : 328 (Rs. 4,67) ; Hydrogenated Oil : 5 (Rs. 1,73) ; Plywood : 4 (Rs. 28) ; Paint & Varnish : 3 (Rs. 46) ; Paper & Paperboard : 4 (Rs. 43) ; Rice Mill : 635 (Rs. 3,87) ; Soap : 10 (Rs. 35) ; Starch : 45 (Rs. 15) ; Sugar : 16 (Rs. 7,57) ; Tanning : 55 (Rs. 1,55) ; Wheat Mill : 3 (Rs. 8) ; Woollen Mill : 3.

Of minor importance : Distilleries & Breweries : 2 ; Iron & Steel : 3.

(*Figures* **outside** *the brackets denote* **Number** *of Factories and those that are within,* **Working Capital** *in* **Lakhs of Rupees.**)

Madhya Pradesh : Aluminium, Brass, Copper, etc : 6 (Rs. 17) ; Cement : 2 ; Ceramics : 5 (Rs. 48) ; Cotton Mill : 20 (Rs. 9,67) ; General & Electrical Engineering : 25 (Rs. 1,94) ; Fruit Processing : 5 (Rs. 34) ; Glass : 5 (Rs. 20) ; (Vegetable) Oil : 81 (Rs. 2,14) ; Rice Mill : 169 (Rs. 2,21) ; Wheat Mill : 4 (Rs. 12).

Of minor importance : Biscuit ; Chemicals ; Distilleries & Breweries ; Jute Mill ; Match ; Hydrogenated Oil : 2 ; Plywood ; Paint & Varnish ; Soap.

Orissa : Cotton Mill : 4 (Rs. 2,40) ; Distilleries & Breweries : 5 (Rs. 7) ; General and Electrical Engineering : 125 (Rs. 1,24) ; Iron & Steel : 3 (Rs. 11) ; Rice Mill : 87 (Rs. 1,21).

Of minor importance : Biscuit ; Cement ; Ceramics ; Glass : 2 ; Match : 2 ; (Hydrogenated) Oil ; Paper & Paperboard ; Plywood : 2 ; Soap ; Sugar ; Tanning ; etc.

PEPSU : General and Electrical Engineering : 36 (Rs. 36) ; Iron & Steel : 41 (Rs. 80) ; (Vegetable) Oil : 8 (Rs. 34) ; Sewing Machine : 3 (Rs. 2).

Of minor importance : Aluminium, Brass, Copper, etc : 2 ; Biscuit ; Cement : 2 ; Cotton Mill ; Distilleries & Breweries ; Electric Fan ; Fruit Processing ; Glass ; Starch ; Sugar ; Tanning ; Wheat Mill : 2 ; etc.

Punjab : Aluminium, Brass, etc. 39 (Rs. 59·4) ; Bicycle : 14 (Rs. 23) ; Cotton Mill : 10 (Rs. 1,46) ; Distilleries & Breweries : 3 (Rs. 37) ; Electric Fan : 7 (Rs. 6·8) ; General Engineering : 250 (Rs. 2,36) ; Glass : 2 ; Iron & Steel : 14 (Rs. 22) ; (Vegetable) Oil : 21 (Rs. 58) ; Rice Mill : 17 (Rs. 11) ; Sewing Machine : 3 (Rs. 89) ; Soap : 10 (Rs. 35) ; Wheat Mill : 12 (Rs. 81) ; Woollen Mill : 24 (Rs. 2,23).

Of minor importance : Ceramics ; Chemicals : 6 ; Fruit Processing ; Hydrogenated Oil ; Paint & Varnish : 2 ; Paper ; Starch ; Sugar ; etc.

Rajasthan : Aluminium, Brass, etc. 9 (Rs. 81) ; Cement : 1 ; Cotton Mill : 9 (Rs. 3,21) ; Distilleries & Breweries : 7 (Rs. 14) ; General Engineering : 15 (Rs. 52) ; Glass : 5 (Rs. 8) ; (Vegetable) Oil : 31 (Rs. 72).

(*Figures* **outside** *the brackets denote* **Number** *of factories and those that are within,* **Working Capital** *in* **Lakhs of Rupees.**)

Of minor importance : Biscuit ; Chemicals : 2 ; Match : 2 ; Paint & Varnish : 2 ; Rice Mill : 3 ; Starch ; Sugar : 6 ; Iron & Steel.

Saurashtra : Aluminium, Brass, Copper, etc : 5 (Rs. 25) ; Cement : 2 ; Chemicals : 7 (Rs. 76) ; Ceramics : 8 (Rs. 1,02) ; Cotton Mill : 16 (Rs. 7,56) ; General Engineering : 13 (Rs. 14) ; Iron & Steel : 4 (Rs. 24) ; Match : 5 (Rs. 20) ; (Vegetable) Oil : 59 (Rs. 3,14) ; Paint & Varnish : 3 (Rs. 5).

Of minor importance : Glass ; Hydrogenated Oil : 2 ; Wheat Mill ; Woollen Mill.

Uttar Pradesh : Aluminium, etc. : 23 (Rs. 28·5) ; Bicycle : 6 (Rs. 25) ; Biscuit : 11 (Rs. 19) ; Chemicals : 15 (Rs. 2,06) ; Cotton Mill : 29 (Rs. 17,45) ; Distilleries & Breweries : 14 (Rs. 1,67) ; Fruit Processing : 2 ; General Engineering : 172 (Rs. 2,18) ; Glass : 46 (Rs. 92) ; Iron & Steel : 23 (Rs. 1,05) ; Jute Mill : 3 ; (Vegetable) Oil : 101 (Rs. 3,84) ; Paint & Varnish : 4 (Rs. 16) ; Paper and Paperboard : 5 (Rs. 1,21) ; Rice Mill : 16 (Rs. 32) ; Soap : 4 (Rs. 26) ; Sugar : 71 (Rs. 38,46) ; Tanning : 20 (Rs. 1,29) : Wheat Mill : 9 (Rs. 48) ; Woollen Mill : 6 (Rs. 1,53).

Of minor importance : Ceramics : 2 ; Electric Lamp ; Match ; Hydrogenated Oil : 2 ; Plywood : 2 ; Starch : 2.

Vindhya Pradesh : Ceramics ; Distilleries & Breweries ; Match ; (Vegetable) Oil : 3 ; Paper and Paperboard ; Rice Mill : 4.

West Bengal : Aluminium, etc. 28 (Rs. 4,62·5) ; Bicycle : 9 (Rs. 75) ; Biscuit : 33 (Rs. 1,08) ; Ceramics : 19 (Rs. 98) ; Chemicals : 90 (Rs. 8,77) ; Cotton Mill : 35 (Rs. 11,93) ; Distilleries & Breweries : 5 (Rs. 36) ; Electric Lamp : 5 (Rs. 75) ; Electric Fan : 17 (Rs. 1,74) ; General Engineering : 610 (Rs. 18,73) ; Fruit Processing : 6 (Rs. 12) ; Glass : 29 (Rs. 86) ; Iron & Steel : 23 (Rs. 18,63) ; Jute Mill : 98 (Rs. 64,98) ; Match : 7 (Rs. 84) ; (Vegetable) Oil : 77 (Rs. 1,83) ; Hydrogenated Oil : 6 (Rs. 1,59) ; Plywood : 26 (Rs. 51) ; Paint & Varnish : 17 (Rs. 2,84) ; Paper & Paperboard : 14 (Rs. 8,16) ; Rice Mill : 339 (Rs. 2,69) ; Sewing Machine : 3 (Rs. 1,40) ; Soap : 16 (Rs. 1,72) ; Tanning : 7 (Rs. 14) ; Wheat Mill : 16 (Rs. 1,11).

Of minor importance : Starch ; Sugar ; Woollen Mill : 2

AUTOMOBILES AND ANCILLARIES

The number of big automobile factories is four, eight with ancillaries, with invested capital of Rs. 7 crores and a labour force of about 8,000 men. Actual production of car was 23,084 (1955) with installed capacity of 39,000 cars per annum.

There was one firm of *Motor Cycles* producing 419 complete units (in 1955) with installed capacity of 5,000 cycles per annum. In 1955 one unit manufactured 65,177 *Cylinder liners*, with installed capacity of 120,000 per annum. Similarly 133,326 nos. *Gudgeon Pins*, 1,917,762 nos. *Piston Rings*, 132,042 nos. *Pistons*, 536 nos. *Scooters* by one factory of each type and 531,884 nos. *Sparking Plugs* by two factories were manufactured in 1955. The installed capacity of factories of Scooters was 6,000 nos. and of Sparking Plugs : 600,000 nos.

ALUMINIUM, COPPER, BRASS (1952)

Statewise Distribution of Factories (1952)

Factories : Nos. 235. **Capital :** *Fixed* : Rs. 6,41,61,337 ; *Working* : Rs. 11,78,96,833 ; *Total* : Rs. 18,20,58,170.

State	No. of Factories	Capital '000-Rs.	Workers Total	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	80	5,20,92	5,568	6,08,48	66,15
West Bengal	28	4,62,49	4,994	6,08,84	1,99,21
Madras	28	1,12,69	2,241	1,10,68	33,00
Bihar	5	5,01,03	3,983	5,59,46	1,18,14
Punjab	39	59,43	1,700	1,06,35	23,57
Rajasthan	9	81,16	612	71,38	4,23
Others*	46	—	—	—	—
Total	235	18,20,58	20,816	21,61,97	4,52,89

Aluminium

There are about 235 factories working with aluminium, copper and brass and only two factories which are engaged in extraction of metal from ore and three others which fabricate the recovered metal primary and/or secondary. The total capital invested is

*Uttar Pradesh (23), Madhya Pradesh (6), Delhi (9), Saurashtra (5), Assam (3).

Rs. 3,50 lakhs. The installed capacity is 7,500 tons per annum with production of 7,225 tons of metal in 1955.

Aluminium, Brass, etc.—Semi-manufactures (1955)

	No. of Factories	Unit	Installed Capacity	Production
Al. Sheets, circles, strips	6	Tons	11,750	10,071
Al. Rods and Sections (extruded)	1	Tons	960	123
Al. Wire-rods (for A.C.S.R.)	2	Tons	10,800	1,140
Aluminium Foils	1	Tons	1,200	1,316
Brass/Copper sheets, circles, strips	19	Tons	45,000	13,142
Brass/Copper rods including arsenical copper rods, bars, sections, etc.	5	Tons	5,477	1,296
Brass/Copper Pipes and Tubes	1	Tons	360	62
Brass/Copper Wire for non-electrical purposes	4	Tons	1,958	377

COPPER

Factory for *extraction of metal* from ore : 1.

Production of metal : (1955) 7,280 tons of virgin metal. Copper *Conductors* : Tons 8,384.

Imports (1954-55) : *Aluminium* : Cwts. 247,605—Rs. 3,60,82,058. *Brass* : Cwts. 139,618—Rs. 1,76,62,667. *Copper* : Cwts. 539,551—Rs. 8,74,77,154.

OTHER METALS (1955)

One factory each with rated capacity of 700 tons per annum of **Antimony** and 6,000 tons of **Lead** produced 504 tons and 2,234 tons, respectively, of virgin metal in 1955.

One factory of *Lead sheets* and three of *Lead Pipes* and *Tubes*, with capacity of 1,092 and 4,800 tons, respectively, per annum, manufactured 102 tons and 283 tons of goods.

Zinc *sheets/strips* factories, numbering three, produced only 42 tons of articles with a rated capacity of 4,410 tons per annum.

Production of **Non-ferrous alloys** such as anti-friction bearing metal, bell-metal, bronze gun-metal reached 10,000 tons through 15 factories with installed capacity of 69,000 tons.

Imports (1954-55) : *Lead*, pig, wrought, *etc.* : Cwts. 202,526—Rs. 1,41,49,363. *Zinc or Spelter* : Cwts. 889,714—Rs. 5,28,27,936.

ANTIBIOTICS

The year 1955 saw the production of at least three **antibiotics,** from *one* factory *each* of (*a*) Aureomycin, (*b*) Chloromycetin and (*c*) Penicillin with *installed capacity* of (*a*) 9,600 kg., (*b*) 3,600 kg. and (*c*) 15 million units and production of (*a*) 124 kg., (*b*) 1,539 kg. and (*c*) 6 million units, respectively.

ARTIFICIAL SILK

Two factories of (*a*) Viscose Rayon yarn, one each of (*b*) Acetate Rayon yarn and (*c*) Viscose staple fibre with installed capacity of (*a*) 7,920, (*b*) 1,800 and (*c*) 5,400 tons per annum, respectively, manufactured (*a*) 5,732, (*b*) 1,039 and (*c*) 5,707 tons of Artificial Silk in 1955.

BAILING HOOP

There is only one factory for manufacturing bailing hoops.

BALL-BEARING

Ball-bearing is manufactured by only one factory in Jaipur and the total production amounted to 806,232 nos. ball-bearing in 1955 with an installed capacity of 900,000 nos.

BATTERIES (Dry)

The installed capacity of *five* large factories has reached 224,500,000 units and production for 1955 was 161·04 million cells.

BATTERIES (Storage)

Thirteen Storage Battery factories produced (1955) 234,600 nos. of batteries. The rated capacity is 290,100 nos. per annum.

BELTING

The hair and Cotton belting factories are only *seven* in number with a rated capacity for manufacturing 1,239 tons per annum. Production for 1955 was 855 tons ; whereas *nine* Rubber Ply and Transmission and Conveyor factories produced 1,042 tons of goods.

BICYCLES (1952)

Factories : Nos. 43 (mostly for assembling).

Capital : *Fixed* : Rs. 1,67,54,342 ; *Working* : Rs. 1,68,88,345 ; *Total* : Rs. 3,36,42,687. **Production** (1952) *Bicycles,* Complete : Nos. 194,247—Rs. 2,54,16,540 ; *Tricycles* : Nos. 33,888—Rs. 7,77,364 ; Spare parts and components : Rs. 37,77,886. **(1955** : Rs. 1,36,46,462).

There are *ten factories* engaged in producing most of the cycle parts with a rated capacity of 492,000 units a year.

Production (1955) : Nos. 431,656.

Imports (1954-55) ; Rs. 2,62,33,897.

Statewise Distribution of Factories (1952)

State	No. of Factories	Working Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	5	1,13,76	1,756	1,62,56	83,35
West Bengal	9	75,16	800	32,37	10,34
Uttar Pradesh	6	24,60	509	13,73	5,55
Punjab	14	22,50	648	23,71	1,95
Madras, Bihar and Delhi (6)	9	1,00,41	739	72,69	7,69
Total	43	3,36,43	4,452	3,05,07	1,08,88

BISCUITS (1952)

(*Including* BAKERIES AND CONFECTIONERIES)

Factories : Nos. 100. In **1955 :** Nos. 129 with installed capacity of 35,700 tons per annum. **Capital :** *Fixed* : Rs. 2,55,82,795 ; *Working* : Rs. 1,52,13,319 ; *Total* : Rs. 4,07,96,114.

Production (1952) : *Biscuits* : Cwts. 191,257—Rs. 2,76,38,601 ; *Breads and Buns* : Cwts. 283,468—Rs. 1,28,93,561 ; *Confectionery* :

Cwts. 112,620—Rs. 1,37,59,628 ; Others : Rs. 17,63,584. (**1955** : Biscuits : Tons 11,500.)

Imports : (1954-55) Cwts. 2,634—Rs. 6,90,264 ; **Confectionery :** Rs. 2,54,020.

Statewise Distribution of Factories (1952)

State	No. of Factories	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	27	1,42,40	2,098	2,23,11	57,49
West Bengal	33	1,08,00	2,079	1,87,76	50,24
Madras	12	30,38	463	29,75	7,65
Bihar	6	35,77	425	27,65	3,82
Delhi	4	36,93	289	10,12	38
Others*	18	—	—	—	—
Total	100	4,07,96	6,453	5,36,55	1,26,49

[See CONFECTIONERY—P. 377]

BRASS

(See under ALUMINIUM)

CARPETS (1952)

The industry is mainly located in *Uttar Pradesh* (Mirzapur, Bhadohi, Banaras), *Madras* (Ellora, Masulipattam), *Punjab* (Amritsar), *Jammu & Kashmir* (Srinagar) and *West Bengal* (Kalimpong).

The number of (*a*) factories and (*b*) looms in some of the States are as follows : *U. P.* (*a*) 3,085 (units) and (*b*) 12,100 (looms). *Madras* : (*a*) 1,000. *Hyderabad* : (*a*) 50 and (*b*) 200. *Bihar* : (*a*) 6 and (*b*) 170. *Mysore* : (*a*) 8 and (*b*) 100. *Rajasthan* : (*a*) 5 and (*b*) 69. *Punjab* : (*a*) 2 and (*b*) 9. *Jammu and Kashmir* : (*a*) 4 and (*b*) 191 ; PEPSU : (*a*) 1 and (*b*) 5, respectively.

The Jail Departments of *Madhya Bharat* and *Saurashtra* have 79 and 6 looms, respectively.

The total is 4,161 units and 13,929 looms.

CEMENT (1952)

Factories : Nos. **19. (1955** : 27 units with rated capacity of 4,734,000 tons per annum.)

*Uttar Pradesh (11), Madhya Predesh, Orissa, Rajasthan, PEPSU, Ajmer

Capital: *Fixed* : Rs. 12,87,42,264 ; *Working* : Rs. 8,23,84,813 ; *Total* : Rs. 21,11,27,077. **Production :** Portland Cement : *Normal* : Tons 3,194,024—Rs. 26,29,79,857 ; *Rapid hardening* : Tons 4,846—Rs. 4,23,013. **(1955) :** Tons 4,496,062. **Asbestos Cement** Sheets : Tons 103,579. **Imports** (1954-55) : Tons 6,000 —Rs. 19,15,063.

Statewise Distribution of Factories (1952)

State	No. of Factories	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Madras	5	5,04,06	4,932	5,47,74	1,97,31
Bihar	5	4,51,53	3,996	6,80,66	2,28,85
Others*	9	11,55,69	9,288	11,64,43	3,82,29
Total	19	21,11,27	18,216	23,92,84	8,08,45

CERAMICS (1952)

Factories : Nos. 67. **Capital :** *Fixed* : Rs. 3,23,22,837 ; *Working* : Rs. 1,74,00,848 ; *Total* : Rs. 4,97,23,685.

Production (1952) : *Domestic ware* : 22,940,000 pieces—Rs. 41,41,884 ; *Electrical insulators* : 2,560,000 pieces—Rs. 4,11,850 ; *Pipes* : 1,193,000 pieces—Rs. 23,87,207 ; *Refractories* : Tons 200,570—Rs. 2,53,85,945 ; *Jars* : 8,258,000 pieces—Rs. 18,84,345 ; *Others* : Rs. 50,74,000.

Imports (1954-55) : Rs. 39,11,267. **Exports :** Rs 2,20,603.

Statewise Distribution of Factories (1952)

State	No. of Factories	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	9	46,03	775	16,66	6,43
West Bengal	19	97,61	4,196	88,26	51,03
Bihar	8	1,60,69	5,867	1,74,41	1,01,02
Madhya Pradesh	5	48,02	2,782	52,08	31,27
Delhi	10	19,29	833	16,15	7,31
Saurashtra	8	1,01,76	2,031	37,48	14,31
Others†	8	—	—	—	—
Total	67	4,97,24	16,909	3,90,01	2,13,59

*Bombay (2), Madhya Pradesh, Orissa, Rajasthan, PEPSU (2), Saurashtra (2).

†Uttar Pradesh (2), Punjab, Orissa, Vindhya Pradesh.

Six and nine factories of H. T. and L. T. *Electrical Porcelain*, respectively, with combined rated capacity of 6,582,972 nos. produced 244,000 and 3·54 million units in 1955.

Installed Capacity and Production of different Grades **(1955)**

	No. of Factories	Units	Installed Capacity	Production
Sanitaryware	13	Tons	2,640	2,492
Whiteware including crockery	36	Tons	16,872	9,643
Stoneware pipes	13	Tons	72,216	40,612
Jars-containers	30	Tons		
Glazed Tiles	4	Dozs.	870,000	378,100

CHEMICALS

(*Including* DRUGS and PHARMACEUTICALS)

Factories : Nos. 276. Capital : *Fixed* : Rs 37,31,41,138 : *Working* : Rs 21,42,49,329 : *Total* : Rs. 58,73,90,467.

Production : (1955) Bichromates : Tons 2,646 ; Bleaching Powder : Tons 2,402 ; Caustic Soda : Tons 31,182 ; Soda Ash : Tons 77,272 ; Sulphuric acid : Tons 150,800 ; Superphosphates : Tons 66,556 ; Salt : Mds. 81,070,000.

Imports : (1954-55) Chemicals and Chemical Preparations : Rs. 17,80,98,843 ; Drugs and Medicines (excluding Chemicals) : Rs. 13,11,15,373. **Exports :** Rs. 47,23,089.

OTHER PRODUCTIONS (1955)

Acetic acid (glacial) : tons 2,375 ; *Acetic anhydride* : Tons 2,075 ; *Acetone* : Tons 423 ; *Alum* : Tons 3,850 ; *Aluminium sulphate* : Tons 23,200 ; *Ammonium sulphate* : Tons 393,095 ; *Ammonium chloride* : Tons 1,683 ; *Calcium carbide* : Tons 3,109 ; *Calcium chloride* : Tons 786 ; *Carbon disulphide* : Tons 3,871 ; *Chrome colours* : Tons 590 ; *Copper sulphate* : Tons 900 ; *Ferrous sulphate* : Tons 500 ; *Ferric chloride* : Tons 75 ; *Hydroquinine* : Tons 18 ; *Liquid chlorine* : Tons 10,290 ; *Magnesium chloride* : Tons 6,111 ; *Phosphoric acid* : Tons 250 ; *Red Lead* : Tons 3,953 ; *Saccharine* : Lbs. 76,601 ; *Sodium bicarbonate* : Tons 4,125 ; *White Lead* : Tons 728 ; *Zinc chloride* : Tons 700 ; *Zinc oxide* : Tons 6,368.

Statewise Distribution of Factories (1952)

State	No. of Factories	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	101	17,27,04	14,248	15,15,45	5,35,54
West Bengal	90	8,76,78	13,507	11,21,19	3,69,17
Madras	30	2,83,64	3,110	3,05,86	97,54
Uttar Pradesh	15	2,06,07	2,123	2,51,58	58,71
Bihar	14	25,76,62	5,327	6,98,42	2,48,94
Delhi	10	1,05,56	913	1,12,11	40,32
Others*	16	—	—	—	—
Total	276	58,73,90	41,455	40,99,68	13,97,46

CIGARETTES

With an installed capacity of 24,250 million cigarettes per annum, seventeen factories in India manufactured 20,894 million cigarettes in 1955.

CIGARETTE PAPER

There are only *two* factories each with installed capacity of 3,480 tons of paper. The paper manufactured has been more than sufficient in meeting the entire needs of the country.

CLOCKS

Three factories with installed capacity of 27,636 units produced 14,090 clocks in 1955.

COAL TAR DISTILLATION PRODUCTS

	No. of Factories	Unit	Installed Capacity	Production
Benzene	3	Gals.	538,500	228,394
Benzol	5	Gals.	2,414,000	1,020,000
Crude Coal Tar	11	Tons	117,300	117,370
Light Creosote oil	5	Gals.	—	375,480
Naphthalene	5	Tons	1,030	962
Pitch	5	Tons	—	4,140
Road Tar	6	Tons	—	39,120
Solvent naphtha	4	Gals.	—	63,312
Toluene	4	Gals.	397,000	88,332

*Saurashtra (7), Madhya Pradesh, Punjab (6), Rajasthan (2).

CONFECTIONERY

(See BISCUITS)

There are 61 factories with a rated capacity of 52,790 tons per annum which produced 7,840 tons of confectionery in 1955.

COPPER

[See under ALUMINIUM—P. 370]

COTTON (1952)

Mills : Nos. 491. Capital : *Fixed* : Rs. 76,28,87,860 ; *Working* : Rs. 1,66,78,38,886 ; *Total* : Rs. 243,07,26,746.

Production (1955) : Cloth : 4,627 million yds. Yarn : 1,484 million lbs. **Exports** (1954-55) : Cloth : Rs. 65,87,43,794. Yarn : lbs. 1,270,991—Rs. 83,57,454. **Imports** (1954-55) : Cloth : Rs. 1,08,58,210 ; Twist and yarn : lbs. 1,742,170—Rs. 1,13,26,721.

Statewise Distribution of Mills (1952)

State	No. of Mills	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	249	145,76,85	420,892	269,23,15	80,51,40
West Bengal	35	11,92,57	34,881	16,07,73	4,39,63
Madras	99	34,42,00	94,374	56,87,78	13,22,71
Uttar Pradesh	29	17,45,37	52,557	29,83,46	8,68,72
Madhya Pradesh	20	9,67,02	31,081	12,91,46	4,24,73
Punjab	10	1,45,75	3,772	1,84,29	37,19
Delhi	10	6,32,05	15,030	10,93,34	3,63,65
Saurashtra	16	7,56,25	12,752	6,37,02	1,55,66
*Others	23	—	—	—	—
Total	491	243,07,27	684,517	412,84,16	118,95,16

*Orissa (4), Rajasthan (9), Ajmer (4), Bihar (3), PEPSU, Assam and Kutch.

Cotton Spinning and Weaving Mills (1954)

State	No. of Mills	No. of Spindles '000.	No. of Looms '000	Average no. of hands '000	Cotton Consumed '000-cwts.
Bombay	211	6,548·0	136·0	241·4	8,309·1
Rajasthan, Ajmer and PEPSU	12	1,70·6	3·9	7·9	418·8
Punjab, Delhi	11	227·3	5·1	6·7	583·3
Uttar Pradesh	29	812·6	13·3	26·9	1,228·2
Madhya Pradesh	11	373·1	7·3	17·7	632·1
Madhya Bharat and Bhopal	18	450·9	11·3	22·1	990·4
Bihar and Orissa	3	76·7	1·6	2·7	134·7
West Bengal	40	508·9	10·6	22·5	652·9
Hyderabad	7	158·0	3·2	8·2	340·2
Madras	95	2,100·7	9·3	59·2	2,528·6
Travancore-Cochin	10	134·8	·7	3·6	149·0
Mysore	11	231·4	3·5	12·4	343·3
Pondicherry	3	86·1	2·0	4·1	101·2
Total	461	11,888·2	207·8	435·4	16,411·0

DIESEL ENGINES, Etc. (1955)

Industry	No. of Factories	Unit	Installed Capacity	Production
Diesel Engines	16	Nos.	19,769	9,948
Diesel Engines (Road Vehicular Type)	1	Nos.	3,000	3,875
Fuel Injection Equipment :				
Injection Pumps	1	Nos.	10,000	11,813
Nozzle Holders	1	Nos.	10,000	15,524
Power-driven Pumps	26	Nos.	65,520	34,010

DISTILLERIES and BREWERIES (1952)

(*Including* POWER ALCOHOL *Manufacturing*)

Factories : Nos. 54. **Capital :** *Fixed* : Rs. 2,40,38,837 ; *Working* : Rs. 1,94,27,289 ; *Total* : Rs. 4,34,66,126.

Production : (1952) : *Country Spirits* : L. P. gals. 4,094,385—Rs. 1,16,59,076 ; *Indian made foreign Spirit* : L. P. gals. 415,254

—Rs. 90,17,771 ; *Malt Whisky* : L. P. gals. 28,257 ; *Beer* : gals. 166,100 ; *Rectified and re-rectified Spirits* : gals. 1,546,085 ; *Denatured Spirits* : gals. 1,718,811 ; *Power alcohol* : gals. 4,381,696 ; *Industrial alcohol* : gals. 7,470,000.

1955 : With installed capacity of 12·1 million bulk gallons, 43 factories manufactured 2·98 million bulk gallons of *Denatured* and 5·15 million bulk gallons of *Rectified Spirit* ; and 19 factories produced 10·28 million bulk gallons of *Power Alcohol*. *Three* factories with installed capacity of 1,700,000 bulk gallons produced 504,496 bulk gallons of *Beer* and *Ale*.

Exports (1954-55) : Liqueurs : gals. 283,196—Rs. 8,62,098.

Imports (1954-55) : Liqueurs : gals. 1,724,451—Rs. 2,52,33,911.

Statewise Distribution of Distilleries, etc. (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	4	31,73	340	14,81	4,50
West Bengal	5	35,83	801	78,53	24,17
Uttar Pradesh	14	1,67,28	1,752	84,60	34,65
Bihar	6	32,75	425	30,00	13,04
Punjab	3	37,35	450	22,78	8,73
Others	22	—	—	—	—
Total	54	4,34,36	5,098	3,22,03	1,28,53

ELECTRIC CABLES AND WIRES

Actual production of 5 factories of bare copper conductors (rated capacity : 27,800 tons) in 1955 was 8,386 tons ; of winding wire, 605 tons (by 2 factories with installed capacity of 450 tons per annum) ; of rubber and plastic insulated cables and flexibles 86,130,000 yds. and of Aluminium Conductors 8,045 tons, by four factories of each group with rated capacity of 86·84 mill. yds. and 10,370 tons, respectively.

ELECTRIC FANS (1952)

Factories : Nos. 30. **(1955)** For complete fans : 18.

Capital : *Fixed* : Rs. 93,99,515 ; *Working* : Rs. 1,25,32,485 ; *Total* : Rs. 2,19,32,000. *Rated Capacity* **(1955)** : 303,000 per year.

Production : Fans complete : **Table** : 33,695 ; **Ceiling** : 103,462 ; **Others** : 17,057. (1955) : 303,100 nos.

Exports (1954-55) : Nos. 10,836—Rs. 13,54,310.

Imports (1954-55) : Rs. 12,53,393.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
West Bengal	17	1,73,86	4,152	2,10,57	85,61
Punjab	7	6,79	200	4,27	2,41
Bombay (2), Delhi (3), PEPSU	6	38,67	565	34,46	14,48
Total	30	2,19,32	4,917	9,49,30	1,02,49

ELECTRIC LAMPS (1952)

Factories : Nos. 9. **Capital** : *Fixed* : Rs. 1,30,91,519 ; *Working* : Rs. 53,16,706 ; *Total* : Rs. 1,84,08,225 ; *Rated Capacity* **(1955)** : Incandescent Lamps : 29 mill. per annum. No. of factories : 11 (1955).

Production : *Incandescent filament Lamps* (Other than miniature) : Nos. 18,395,311—Rs. 1,25,46,644 ; *Miniature* : Nos. 1,772,265. (**1955** : 22·28 mill. nos.) *Flourescent* : Nos. 73,026. (**1955** ; 71,098 nos.)

Imports (1954-55) : *Electric bulbs* : *Gasfilled* : Nos. 408,161 ; *Vacuum* : Nos. 307,915 ; for automobiles : Nos. 48,698. Total value—Rs. 4,92,234. For torches : Nos. 15,020,170—Rs. 10,02,436. *Flourescent* Lamps : Nos. 702,289—Rs. 21,06,489 ; *Other sorts* : Nos. 3,101,493—Rs. 24,40,178.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000 Rs.
West Bengal	5	75,26	1,112	99,23	37,78
Bombay (2), Uttar Pradesh, Bihar	4	1,08,82	904	45,52	15,35
Total	9	1,84,08	2,016	1,44,75	53,13

ELECTRIC MOTORS

In 1955 the number of motors manufactured was 251,897 h. p. from 12 factories having a rated capacity of 200,000 h. p. per annum.

ELECTRIC TRANSFORMERS

A total of 10 units with a rated capacity of 414,000 K. V. A. exceeded the limit and produced 564,713 K. V. A. in 1955.

ENAMELWARE

Twenty-two factories with rated capacity of 30 million pieces manufactured 15·71 million pieces in 1955.

FILM (Houses)

Raw Film is not manufactured in India and the industry relates to show-houses and amusement to the people.

The invested capital is Rs. 42 crores : on 2,400 houses and 850 tents for shows Rs. 26 crores ; production and distribution, Rs. 10 crores ; and studios, laboratories, etc., Rs. 6 crores. The average annual number of films produced are about 275 in about 60 studios.

FOOTWEAR

[See "LEATHER"]

Twelve factories have a rated capacity of 5·9 million pair of *western type* footwear and produced about 3·24 million pair in 1955. The out-turn of cottage and small scale industries are about 13 million pair of *western type* and 70 million pair of *indigenous* type of footwear. Twelve factories produced (1955) 2·3 million pair of *indigenous* type of footwear in the same period.

FRUIT AND VEGETABLE PROCESSING (1952)

Factories : Nos. 27 ; **Capital** : *Fixed* : Rs 58,11,755 ; *Working* : Rs. 80,23,905 ; *Total* : Rs. 1,38,35,660.

Production : *Jams* : Cwts. 4,468 ; *Fruits*, Canned and bottled : Cwts. 8,147 ; Fruit *Squashes* and *Juices* : gals. 142,940 ; *Vegetable* products : *Juices* : gals. 33,481.

Exports (1954-55) : *Pickles, Chutnies* and *Condiments* : Cwts. 22,613—Rs. 18,70,171. **Imports** (1954-55) : *Canned and Bottled Provisions* : Cwts. 29,429—Rs. 42,65,159 ; *Jams and Jellies* : Cwts. 4,357—Rs. 4,24,197 ; *Pickles, Chutnies*, etc. : Cwts. 2,145 —Rs. 3,73,541.

GENERAL & ELECTRICAL ENGINEERING (1952)

(*Excluding Generation and Transformation of Electrical Energy*)

Factories : Nos. 2,020. **Capital :** *Fixed* : Rs. 27,16,25,490 ; *Working* : Rs. 33,43,19,485 ; *Total* : Rs. 60,59,44,975.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Productions '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	498	23,43,15	42,052	24,93,38	10,01,71
West Bengal	610	18,73,25	52,779	27,10,12	10,07,29
Madras	153	4,87,75	12,543	3,43,69	1,67,24
Uttar Pradesh	172	2,17,83	6,780	2,10,58	63,73
Bihar	91	3,53,21	10,550	3,50,45	1,94,97
Madhya Pradesh	25	1,94,54	2,716	1,12,75	44,24
Punjab	250	2,36,27	6,479	2,35,74	70,34
Delhi	125	1,23,80	4,405	1,94,59	71,61
Rajasthan	15	51,62	387	7,39	—1,50
Assam	18	37,42	1,638	33,85	11,18
*Others	63	—	—	—	—
Total	2,020	60,59,45	143,633	67,93,72	26,75,06

Production (1955) : *Special items* of manufacture : [*Machine Tools* ; *Dry Cells* ; *Power Transformers* ; *Electric Motors* ; *Storage Batteries* ; *Radio Receivers* ; *Copper Conductors, Winding Wires* ; *Insulators* H. T. and Insulators L. T. : (See under respective heads).

*Orissa (8), PEPSU (36), Saurashtra (13), Ajmer (3), Kutch, Himachal Pradesh.

(Miscellaneous) PRODUCTS (1955)

	No. of Factories	Unit	Installed Capacity	Production
(i) Agricultural Implements	62	Tons	26,880	13,875
(ii) Air-conditioners (Portable)	5	Nos.	6,000	1,969
(iii) Bolts, Nuts, Rivets, etc.	15	Tons	33,356	19,785
(iv) Building and Hardware Fittings	18	Tons	4,168	3,500
(v) Expanded Metal	4	Tons	2,940	2,323
(vi) Lampware	81	Tons	33,200	16,690
(vii) Steel Belt Lacing	3	Boxes	228,000	71,586
(viii) Steel Furniture	18	Tons	30,008	19,483
(ix) Stoves	10	Nos.	141,000	66,626
(x) Welding Electrodes	3	'000-ft.	96,000	120,920

Exports (1954-55): (i) Rs. 54,79,349; (iv) Rs. 10,40,333; excluding *Hinges*: Gross 81,400—Rs. 14,68,708: (vi) Oil-pressure Lamps: Nos. 47,134—Rs. 19,82,535; Other kinds: Nos. 69,598—Rs. 4,07,845. (viii) Safes and strong boxes of metal: Rs. 14,000. (ix) Nos. 29,918—Rs. 4,75,156; parts of stoves: Rs. 5,00,425.

Imports (1954-55): *Electrical Instruments, Apparatus and Appliances*, etc.: Rs. 11,32,38,320.

GLASS AND GLASSWARE (1952)

Factories: Nos. 136. **Capital:** *Fixed*: Rs. 3,76,88,146; *Working*: Rs. 1,59,47, 399; *Total*: Rs. 5,36,35,545.

Production: *Bangles*: Doz. pair: 626,928; *Bulbs*: Gross: 67,092; *Shades*: Gross 3,400; *Lampwares*: Gross 415,323; (Total *value* of Lampwares: Rs. 80,61,747). *Bottles and Jars*: Gross 1,583,208—Rs. 2,35,55,800; *Domestic wares*: Gross 33,343; *Laboratory ware*: Gross 100,171: *Refractories*; (q.v.) *Sheet Glass*: sq. ft. 9,053,356 **(1955** sq. ft. 34,220,000).

Exports (1954-55): Glass and glassware; Rs. 20,48,271.

Imports (1954-55): Rs. 1,38,68,783 (of which *Sheet and Plate Glass*: sq. ft. 13,036,001—Rs. 66,53,875).

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Production '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	25	1,42,83	6,212	1,65,19	58,45
West Bengal	29	86,24	4,815	1,06,62	39,54
Uttar Pradesh	46	92,47	5,649	73,56	24,33
Bihar	11	1,29,72	2,064	34,18	—2,36
Others*	25	—	—	—	—
Total	136	5,36,36	23,073	4,51,52	1,50,15

Production of different grades (1955)

Industry	Nos.	Quantity	Installed Capacity	Production (1955)
Bottleware	90	Tons	140,500	55,272
Table & Pressedware	75	Tons	40,446	25,456
Laboratory Glassware	12	Tons	6,024	2,496
Sheet Glass	4	mill. sq. ft.	100·6	38·88
Glass shells	3	mill.·pcs.	27·4	26·08
Thermoflask	2	Doz.	77,304	43,664
Misc. Glassware	28	Tons	19,886	2,272

GRINDING WHEELS

Only *two* factories with installed capacity of 1,250 tons of wheels per annum produced 642 tons in 1955. The quantity of *Coated Abrasives* produced in 1955 by *four* factories with installed capacity of 150,000 reams, was 78,800 reams.

GRAMOPHONES

One factory with rated capacity of 21,000 complete gramophone machines per annum produced, 5,322 nos. in 1955.

HOSIERY

It is difficult to give even a rough idea of the number of hosiery *factories* in India. The largest number is located in

*Punjab (2), Madras (8), Orissa (2), PEPSU, Madhya Pradesh (5), Rajasthan (5), Saurashtra and Assam.

Ludhiana, Punjab, where there are about 100 big and 1,200 small units with an invested capital of about Rs. 11 crores. The next place goes to West Bengal where there are 430 power looms engaged in hosiery manufacture.

Excluding large units the number of small woollen hosiery factories is 845 in Punjab, 15 in West Bengal, 2 in Delhi and 5 in Bombay ; the total is about 877.

HURRICANE LANTERNS

The big factories, 12 in number, have rated capacity of about 5,002,800 pieces of lanterns which has almost been reached in 1955 with 4,850,000 units. *Exports* (1954-55) : Nos. 349,079 —Rs. 8,23,627.

INSULATORS

(See under CERAMICS)

IRON AND STEEL (1952)

(*Including Blast Furnace Operations, Rolling and Re-rolling*)

Factories : Nos. 137. **Capital :** *Fixed* : Rs. 25,52,83,060 ; *Working* ; Rs. 29,22,86,178 ; *Total* : Rs. 54,75,69,238.

Production : (A) PIG IRON : Tons 1,789,917 ; STEEL INGOTS : Tons 1,511,342 ; BLOOMS, BILLETS and SLABS : Tons 1,318,971.

(B) *Products and by-products manufactured for sale* :

Pig iron : Tons 653,230 ; *Steel Ingots* : Tons 50 ; *Blooms, Billets and Slabs* : Tons 192,830 ; *Heavy Structurals* : Tons 92,130 ; *Light Structurals* : Tons 87,185 ; *Rails* : Tons 87,990 ; *Fish-plates* : Tons 2,359 ; *Sleepers* : Tons 35,109 ; *Tin plates* : Tons 66,483 ; *Black plates* : Tons 13,081 ; *Black sheets, plain* : Tons 121,444 ; *Black sheets, corrugated* : Tons 2,106 ; *Galvanised sheets, plain* : Tons 23,779 ; *Galvanised sheets, corrugated* : Tons 94,040 ; *Plates* : Tons 69,965 ; *Tin bars* : Tons 85,266 ; *Other bars* : Tons 232,837 ; *Rods* : Tons 72,654 ; *Bolts, nuts, washers and rivets* : Tons 2,846 ; *Wire* : Tons 17,431 ; *Hoops* : Tons 15,498 ; *Pipes and Tubes* : Tons 44,796 ; *Wheels* : Tons 9,505 ; *Tyres* : Tons 7,815 ; *Axles* : Tons 5,371. **Total value :** Rs. 65,36,28,960.

By-Products : *Scrap* : Tons 89,987 ; *Defectives and cuttings* : Tons 74,467 ; *Coal Tar* : Tons 52,660 ; *Sulphate of Ammonia* : Tons 23,792 ; *Electrical Energy* : kWh 103,541,912, Etc. **Total** : Rs. 5,85,35,105. **Production (1955) :** Steel (Ingots and metal for castings) : Tons 1,704,000.

Exports (1954-55) : IRON : Pig : Tons 18,594—Rs. 24,47,486 ; STEEL : Bars, Etc. : Tons 1,775—Rs. 7,38,724 ; IRON or STEEL : Tons 118,700—Rs. 1,70,97,359. *Total of Iron or Steel* : Tons 123,446—Rs. 2,15,19,448.

Imports (1954-55) : IRON : Tons 940—Rs. 5,74,121 ; STEEL : Tons 38,321—Rs. 2,20,65,533 ; IRON or STEEL : Tons : 366,982 —Rs. 27,90,71,680.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	13	1,15,38	2,383	1,37,83	34,30
West Bengal	23	18,63,02	33,174	24,77,04	9,24,12
Uttar Pradesh	23	1,04,86	2,360	1,19,34	29,01
Bihar	4	31,92,67	37,096	40,35,39	20,23,68
PEPSU	41	80,83	1,570	87,85	14,67
Others*	33	—	—	—	—
Total	137	54,75,69	78,466	69,88,18	30,58,90

Factories for extraction of metal from Ore : 3.

JUTE (1952)

Mills : Nos. 109. **Capital :** *Fixed* : Rs. 28,35,58,702 ; *Working* : 40,33,67,652 ; *Total* : Rs. 68,69,21,354.

Production : *Twist and Yarn* : Tons 10,963—Rs. 1,64,70,784 ; *Canvas* : Tons 2,039 ; *Hessian Cloth* : Tons 294,478—Rs. 58,32,99,315 ; *Hessian Bags* : Tons 19,981—Rs. 4,42,26,228 ; *Sacking Cloth* : Tons 30,175—Rs. 5,25,62,538 ; *Sacking Bags* : Tons 585,087—Rs. 95,21,88,982 ; *Ropes* : Tons 15 ; *Twine* : Tons 12,024—Rs. 1,70,35,176 ; *Carpets* : Sq. yd. 622,202 ; *Cotton bagging cloth* : Tons 26,269—Rs. 2,68,07,916 ; *Webbing* : Tons 1,945 ;

* Punjab (14), Delhi (7), Orissa (3), Saurashtra (4), Madras (3), Assam and Rajasthan.

D. W. Tarpaulin : Tons 23 ; *Rove* : Tons 60 ; **(1955)** : *Total* 1,027,000 tons.

Exports (1954-55) : *Twist and Yarn* : lbs. 6,684,919 —Rs. 53,66,458 ; *Bagging for raw cotton* : Cwts. 495,238 —Rs. 1,71,89,695 ; *Canvas* : Cwts. 14,408—Rs. 17,10,624 ; *Carpets* : Cwts. 14,896—Rs. 21,38,975 : *Sacking gunny bags* : Tons. 429,085—Rs. 52,82,05,544 ; *Hessian gunny bags* : Tons 22,673—Rs. 4,17,42,805 ; *Sacking gunny cloth* : Tons 12,853—Rs. 1,62,86,048 ; *Hessian gunny cloth* : Tons 347,116—Rs. 60,91,05,436 ; *Rope and Twine* : Cwts. 128,241—Rs. 72,27,786 ; *Webbings* : Cwts. 69,060—Rs. 77,27,874. *Total* : Tons 852,267—Rs. 1,23,96.99,597.

Statewise Distribution of Mills (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
West Bengal	98	64,98,35	275,178	1,59,75,40	43,11,79
Madras	4	1,65,79	7,181	4,50,66	1,05,57
Others*	7	2,05,08	8,964	5,01,33	99,38
Total	109	68,69,21	291,323	1,69,27,38	45,16,74

LAC

In refining Lac 490 factories are working and giving employment to no less than 21,000 workers of different categories.

LEATHER

[See under FOOTWEAR]

Twenty-four factories with installed capacity of *vegetable tanning* of 3,303,600 hides (expressed in terms of cow hide where *one buffalo hide* is counted as *two cow hides*) tanned 1,641,502 pieces in 1955. About 500 tanneries of the cottage and small scale type tan another 16 to 17 million hides per annum. *Chrome tanning* of hides is done by 13 factories with capacity to handle 1,679,400 pieces per annum and they produced 676,712 pieces in 1955. In addition there are about 250 small scale chrome

*Uttar Pradesh (3), Bihar (3) and Madhya Pradesh.

tanneries with an additional output of 1·5 million hides per annum.

There are five factories with installed capacity of 5·3 million yds., produced 2·62 million yds. of **Leather cloth** in 1955.

LINOLEUM

One factory having installed capacity for 450,000 yds. actually produced 323,200 yds. of Linoleum in 1955.

LOCOMOTIVES

There are two factories engaged in manufacturing locomotives, 5 for wagons and a few others for passenger coaches.

(Industrial) MACHINERY

Two factories produced 83 **Boilers** (1955) with installed capacity of 146 nos. per annum. Two factories reached the maximum capacity rated with 648 nos. of **Carding Engines.** With capacity of 4,320 **Looms,** three factories produced 2,636 nos. and four factories exceeded the maximum capacity limit of 744 with 901 **Ring Frames** in 1955.

MACHINE TOOLS

The value of products of 17 factories was about Rs. 1·42 crores in 1955. Several other items were also manufactured, the number of factories, installed capacity and quantity of production of which are given below :

Small Tools and Hand Tools (1955)

	Nos. of Factories	Unit	Installed Capacity	Production
(i) Bandsaw Blades	1	R. ft.	9,000,000	260,801
(ii) Hacksaw Blades	2	Gross	126,000	8,897
(iii) Milling cutters	6	Nos.	9,300	16,537
(iv) Reamers	6	Nos.	65,950	12,021
(v) Steel Files	5	Doz.	494,000	40,451
(vi) Threading tools (Taps, Dies, etc.)	5	Nos.	450,250	80,457
(vii) Tungsten Carbide Dies	1	Lbs.	1,200	15
(viii) Twist Drills	2	Nos.	1,482,000	711,433

MATCHES (1952)

Factories : Nos. 38. **Capital :** *Fixed* : Rs. 1,41,99,328 ; *Working* : Rs. 2,17,92,567 ; *Total* : Rs. 3,59,91,895.

Production : *Boxes* : Gross 24,092,297—Rs. 7,19,70,731 ; Boxes or Packets of "Bengal Lights" : Gross 164,261. **1955 :** Cases : 615,845 (50 gross boxes of 60 sticks each). *Rated capacity* : 705,996 cases.

Imports : (1954-55) Gross boxes : 1,150—Rs 3,108.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
West Bengal	7	83,75	2,423	1,58,98	70,83
Madras	11	75,94	4,553	1,93,70	79,94
Saurashtra	5	20,48	695	7,97	1,04
Others*	15	1,79,74	5,319	3,82,61	1,85,84
Total	38	3,59,92	12,990	7,43,27	3,37,65

METERS

One factory with rated capacity of 12,000 *Water Meters* and 5 with rated capacity of 199,000 *House Service Meters* Manufactured 12,034 and 255,348 meters, respectively, *i.e.*, both groups of this industry were able to exceed the maximum capacity through more efficiency.

(VEGETABLE) OILS (1952)

Factories : Nos. 1,036. **Capital.** *Fixed* : Rs. 12,38,08,260 ; *Working* : Rs. 11,94,93,249 ; *Total* : Rs. 24,33,01,509.

Production : *Unrefined oils* : *Cotton seed* : Tons 3,469—Rs. 44,28,577 ; *Linseed* : Tons 37,782—Rs. 5,30,65,314 ; *Rape* : Tons 125,670—Rs. 17,61,85,593 ; *Castor* : Tons 28,927—Rs. 4,29,85,985 ; *Sesame* : Tons 9,785—Rs. 1,52,36,379 ; *Coconut* : Tons 8,938—Rs. 1,57,25,609 ; *Groundnut* : Tons 225,204—Rs. 32,00,05,184 ; *Mowrah* : Tons 6,559—Rs. 97,30,882 ; *Gingelly* : Tons 2,466—Rs. 40,88,464 ; *Refined oils* : Tons 12,683—Rs. 2,09,99,656.

*Uttar Pradesh, Madhya Pradesh (2), Orissa (2), Rajasthan, Assam (2), Vindhya Pradesh, Kutch and Bombay (5).

Exports (1954-55) : *Cashew Shell* : Cwts. 114,476—Rs. 45,81, 801 ; *Castor* : Cwts. 595,471—Rs. 3,49,77,440 ; *Groundnut* : Cwts. 1,837,714—Rs. 11,87,96,164 ; *Linseed* : Cwts. 196,526 —Rs. 1,12,55,218 ; *Mustard and Rape* : Cwts. 9,451—Rs. 8,93,052 ; *Other sorts* : Cwts. 272,434—Rs. 1,78,74,356.

Imports (1954-55) : Miscellaneous : gals. 5,435,943—Rs. 2,28,19,861.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	224	4,93,87	7,876	25,09,20	71,87
West Bengal	77	1,83,11	3,690	10,48,93	67,08
Madras	328	4,66,79	11,903	16,41,14	96,96
Uttar Pradesh	101	3,83,97	7,478	15,17,84	81,90
Bihar	60	98,53	1,952	2,84,06	8,95
Madhya Pradesh	81	2,14,05	4,891	6,62,01	22,32
Punjab	21	58,31	587	1,09,19	—4,11
Rajasthan	31	71,92	755	1,04,35	—65
Saurashtra	59	3,14,39	2,453	3,88,23	6,03
Assam	30	93,42	1,121	1,99,07	5,55
Others*	24	—	—	—	—
Total	1,036	24,33,02	43,580	86,12,19	3,63,47

(HYDROGENATED) OILS

Factories : Nos. 33. **Capital** : *Fixed* : Rs. 7,57,74,706 ; *Working* : 6,42,90,486 ; *Total* : Rs. 14,00,65,192.

Production : *Castor oil* : Tons 2,531 ; *Sesame* : Tons 60 ; *Groundnut* : Tons 2,738 ; *Gingelly* : Tons 318 ; (*Total* : *Unrefined oils* : Tons 5,793—Rs. 1,03,36,571). *Refined oils* : Tons 7,085—Rs. 1,17,39,890. *Edible hydrogenated oil* : Tons 1,72,063 —Rs. 32,23,01,438 ; *Margarine* : Tons 465 ; *Industrial hydrogenated oils* : Tons 9,618 ; *Boiled and blown oils* : Tons 601 ; Oil-seed cakes : Tons 54,682—Rs. 1,03,22,525.

*Orissa (7), PEPSU (8), Delhi (4), Vindya Pradesh (3) and Kutch (2).

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	11	5,58,82	3,642	18,60,66	1,64,50
West Bengal	6	1,59,23	1,032	5,60,14	27,12
Madras	5	1,72,55	1,184	3,47,78	22,25
Others*	11	5,10,05	2,772	11,14,38	65,90
Total	33	14,00,65	8,630	38,82,96	2,79,77

PAINT AND VARNISHES

Factories : Nos. 48. **(1955** : Nos. 50 with installed capacity of 65,000 tons a year.) **Capital** : *Fixed* : Rs. 1,63,32,053 ; *Working* : Rs. 3,14,43,797 ; *Total* : Rs. 4,77,75,850.

Production : *Paste paints* : Cwts. 125,980—Rs. 99,02,113 ; *Ready mixed paints* : Cwts. 243,710—Rs. 2,59,53,750 ; *Red Lead* : Cwts. 6,705 ; *Yellow chromes* : Cwts. 3,604 ; *Total* : Cwts. 533,541—Rs. 4,28,42,897 ; *Enamels* : Cwts. 80,669—Rs. 1,27,42,295 ; *Varnishes* : Cwts. 107,484—Rs. 101,91,136 ; *D. B. Linseed oil* : Cwts. 21,195 ; *Thinners and Lacquers* : Cwts. 6,683. **(1955 :** Tons 38,548.)

Exports : (1954-55) : Paints and Painters' materials : Rs. 23,75,564. **Imports :** (1954-55) : *Paints and Colours* : Cwts. 198,127—Rs. 1,33,23,100. *Painters' materials* : Rs. 54,78,781.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	13	1,04,00	1,198	1,90,65	57,96
West Bengal	17	2,83,53	2,987	4,59,84	1,73,40
Madras	3	46,18	275	30,12	14,06
Others†	15	—	—	—	—
Total	48	4,77,76	5,044	7,23,30	2,54,75

*Uttar Pradesh (2), Bihar, Madhya Pradesh (2), Punjab, Delhi (2), Orissa and Saurashtra (2).

†Uttar Pradesh (4), Saurashtra (3), Madhya Pradesh (2), Punjab (2), Delhi (2) and Rajasthan (2).

PAPER and PAPER BOARD (1952)

(*Including* STRAW BOARD)

Mills : Nos. 43. **1955** : Nos. *Paper* : 21. Rated capacity : 186,200 tons. **Capital :** *Fixed* : Rs. 9,94,31,300 ; *Working* : Rs. 6,81,75,101 ; *Total* : Rs. 16,76,06,401.

Production : Writing and Printing (Total : tons 79,617) ; *White* : Tons 33,538—Rs. 4,30,40,279 ; *Printing unbleached* : Tons 6,435—Rs. 74,59,192 ; *Printing, coloured* : Tons 3,157—Rs. 43,55,776 ; *Map/Litho* : Tons 263 ; *Imitation Art* : Tons 763 ; *Antique* : Tons 343 ; *Account Book* : Tons 3,911 ; *Ahmedabadi* : Tons 717 ; *Duplicator* : Tons 1,543 ; *Drawing Cartridge* : Tons 2,051 ; *Offset Cartridge* : Tons 858 ; *Cream laid* : Tons 16,831—Rs. 2,21,78,347 ; *Cream wave* : Tons 658 ; *Legal blue* : Tons 383 ; *Badami* : Tons 5,829 ; *Match box* : Tons 460. *Trapping* : Tons 15,871—Rs. 2,00,10,297 ; *Cover* : Tons 1,830 ; *Special thin quality* : Tons 1,409 ; *Blotting* : Tons 402 ; *Boards* : Tons 41,621 —Rs. 3,82,39,878. **(1955)** : Tons 184,884 paper.

Exports (1954-55) : *Paper and Pasteboard* : Cwts. 46,579—Rs. 67,16,323.

Imports : *Packing and Wrapping Paper* : Cwts. 242,559—Rs. 1,69,71 331 ; *Printing Paper* : Cwts. 1,779,201—Rs. 7,73,72,218 ; *Writing Paper and Envelopes* : Cwts. 119,799—Rs. 43,37,795 ; *Total of Paper* : Cwts. 2,615,280—Rs. 12,08,88,880 ; *Pasteboard, Millboard* and *Cardboard* of all kinds : Cwts. 96,894—Rs. 56,27,164. Total of Paper and Pasteboard : Cwts. 2,712,134—Rs. 12,65,16,044. *Paper-making materials* : Cwts. 364,474—Rs. 1,70,63,202.

Statewise Distribution of Mills (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	15	1,45,77	2,841	1,25,55	42,50
West Bengal	14	8,16,19	9,285	7,98,46	2,80,06
Madras	4	42,84	604	37,87	8,46
Uttar Pradesh	5	1,20,76	1,995	1,23,79	46,55
Others*	5	5,50,50	5,131	7,14,73	2,86,47
Total	43	16,76,06	19,856	18,00,40	6,64,04

*Bihar (2), Punjab, Orissa and Vindya Pradesh.

PENCILS

Twelve factories with installed capacity of 1,082,700 gross per annum produced 377,025 gross of pencils in 1955.

PLASTICS

There are about 100 big factories engaged chiefly in turning out finished products from imported raw materials. Moreover, there are (*a*) three factories with capacity to produce 1,179 tons of Phenol formaldehyde Moulding Powder per annum and (*b*) 43 factories with capacity to produce about 12,000 tons of Plastic goods (both injection moulding and compression moulding) and actually produced (*a*) 715 tons of powder and (*b*) 2'4 million gross of articles, respectively, in 1955.

PLYWOOD and TEA CHEST (1952)

Factories : Nos. **45 (1955** : Nos. 62). **Capital :** *Fixed* : Rs. 1,11,14,999 ; *Working* : Rs. 91,40,601 ; *Total* : Rs. 2,02,55,600. Rated capacity : 142 mill. Sq. ft.

Production : (Plywood) *Commercial* : sq. ft. 9,238,333—Rs. 33,98,870. *Tea Chests* : Nos. 4,370,039—Rs. 2,29,68,988. **(1955) :** *Commercial* : Sq. ft. 19,397,180 ; *Tea Chests* : Sq. ft. 90,621.900.

Imports : (1954-55) Tea chests : No. of sets 259—Rs. 11,66,779.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
West Bengal	26	51,00	1,949	1,26,26	20,40
Madras	4	28,08	626	35,11	11,30
Assam	7	76,00	1,083	93,92	40,73
Others*	8	47,48	1,214	34,92	14,96
Total	45	2,02,56	4,872	2,90,21	87,39

RADIO RECEIVERS

The installed capacity of 15 large sized factories was 138,000 units which produced 77,651 units in 1955.

* Bombay (2), Uttar Pradesh (2), Orissa (2), Bihar, and Madhya Pradesh.

(Safety) RAZOR BLADES

Five big Razor Blade factories possess installed capacity of 414·6 million blades per annum. Production (1955) amounted to 174·565 million pieces. The raw material is chiefly imported from foreign countries.

REFRACTORIES

Thirty-two factories with rated capacity of 329,410 tons per annum manufactured 260,060 tons of refractories in 1955.

REFRIGERATORS (Domestic)

Two factories with installed capacity of 3,600 units per annum manufactured 525 nos. in 1955.

RICE MILLING (1952)

Mills : Nos. 1,436. **Capital :** *Fixed* : Rs. 5,89,51,857 ; *Working* : Rs. 6,69,00,275 ; *Total* : Rs. 12,58,52,132. **Production** *Rice* : Tons 993,924—Rs. 42,24,97,040. **Exports** (1954-55) : Rice not in the husk : Tons 19,629—Rs. 1,16,85,372. **Import** (1954-55) : Rice not in the husk : Rs. 54,86,65,011.

Statewise Distribution of Mills (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
West Bengal	339	2,69,39	12,345	10,12,98	32,04
Madras	635	3,87,37	16,311	18,65,26	95,07
Bihar	120	1,54,94	4,705	6,13,45	23,70
Madhya Pradesh	169	2,20,89	4,400	7,01,55	34,04
Orissa	87	1,20,95	4,509	93,15	31,34
Assam	43	56,11	948	1,46,75	5,04
Others*	42	—	—	—	—
Total	1,435	12,58,52	44,232	45,24,00	2,24,11

RUBBER

There are about 112 Rubber Factories with 14,248 workers. Bombay has 47 factories and 2,500 workers ; West Bengal and Travancore-Cochin have 21 and 13 factories and 10,212 and 667

* Bombay (3), Uttar Pradesh (15), Punjab (17), Rajasthan (3) and Vindya Pradesh (4).

workers, respectively. Next to these, Madras has 7 and Madhya Pradesh 6 with 239 and 237 workers, respectively.

Some of the factories with their respective installed capacity and production in 1955 are given below :

	No. of Factories	Unit	Installed Capacity	Production
Aero-Tyres	2	Nos.	5,328	4,408
Aero-Tubes	2	Nos.	3,626	2,444
Automobile Tyres	2	Nos.	...	882,311
Automobile Tubes	2	Nos.	...	785,514
Bicycle Tyres	5	Nos.	...	5,748,100
Bicycle Tubes	5	Nos.	...	5,593,777
Cab Tyres	3	Ft.	1,246,500	377,171
Ebonite	14	Lbs.	1,188,840	130,264
Fan Belts	6	Nos.	881,160	655,263
Latex Foam Sponge	7	Lbs.	1,146,000	1,469,306
Dipped Rubber Goods	15	Doz.	44,342,860	22,296,680
Radiator Hose	7	Nos.	511,860	186,589
Other types of Hose	14	Ft.	10,987,200	5,718,373
Railway Rubber Spring	4	Nos.	1,290,000	1,526,711
Rubber Footwear	19	Pair	42,680,196	34,891,045
Tractor Tyres	2	Nos.	26,136	24,526
Tractor Tubes	2	Nos.	23,976	23,110
Vacuum-Brake Hose	4	Nos.	1,080,000	788,820
Water-proof Fabrics	12	Yds.	5,712,000	2,119,035

(Machine and Wood) SCREW

[See under WIRE PRODUCTS]

SEWING MACHINES

Factories : Nos. 9, of which *two* produce complete machines. The rated capacity of these two is 41,500 (1955). **Capital :** *Fixed* : Rs. 77,43,390 ; *Working* : Rs. 65,97,335 ; *Total* : Rs. 1,43,40,725. **Production :** Sewing machines : *Hand-operated* : Nos. 28,789—Rs. 38,09,055 ; *Foot-operated* : Nos. 22,484—Rs. 36,97,785 ; *Power-operated* : Nos. 88 ; *Total* : Nos. 51,361—Rs. 75,20,040.

Exports : (1954-55) : Nos. 5,288—Rs. 9,29,212 (including

assembled machines). **Imports** (1954-55): Sewing machines: Nos. 13,976—Rs. 40,41,334; Knitting machine: Nos. 994—Rs. 11,21,571; Parts of Sewing and Knitting machines and accessories: Rs. 22,14,660.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
West Bengal	3	1,40,21	2,236	1,16,03	47,77
Punjab	3	89	86	1,56	78
PEPSU	3	2,31	209	3,09	2,32
Total	9	1,43,41	2,531	1,20,67	50,87

SHIPBUILDING

The only shipbuilding yard is at Visakhapatnam: Andhra, with an invested capital of Rs. 309·9 lakhs. In 1955 only two ships were completed and orders for four 7,000-ton and two 8,000-ton motor vessels are lying with the Company.

SILK

There are about 90 silk factories of which only three use power looms, one each in Bombay, Mysore and West Bengal. The bulk of the indigenous and imported raw silk is woven in handlooms in the traditional way in U. P. (particularly in Banaras, Mirzapur and Shahjahanpur), Mysore (Bangalore), West Bengal (Murshidabad, Bankura, Bishnupur), Punjab (Amritsar, Jullundhar), Madras (Salem, Tanjore, Tiruchirapalli), Madhya Pradesh (Nagpur), Bombay (Ahmedabad, Belgaum, Dharwar, Poona, Hubli, Sholapur) and Orissa (Berhampur).

SOAP

Factories: Nos. 53. **(1955** : 74). **Capital**: *Fixed*: Rs. 2,47,31,119; *Working*: Rs. 4,78,82,078; *Total*: Rs. 7,26,13,197. Rated capacity **(1955)**: 244,600 tons per annum. **Production:** *Toilet*: Tons 11,170—Rs. 3,39,73,593; *Shaving*: Tons 229; *Industrial*: Tons 2,311; *Household and Laundry*: Tons 60,128 —Rs. 9,70,21,113; etc. *Total*: Tons 75,796—Rs. 13,83,28,171. **(1955):** Tons 98,000.

Soap lye (Crude glycerine) : Tons 5,430—Rs. 1,47,48,461 ; *Glycerine lye* : Tons 5,911—Rs. 1,42,03,010 ; *Distilled glycerine* : Tons 1,456—Rs. 70,58,306. **(1955)** : *Crude* : Tons 5,895 ; *Refined* : Tons 2,486.

Exports (1954-55) : *Toilet Soap* : Tons 6,600—Rs. 10,07,722 ; Others : Tons 4,225—Rs. 4,45,612. **Imports** (1954-55) : Cwts. 1,117—Rs. 2,26,747.

Statewise Distribution of factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	18	4,77,01	3,202	12,39,59	4,71,39
West Bengal	16	1,71,92	1,559	4,97,16	1,43,21
Madras	10	34,95	482	33,02	6,97
Others*	9	—	—	—	—
Total	53	7,26,13	5,749	18,16,57	6,29,94

STARCH

Factories : Nos. 57. **Capital** : *Fixed* : Rs. 63,46,594 ; *Working* : Rs. 80,42,011 ; *Total* : Rs. 1,43,88,535. **Production** : *Maize Starch* : Tons 4,217 ; *Wheat Starch* : Tons 568 ; Others : Tons 5,717 ; *Total Starch* : Tons 10,502—Rs. 89,24,419 ; *Glucose* (Industrial) : Tons 77 ; *Dextrine* : Cwts. 11,146 ; *Maize Oil* : Cwts. 1,548 ; *Gluten* : Cwts. 9,862.

Imports (1954-55) : Starch, Dextrine and Farina : Cwts. 17,701 —Rs. 5,18,664.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	6	49,96	403	54,54	6,87
Madras	45	14,95	1,600	34,90	5,82
Others†	6	78,97	748	32,42	1,96
Total	57	1,43,89	2,751	1,21,85	14,65

* Bihar (2), Madhya Pradesh, Delhi, Orissa and Uttar Pradesh (4).

† West Bengal, Uttar Pradesh (2), Punjab, Rajasthan and PEPSU.

SUGAR (1952)

Factories : Nos. 147. **Capital** : *Fixed* : Rs. 20,34,43,453 ; *Working* : Rs. 51,72,81,770 ; *Total* : Rs. 72,07,25,223. **Production** : *Sugar* : Tons 1,202,397—Rs. 82,42,05,956 ; *Molasses* : Tons 421,280—Rs. 37,54,431 ; *Confectionery* : lbs. 4,917,035—Rs. 64,51,367 ; *Power Alcohol* : gals. 2,092,638—Rs. 18,31,058 ; *Rectified Spirit* : gals. 491,853. **(1955)** : (*Sugar*) Tons 1,615,000. **Exports** (1954-55) : Sugar (refined) and Sugar candy : Rs. 51,082. **Imports** (1954-55) : Sugar : Tons 364,596—Rs. 21,97,98,752.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	15	10,88,30	9,549	10,12,73	3,42,22
Madras	16	7,56,64	9,906	7,36,13	2,58,12
Uttar Pradesh	71	38,46,06	68,393	45,75,05	11,66,72
Bihar	32	12,59,68	28,562	18,04,16	5,12,01
Others*	13	2,56,56	3,391	2,18,71	69,77
Total	147	72,07,25	119,801	83,49,77	23,48,84

TANNING

[See under LEATHER]

Factories : Nos. 94. **Capital** : *Fixed* : Rs. 83,23,491 ; *Working* : Rs. 2,58,42,040 ; *Total* : Rs. 3,41,62,531. **Production** : *Sole Leather* : lbs. 8,771,499—Rs. 1,76,01,751 ; *Harnes* and *Saddlery Leather* : lbs. 217,420 ; *Belting Leather* : lbs. 104,016 ; *Upper Leather* : Vegetable tanned : lbs. 2,831,461 ; Chrome tanned : Sq. ft. 3,131,441 ; *Sheep and Goat Skins* : Vegetable tanned : lbs. 5,001,324—Rs. 3,24,76,577 ; Chrome tanned : Sq. ft. 877,554 ; etc.

Exports (1954-55) : *Hides and Skins*, tahned or dressed : *Hides* : Cwts. 261,816—Rs. 7,97,35,747 ; *Skins* : Cwts. 131,043 —Rs. 10,71,07,735 ; *Leather, unwrought* : Cwts. 9,513 ; Bags, trunks, etc. : Rs. 6,13,071. Total of Leather and manufactures thereof : Rs. 19,03,47,779. **Imports** (1954-55) : Total of Leather : Rs. 34,07,321.

* West Bengal, Punjab, Orissa (2), Rajasthan (6), PEPSU (2) and Ajmer.

Statewise Distribution of Factories (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	7	18,20	585	61,94	12,40
West Bengal	7	14,09	288	9,89	2,09
Madras	55	1,54,62	4,339	4,25,26	44,82
Uttar Pradesh	20	1,28,52	2,543	1,94,80	41,09
Others*	5	26,20	426	37,89	6,43
Total	94	3,41,63	8,181	7,29,78	1,06,83

TELEPHONE

There is one unit in Madras engaged in manufacturing telephone *receivers* and equipments sponsored and worked by the India Government.

TELEPHONE CABLES

Four fairly big sized, two located in Alwaye in Travancore-Cochin, one each in Calcutta and Tatanagar, and 8 medium sized factories are manufacturing telephone cables at present.

TOILET (Requisites)

Industry	Nos. of Factories	Unit	Installed Capacity	Production (1955)
Face Cream and Snow	11	lbs.	2,634,210	764,221
Face Powder	8	lbs.	555,000	205,272
Toilet Powder	12	lbs.	6,817,360	2,416,290
Tooth paste	10	lbs.	2,941,040	1,849,506

TRANSFORMERS

(See under ELECTRIC TRANSFORMERS)

TUBE (Steel)

Work recently begun by one firm at Jamshedpur. Capacity of the plant is 90,000 tons of tube per annum.

Ten factories with rated capacity of 8,127,000 Running ft. produced 5,503,122 R. ft. of **Conduit Pipes** in 1955.

* Bihar, Orissa (2), PEPSU and Assam.

TYPEWRITERS

Three factories with rated capacity of 33,000 nos. manufactured 4,630 typewriters in 1955.

UMBRELLA RIBS

Five factories capable of manufacturing 720,000 dozen sets produced about 294,726 dozen sets in 1955.

WHEAT MILLS (1952)

Mills : Nos. 79. **Capital:** *Fixed* : Rs. 1,97,98,539 ; *Working* : Rs. 2,37,61,960 ; *Total* : Rs. 4,35,67,499. **Production :** *Wheat flour (maida)* : Tons 75,870—Rs. 5,66,32,007 ; *Wheat atta* : Tons 177,112—Rs. 7,97,38,401 ; etc. **Exports :** (1954-55): Tons 10—Rs. 6,335. **Imports** (1954-55) : Rs. 12,87,28,151.

Statewise Distribution of Mills (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	7	46,58	1,023	5,08,56	41,38
West Bengal	16	1,10,67	1,673	6,99,25	32,34
Uttar Pradesh	9	48,34	528	73,71	4,55
Bihar	14	85,11	474	1,45,54	11,07
Punjab	12	80,70	1,023	3,19,26	8,19
Others*	21	—	—	—	—
	79	4,35,67	5,668	19,09,72	1,16,95

WIRE PRODUCTS

Wire products are mainly divided into (*a*) Gauze, (*b*) Netting and (*c*) Chain link fencing. The number of units (i), installed capacity per annum (ii) and production in 1955 (iii) was, respectively, for (*a*) : (i) Nos. 7, (ii) 1,500 tons and (iii) 963 tons ; for (*b*) : (i) Nos. 3, (ii) 684 tons and (iii) 414 tons, and for (*c*) : (i) Nos. 3, (ii) 600 tons and (iii) 102 tons.

Six Machine Screw factories exceeded their capacity of 444,400 gross per annum in 1955 and actually produced 640,243 gross in 1955. Wood Screw factories were 18, installed capacity 4,540,000 gross, and actual production, 5,744,000 gross.

*Madras (3), Madhya Pradesh (4), Delhi (6), Orissa (3), PEPSU (2), Saurashtra and Assam (2).

WOOLLEN TEXTILES (1952)

Mills : Nos. 45. **Capital :** *Fixed* : Rs. 2,86,70,613 ; *Working* : Rs. 6,23,49,873 ; *Total* : Rs. 9,10,20,486. **Production :** *Yarn* : lbs. 5,762,418—Rs. 3,31,90,496 ; *Woven goods* : *Cloth* : yds. 5,206,647—Rs. 4,82,81,555 ; *Lohis and Shawls* : Nos. 812,341 —Rs. 1,13,96,781 ; *Rugs and Blankets* : Nos. 832,654—Rs. 1,50,97,875 ; *Total* : *Woven materials*—Rs. 7,47,76,211 ; *Hosiery and knitted goods* : Rs. 11,65,33,060. **(1955) :** *Woollen manufacture* : 13·42 mill. yds. ; *Yarn* : 20·74 mill. lbs.

Exports (1954-55) : **Carpets and Rugs :** lbs. 9,603,669—Rs. 3,86,05,886 ; *Total* of woollen manufactures : Rs. 4,36,86,978.

Imports (1954-55) : *Yarn and knitting Wool* : lbs. 3,680,446 —Rs. 1,34,95,858 ; *Woollen manufactures* : Rs. 1,60,05,048.

Statewise Distribution of Mills (1952)

State	Nos.	Capital '000-Rs.	Workers	Value of Products '000-Rs.	Value added by Manufacture '000-Rs.
Bombay	8	4,07,99	6,230	4,71,93	93,80
Uttar Pradesh	6	1.52,61	2,801	1,94,94	1,01,49
Punjab	24	2,22,65	5,155	3,56,84	76,36
Others*	7	—	—	—	—
Total	45	9,10,26	15,801	11,36,68	2,81,58

ZIP FASTENERS

There are only two factories with a capital of Rs. 2,50 lakhs and rated capacity of 1,260,000 Running ft. per annum manufactured 354,025 Running ft. in 1955. **Exports :** (1954-55) : Rs. 5,70,741.

OTHER PRODUCTIONS (1955)

During the year 1955, alternators, cycle dynamo lighting sets, complete typewriters, self doffing jute spinning frames, tea dryers, clinker cooler and clinker breakers, delivery valves and pump elements for fuel injection equipment, vertical multi-cylinder diesel engines, all geared head bench lathes and hypodermic needles were the products manufactured in India on a commercial scale for the first time.

* West Bengal (2), Madras (3), Bihar and Saurashtra.

Cottage Industries

In the rural economy of India, Cottage Industries hold rather a very important place inasmuch as together with "small enterprises" they find occupation to no less than 26 million people and anually contribute Rs. 970 crores to the national wealth. The handloom industry employs more than 5 million people "or nearly as many as are employed in all the organised industries, including large-scale industries, mines and plantations."

There are about 2·9 million handlooms in India distributed over almost all the States and the most important of which are :

Andhra : 2,72,019 ; Assam : 4,79,807 ; West Bengal : 97,151 ; Bihar : 1,96,218 ; Bombay : 1,97,752 ; Hyderabad : 1,49,000 ; Madhya Pradesh : 1,05,000 ; Madras : 5,59,883 ; Manipur : 1,20,890 ; Orissa : 1,29,686 ; Travancore-Cochin : 80,137 ; Uttar Pradesh : 2,53,311, giving a total of 26,40,854 (out of 28,93,271 for the whole of India). Annual production of cloth was 1,500 million yards in 1955.

Coir is another industry of great importance which like handloom is contending with factories but with greater strength than handloom. Annual production is in the neighbourhood of 1·5 lakh tons and the labour employed is 800,000 or more.

The other industries which engage considerable number of workers are Metal-working : 4 million ; Leather : 2·4 million ; Wood : 2 million ; Pottery, Ceramics, etc. : 2 million ; Food including handpounding : 2 million ; Vegetable oils, Dress and Toilet : 1·2 million ; Chemical Products, etc. : 1 million ; Miscellaneous industries (wicker work, tobacco mats and mattings, toys, jewellery, etc.) about 6 million.

With a larger number of units of cottage and small-scale industries the possibility of larger employment than in other sphere is envisaged. The Cottage and Small Industries Boards exclusively engaged in striking new lines as well as improving old methods of production are working assiduously and chances of success in this line though brighter, have not yet been able to show big results.

GOVERNMENT NEW INDUSTRIAL UNDERTAKINGS

Sindri Fertilisers & Chemicals Ltd., Sindri, Bihar—to produce 350,000 tons of ammonium sulphate per annum.

D. D. D. Factory—Delhi—Target : 700 tons per annum.

Coke Oven Plant—Sindri, to produce 600 tons of coke at Sindri and 200 tons of Urea per diem.

Cement Factory for utilization of Calcium Carbonate sludge, a by-product of the Fertilizer Factory.

Hindusthan Housing Factory, Jungpura, Delhi, for prefabricated house.

Hindusthan Aircraft Ltd., Bangalore, Mysore.

National Instruments Factory, Bangalore, to revitalize the Mathematical Instruments Office.

Hindusthan Machine Tools Factory to manufacture precision machine tools at Jalahalli, Bangalore.

New Mint at Alipore, West Bengal.

Hindusthan Anti-biotics Ltd. to manufacture 9,000 billion units Penicillin per annum at Pimpri, near Poona.

Hindusthan Shipyard at Visakhapatnam, Andhra.

Steel Corporations Ltd. for the manufacture of steel at Bhilai, Madhya Pradesh ; Rourkela, Orissa ; and Durgapur, West Bengal.

Telephone Cable Factory at Rupnarainpur, West Bengal to manufacture 460 miles of paper-insulated telephone cable per annum.

India Telephone Industries, Ltd., Bangalore, capable of manufacturing 50,000 telephone instruments and 30,000 exchange lines per annum.

Nahan Foundry Ltd., Nahan, Himachal Pradesh—manufacturing centrifugal pumps, paddy thrashers, corn-shellers, and bullock-driven pumps, etc.

Nepa Mills, Madhya Pradesh—for the manufacture of newsprint.

Chittaranjan Locomotive Works, Chittaranjan, W. Bengal and **Coach Factory** at Perambur, Madras, are parts of Railway Development Schemes and have gone into production.

Indian Rare Earths Ltd., Alwaye, Travancore-Cochin for the manufacture of rare earths chlorides, etc., carbonates and 1,800 tons of trisodium phosphate per annum.

New National Laboratories Of India :

(1) Physical Laboratory, New Delhi ; (2) Chemical Laboratory, Poona ; (3) Metallurgical Laboratory, Jamshedpur ; (4) Fuel Research Institute, Jealgora, Dhanbad ; (5) Central Glass and Ceramics Research Institute, Calcutta ; (6) Central Drug Research Institute, Lucknow ; (7) Central Food Technological Research Institute, Mysore ; (8) Central Road Research Institute, New Delhi ; (9) Central Electro-Chemical Institute, Karaikudi, Madras ; (10) Central Leather Institute, Madras ; (11) Central Building Research Institute, Roorkee ; (12) Central Salt Research Institute, Bhavnagar ; (13) Central Electronic Engineering Institute, Rajasthan.

PAKISTAN

There is *one* factory manufacturing **(abrasive) Grinding Wheels** in Karachi with installed capacity of manufacturing 100 tons of goods per annum.

There are about 100 medium and small workshops engaged in rolling **Aluminium** ingots, all situated in and around Gujranwalla, Punjab.

Two factories in Karachi have capacity of manufacturing seven million single cells of Dry **Batteries** per annum.

Four factories manufacture **Bicycle** parts and are engaged in assembling imported as well as indigenous components. Manufacture of complete bicycles is contemplated in the near future.

There are a number of **Chemical Factories** of which *one* at Kherwa is engaged in manufacturing *Caustic Soda* in the Salt Range of Punjab ; *one* factory has capacity of manufacturing 10 tons of *Caustic Soda* per diem with another at Chandraghona

in Chittagong. *Three Sulphuric Acid* plant, of which two are rather small, have capacity of 330 tons per annum. One plant has capacity of producing 10 tons a day.

There are *five* **Cement Factories,** two in Punjab and one each in Karachi, Sind and East Pakistan ; the combined production of which was 674,000 tons in 1954. Two others, one in Daud Khel, Punjab, and the other in Sind are under construction. *Eight* factories are engaged in manufacturing **Cement Products,** mainly reinforced *cement concrete pipes.*

In 1953, no less than 3,996 million **Cigarettes** and 1,353 thousand **Cigars** were manufactured by a number of factories situated both in East and West Pakistan.

The total number of **Cotton Mills** is about *fifty* of which 11 are in East Pakistan, 10 in Punjab, 18 in Karachi and 5 in Sind. The rest are in Baluchistan, Khairpur and N.-W.F.P. The number of spindles (in 1955) were 1,565,552 and of looms, 22,633. Total *production* amounted to 345·2 million yds. (1954) of *fabric* and 99,946,000 lbs. of cotton *yarn* (surplus).

Factories manufacturing **Electric Fans** are about *fifteen* of which 14 are in Karachi and Punjab and *one* only in East Pakistan. They produced 14,516 units in 1952. Karachi has *two* **Electric Lamp** factories with production of 1,500,000 general service lamps and of small special lamps 500,000 per annum.

Cinema Houses are distributed as follows : Karachi 24 ; N.-W.F.P. 18 ; Punjab 73 ; Sind 46 and East Pakistan 113. There is *one Studio* in Karachi.

There are *fourteen* **Glass and Glassware** factories of which 4 are in Dacca, 3 in Karachi, 2 in Hyderabad and one each in Chittagong, Lahore, Multan, Okara and Gharkarmandi (near Lahore). The (output) capacity is 11,000 tons of bottles, jars, hollow glassware, tableware and a small quantity of scientific glassware per annum. *Glass bangles*, about 2,500 tons per annum, are produced through *cottage industries.*

Karachi has *three* and Sialkot in Punjab has *one* factory manufacturing **Hurricane Lanterns** which produced 209,000 units in 1952.

All the *ten* **Jute Mills** are situated in East Pakistan of which 4 are in Dacca with 3,750 looms, 3 in Chittagong (1,500 looms and 3 in Khulna (1,500 looms). Two more have been planned construction of which is progressing very fast. Production (1954 was 53,250 tons which was only 1,441 tons in 1951.

Karachi has *two*, Lahore *two*, Hyderabad *one* and Dacca *one* of **Leather Factories** which produce approximately 17·5 million pair of shoes per annum out of which 11·5 million pair are of the western type.

Most of the **Machine Tools** factories, between 25 to 30 in number, are located in or about Lahore with capacity to manufacture 550 lathes, 324 handsaws and 324 drilling machines per annum.

West Pakistan has *three* **Match** factories, one each at Landhe near Karachi, Khairpur and Lahore and *one* at Bahawalpur and *two* in N.-W.F.P. are under construction. East Pakistan has 10 factories, one of the biggest is in Khulna and another factory is at Chittagong ; the rest are of cottage industry type. Production in 1954 was 3,425 gross boxes of 20 and 30 sticks and 3.240 gross boxes of 40 and 60 sticks.

In respect of **Paper Mill**, Pakistan is exerting her utmost and a mill in Chittagong—the Karnafuli Paper Mills—with a capacity of 30,000 tons of writing, printing and wrapping paper per annum, has gone into production with the help of imported pulp. A high grade paper and board mill at Nowshera with a capacity of 7,500 tons of finished duplex and triplex board is to go into production very soon. A board mill is being put into production at Rahwali in West Punjab to manufacture 7,500 tons of unbleached strawboard per annum. A second mill at Nowshera is under contemplation.

There are *two* factories engaged in **Plywood** manufacture, one in Chittagong and the other in Karachi.

Distilleries producing **Power Alcohol** are *three* in Rawalpindi, *one* in N.-W.F.P. (at Takht-i-Bhai) and *one* in East Pakistan (at Darsana) with a capacity of 2·3 million gallons per annum. The quantity manufactured is not very large.

There are *eight* **Pottery** factories with a large number of others of the cottage industry type. The *glazed pottery factory* at Multan and one each at Bahawalpur and Sind (at Hallay) deserve special mention.

Of the 96 **Plastics** factories, Karachi has 71 of which 24 work with semi-automatic machines. There are about 72 in Pakistan worked on cottage industry basis.

Pump factories are only *four* in number and meet only a part of the total requirements.

There is only *one* **Razor Blade** factory which is located in Karachi.

Factories manufacturing **Refractory** (fire) bricks, etc. are *eight* in number and all of them are located in West Pakistan.

Rubber factories are *twelve* in number of which 8 are mainly engaged in manufacturing cycle tyres and tubes. Production of *tyres and tubes* was 1,902,000 nos. (1954). About 3,000,000 pair of rubber shoes are manufactured in different factories mostly small in size. Perambulator type solid tyres, hoses, railway buffer rubbers, sports goods, ice and hot bags, fan belts, rubber fittings and toys are the other products.

Only one **Sewing Machine** factory located at Sartaj in Lahore area is engaged more or less in the manufacture of parts and in assembling of components.

Major factories for the manufacture of **Washing Soap**, *seven* in number, are all in West Pakistan with installed capacity of 12,000 tons a year. In addition, there are over 400 small units in West Pakistan and about 100 in East Pakistan, with a combined installed capacity of 43,000 tons a year. Production from all the factories was about 45,000 tons (1953).

In the field of **Toilet Soap** Karachi is capable of producing 300 tons and East Pakistan about 2,000 maunds per annum. The largest factory is at Rahimyarkhan in Bahawalpur.

Production of the **Steel Ingot** mills was 9,813 tons in 1954. There are *two* factories in Lahore. Re-rolling mills number 29, of which Karachi has 8 and Punjab 21. Production of re-rolled

steel was about 25,000 tons in 1953. There are about 200 foundries for castings.

Regarding **Sugar Mills**, East Pakistan is in a better position having 5 (one each at Darsana, Gopalpur, Kishengunj, Sahebganj and Dacca) in its share. N.-W.F.P. has two and Punjab, one. The total installed capacity of the mills is 95,000 tons. The largest mill is in Mardan (N.-W.F.P.), perhaps the biggest in Asia. Another mill in Thal is nearing completion. Total production (1954) was 76,000 tons.

Only one **Starch Factory** is situated at Lyallpur in Punjab with a capacity of 3,600 tons per annum. Annual production reached about 3,000 tons (1953).

The estimated value of **Sprots Goods** is about Rs. 3 crores a year and the whole range of industry is mainly located in or about Sialkot, Punjab. There are 2 large factories and about 600 small centres giving the pride of place to Pakistan in this line.

Karachi is the only place which possesses a **Switch Gear** factory producing about 500,000 units a year.

There are 30 mechanised **Tanneries** producing nearly 7·2 million sq. ft. of *upper* leather and 8·3 million lbs. of *sole* leather per annum.

CHAPTER XVI

POWER (Electricity)

Electrical power has pervaded man's life in almost every sphere, in the home, factory and field, in communication and transport, in heating, cooling, healing, etc. Human civilization is more indebted to electricity than to any other single item that has come to the use of mankind.

India is rather very much behind the progressive countries of the world. While *per capita* use of electricity in India is less than 20 kWh, in 1953, Norway had 5,698, Canada 4,431, Sweden 3,119, U. S. A. 2,771, Switzerland, 2,282. New-Zealand, Australia, United Kingdom, Finland, Belgium, Union of South Africa had each between 1,674 and 1,015 kWh for each of their citizens.

Production of electricity is steadly increasing in India and the total output of 5,106,700 kWh in 1950 has come to 7,521,777 kWh in five years (1954), *i.e.*, an increase of 47·5 per cent. The generating capacity of all the plant has been 2,493,996 kW of which Steam Plant alone account for 60 per cent (1,491,043 kW). Industries had been rather slow at the outset in making use of electrical power, but in 1954 Industrial Organisation consumed 65·2 per cent of the total generated energy.

Amongst the States Bombay comes first, in respect of generation of power, with 30·3 per cent (2,283·7 m. kWh) with West Bengal coming as a bad second, the share being 19·4 per cent (1,462·3 m. kWh). The next three places are occupied by Madras, Mysore and Uttar Pradesh, with 11·9%, 8·7% and 8·2% of the total production, respectively.

In the *per capita* use of electricity, Delhi leads with 96·44 kWh and at the other end stands Orissa with ·57 kWh only. Assam's position is almost no better, *i.e.*, ·74 kWh *per capita* which is very low from all points of view. Mysore holds the second position with 56·36 kWh and the next three places are

held by Bombay (55·06 kWh), West Bengal (53·82 kWh) and Travancore-Cochin (22·10 kWh).

The whole picture from installed capacity to *per capita* use is likely to change a great deal with the completion of the huge power (and irrigation) projects some of which have actually gone into operation.

ELECTRICITY SUPPLY

In 1954 there were 434 **undertakings** with own *generating* stations of which 220 were State-owned and 214 belonged to Companies. Of the undertakings engaged in retail *distribution* of bulk supply, the respective figures were 142 and 106 giving a total of 248.

The generating **capacity (in kW)** of all the stations was 2,493,996 of which (*i*) Steam Plant accounted for 1,491,043 (60%), (*ii*) Oil Plant, 209,607 (8·8%), and (*iii*) Hydro Plant, 793,346 (31·2%). The increase can be assessed from the figures for 1950, which stood at (*i*) 1,004,434, (*ii*) 148,796 and (*iii*) 559,285 respectively, giving a total of 1,712,515 kW.

The total **output** (in **million kWh**) for the year was 7,521·8 and to (*i*) Steam Plant goes the credit of generating 4,057·9 (53·8%), (*ii*) Oil Plant 227·3 (3·0%) and (iii) Hydro Plant 3,236·5 (43·2%). The total production was 5,106·7 in 1950 from the aboved named three different sources (*i*) 2,387·2, (*ii*) 199·7 and (*iii*) 2,519·8, respectively.

Total **sales** (in **million kWh**) of electrical energy amounted to 6,252·5 distributed amongst (*i*) Domestic Light and Small Power : 759·2 (11·7%), (*ii*) Commercial Light and Small Power : 446·2 (7·1%), (*iii*) Industrial Power : 4,076·0 (65·2%), (*iv*) Irrigation : 231·4 (3·7%), and (*v*) Other Purposes : 739·8 (11·8%). In 1950 the total sales amounted to 4,156·7 distributed amongst (*i*) 524·6, (*ii*) 308·7, (*iii*) 2,603·8, (*iv*) 161·7 and (*v*) 557·9 respectively.

Amongst the **Consumers** (*i*) *Lighting* and *Heating* units predominated with 2,045,464 followed by (*ii*) Industrial Units (including Traction and Water Works) numbering 83,306 and (*iii*) Irrigation : 36,012 giving a total of 2,164,782. Compared to this in 1950 the respective figures were (*i*) 1,418,378, (*ii*) 63,043 and (*iii*) 19,316 and a total of 1,500,737.

Generation of Electricity by States

The total electrical energy generated by (*a*) *Steam Plant*, (*b*) *Oil Plant* and (*c*) *Hydro Plant* by all the states was 7,521·8 **million kWh** (in 1954). While every State excepting Mysore had Steam Plant and Oil Plant, Hydro Plant is absent in Andhra, Delhi, Hyderabad, Madhya Bharat, Madhya Pradesh, PEPSU, Rajasthan and Saurashtra. It may be noted that this deficiency would be removed in some of those States when the projects for power (and irrigation) will have been completed in the near future.

Accounts are available for nineteen States and *alphabetically* arranged the position of the respective States stands as follows :

Million kWh

State	Steam	Oil	Hydro	Total	% of Total
Andhra	92·3	9·7	···	102·0	1·3
Assam	...	6·2	2·5	8·7	·11
Bihar	291·2	16·5	4·4	312·1	4·1
Bombay	985·1	65·0	1,233·6	2,283·7	30·3
Centrally administered Areas :					
Delhi	213·0	1·3	···	214·3	2·8
Rest	7·6	15·0	·7	23·2	·32
Hyderabad	56·1	5·6	...	61·7	·8
Jammu & Kashmir	·5	·9	24·6	26·0	·34
Madhya Bharat	27·9	9·3	...	37·2	·5
Madhya Pradesh	179·9	6·9	...	186·8	2·5
Madras	186·5	4·5	708·3	899·3	11·9
Mysore	...	·1	659·8	659·9	8·7
Orissa	7·9	3·9	...	11·8	·16
PEPSU	1·7	6·0	...	7·7	·10
Punjab	17·8	18·0	185·0	220·8	3·0
Rajasthan	58·8	12·1	...	70·9	·94
Saurashtra	39·6	22·7	...	62·3	·8
Travancore-Cochin	...	·4	249·7	250·1	3·0
Uttar Pradesh	440·8	19·4	160·7	620·9	8·2
West Bengal	1,451·0	4·0	7·3	1,462·3	19·4
Total	4,057·9	227·3	3,236·5	7,521·8	100·0

Classification of undertakings in terms of Plant Capacity

The total number of udertakings was 434 in (1954) and the largest number 183 (42·2% of total) had generating plant of the installed capacity (upto 250 kW) aggregating 22,651 kW but producing only 20·968 mill. kWh or ·28 per cent of the total.

At the other end there were *six* undertakings (installed capacity of over 100,000 kW aggregating 1,420,900 kW) generating 4,619·643 mill. kWh and *five* others (installed capacity between 50,001 and 100,000 kW aggregating 352,205 kW) and generating 1,026·243 mill. kWh had between themselves 61·4% and 13·6%, *i.e.*, 75% of the total power generated during the year.

Plants with larger installed capacity but smaller in number contribute more towards the total production and it is further noticed that *five* undertakings (installed capacity between 25,001—50,000 kW aggregating 203,236 kW) generated 779·891 mill. kWh (10·3% of total), *thirteen* undertankings (installed capacity between 10,001—25,000 kW) aggregating 189,349 kW generated 520·402 mill. kWh (6·9% of total), *ten* undertakings (installed capacity between 5,001—10,000 kW aggregating 84,435 kW), produced 155·964 mill. kWh (2·07% of total). *Twenty* undertakings (installed capacity between 2,501—5,000 kW aggregating 79,816 kW) generated 183·111 mill. kWh, *thirty-four* undertakings (installed capacity between 1,001-2,500 kW aggregating 53,680 kW) generated 95·257 mill. kWh, *twenty-five* undertakings (installed capacity between 751-1,000 kW aggregating 23,770 kW) generated 36·110 mill. kWh, *forty-six* undertakings (installed capacity between 501-750 kW aggregating 31,245 kW) generated 43·580 mill. kWh and *eighty-seven* others (installed capacity of 250-500 kW aggregating 32,709 kW) generated 40·608 mill. kWh in 1954.

Alternating Current and Direct Current Plant Capacity and Generation

The number of undertakings owning Generating Stations was 434 (in 1954) with an aggregate installed capacity of 2,493,996 kW divided into 2,462,740 (98·74%) A.C. and 31,256 kW (1·26%) D.C. Of the 7,521·777 million kWh generated during the year, 7488·30 mill. kWh (99·55%) was A.C. and 33·947 million kWh (·45%) was

D.C. Of the 434 undertakings 318 were given exclusively to generating A.C., 98 to D.C. and 18 to both.

Electrified Towns and Villages

Population	No. of Towns and Villages	No. of T. and V. with public Elec. Supply	% of T. & V. with public Elec. Supply Total
Over 100,000	73	73	100·00
50,000-100,000	111	111	100·00
20,000-50,000	401	326	81·30
10,000-20,000	856		
5,000-10,000	3,101	5,042	0·90
Below 5,000	556,565		
Total	561,107	5,552	0·99

Classification of Use of Electricity by States (1954)

[**D.**—Domestic heat and small power, light and fans. **C.**—Commercial heat and small power, light and fans. **In.**—Industrial power low, medium and high voltage. **L.**—Public lighting. **T.**—Traction. **Irr.**—Irrigation. **W.**—Waterworks and sewage pumping.]

(In million kWh)

[Figures are in **million kWh,** *unless* otherwise stated.]

Andhra : Total : 85·3 ; **In** : 38·2 ; **D** : 17·85 ; **Irr :** 7·2 ; **C :** 3·7 ; etc. *Per capita* : 4·16 *kWh.*

Assam : Total : 17·1 ; **C :** 2·88 ; **D :** 2·54 ; etc. *Per capita* : 0·74 *kWh.*

Bihar : Total : 188·714 ; **In :** 146·81 ; **D :** 20·52 ; **C :** 9·28 ; **Irr :** 6·23 ; **W :** 4·38 ; etc. *Per capita* : 4·69 *kWh.*

Bombay : Total : 1,979·833 ; **In :** 1,341·99 ; **T :** 318·24 ; **D :** 149·44 ; **C :** 111·83 ; **W :** 37·92 ; **L :** 15·14 ; **Irr :** 5·28 ; etc. *Per capita* : 55·06 *kWh.*

Delhi : Total : 168·19 ; **In :** 51·11 ; **C :** 46·35 ; **D :** 33·90 ; **W,** etc. : 26·21 ; **Irr :** 5·51 ; **L :** 4·7 ; **T :** ·42 ; etc. *Per capita* : 96·44 *kWh.*

Hyderabad : Total : 53·752 ; **In :** 20·80 ; **C :** 14·81 ; **D :** 9·68 ; **W :** 5·23 ; **L :** 3·45 ; etc. *Per capita* : 2·88 *kWh.*

Jammu and Kashmir : Total : 16·347 ; **In :** 6·3 ; **C :** 5·2 ; **Irr :** 1·74 ; **L :** 1·69 ; etc. *Per capita* : 3·71 *kWh.*

(In millon kWh)

Madhya Bharat: Total: 30·590; **D**: 8·20; **In**: 6·58 **C**: 4·74; **L**: 1·45; etc. *Per capita*: 3·85 *kWh.*

Madhya Pradesh: Total: 156·161; **In**: 113·37; **D**: 19·93 **C**: 8·47; **L**: 3·95; etc. *Per capita*: 7·35 *kWh.*

Madras: Total: 733·651; **In**: 417·20; **Irr**: 101·13 **C**: 90·42; **D**: 86·19; **L**: 17·51; **T**: 11·92; **W**: 9·26; etc. *Per capita*: 20·10 *kWh.*

Mysore: Total: 511·775; **In**: 388·79; **D**: 48·67; **W**: 40·99; **Irr**: 12·94; **C**: 10·46; **L**: 9·91; etc. *Per capita*: 56·39 *kWh.*

Orissa: Total: 8·272; **D**: 2·95; **In**: 2·74; **C**: 1·57; etc. *Per capita*: 0·57 *kWh.*

Pepsu: Total: 16·755; **In**: 11·22; D: 3·23; **C**: ·29; etc. *Per capita*: 4·80 *kWh.*

Punjab: Total: 145·451; **In**: 80·45; D: 33·80; **C**: 19·31; **W**: 7·27; **L**: 4·49. *Per capita*: 11·51 *kWh.*

Rajasthan: Total: 48·053; **In**: 16·18; **W**: 12·89; **D**: 8·28; **C**: 6·95; **L**: 1·96; **Irr**: 1·80. *Per capita*: 3·14 *kWh.*

Saurashtra: Total: 52·401; **In**: 36·58; D: 9·41; **C**: 2·23; **W**: 1·63; **L**: 1·62. *Per capita*: 12·67 *kWh.*

Travancore-Cochin: Total: 205·066; **In**: 168·35; **D**: 17·50; **Irr**: 11·29; **W**: 4·24; **L**: 1·97; **C**: 1·76. *Per capita*: 22·10 *kWh.*

Uttar Pradesh: Total: 489·047; **In**: 266·21; **Irr**: 74·05; **D**: 58·18; **C**: 44·47; **W**: 38·26; **L**: 6·88. *Per capita*: 7·74 *kWh.*

West Bengal: Total: 1,337·870; **In**: 946·86; D: 215·31; **C**: 62·54; **W**: 53·35; **T**: 47·83; **L**: 11·38. *Per capita*: 53·82 *kWh.*

Electricity Production and Consumption in Selected Industrial Establishments

There were 820 factories (in 1954) which possessed their own generating plant with installed capacity of 685,307 kW and

generated 395,467 kW. This was not sufficient for their own purposes and they had to purchase during the year, 594,169 kW from public utility electricity undertakings. The largest quantity of power was generated by the Iron and Steel (Primary) Factories, the output being 84,196 kW. The second position was held by the Cotton Textiles (65,756 kW) and the third by Cement Factories (59,250 kW). The relevant informations regarding these factories are given below :

Electricity Production and Consumption by Factories

Industry	Nos. of Factories	Installed generating plant capacity : KW	Generated in own Power Stations : KW	Purchased from public undertakings : KW
Aluminium (Primary)	4	16,832	9,152	12,500
Aluminium (Secondary)	5	...	...	1,124
Cement (Primary)	25	80,067	59,250	26,850
Cement (Secondary)	24	2,772	1,086	6,114
Chemicals	32	19,180	7,377	6,704
Collieries	155	59,220	28,039	47,787
Copper (Primary)	1	9,875	5,714	...
Copper (Secondary)	1	...	...	720
Cotton Textiles	317	97,953	65,756	269,189
Fertilisers	3	80,000	53,200	7,200
Gold	1	3,900	30	17,400
Iron & Steel (Primary)	4	171,500	84,196	33,823
Iron & Steel (Secondary)	15	...	...	20,147
Jute	75	40,537	21,577	116,550
Paper	19	70,465	38,184	11,523
Silk	19	22	42	2,237
Soap	12	366	350	3,172
Sugar	87	28,382	19,158	2,833
Tanneries	7	286	17	478
Wool	14	3,950	2,339	6,768
Total	820	685,307	395,467	594,169

The industries purchased 2,455·478 mill. kWh from public utility electricity undertakings and sold 131·100 mill. kWh to outside agencies during the year.

PAKISTAN

Installed Capacity of Public Electricity Supply Undertakings

Kilowatts

	Steam	Diesel	Hydel	Total
Karachi	24,000	9,000	...	33,000
East Pakistan	6,200	5,493	...	11,693
Punjab	31,902	14,668	23,100	69,670
Sind	5,100	7,081	...	12,181
N.-W. F. P.	...	1,523	39,600	41,123
Baluchistan	...	2,768	...	2,768
States	200	1,276	...	1,476
Total	67,402	41,809	62,700	171,911

Production and Import of Electric Energy

'000 kWh

	Domestic Production	Import from India	Total
1948	95,150	72,849	167,599
1949	169,590	60,631	230,221
1950	181,500	71,206	252,706
1951	223,100	74,260	297,360
1952	306,500	44,609	351,109
1953	406,030	19,196	425,226

CHAPTER XVII

BANKS, INSURANCE AND CO-OPERATIVES

BANKS AND BANKING

Banks in India comprise (i) Reserve Bank of India ; (ii) Indian Banks : (*a*) State Bank of India and other Indian Scheduled Banks ; (*b*) Indian Non-Scheduled Banks and (*c*) Indian Co-operative Banks ; and (iii) Foreign Banks comprising Scheduled and Non-Scheduled Banks the registered offices of which are located outside the Indian Union.

The number of (i) Indian Scheduled Banks at the end of 1954 was 72 ; (ii) Non-Scheduled Banks : 409 ; (iii) Co-operative Banks : 517, giving a total of 998.

The number of Foreign Banks was 17 out of which 16 were Scheduled and only one Non-scheduled.

RESERVE BANK OF INDIA

Issue Department : **(Rupees in Lakhs)**

At the end of June 1955 the total LIABILITIES (total notes issued) were Rs 1,340,03 ; the *Liabilities* being (i) Notes in circulation : Rs. 1,322,06 and (ii) Notes held in Banking Department : Rs. 17,97.

The ASSETS, correspondingly, were : (i) Gold coin and bullion : Rs. 40,02, (ii) Foreign securities : Rs. 652,04, (iii) Rupee coin (and notes) : Rs. 104,33, (iv) Government of India rupee securities : Rs. 543,64.

Banking Department : **(Rupees in Lakhs)**

At the end of June 1955 the total LIABILITIES (mainly deposits) and various assets amounted to Rs. 193,69, the liabilities in the shape of **(A)** deposits were Rs. 139,88 divided into deposits of (i) the Central Government : Rs. 55,63, (ii) other Governments : Rs. 12,33, (iii) Banks : Rs. 50,02, (iv) Others : Rs. 21,89 and **(B)** other liabilities (including Capital paid-up and Reserve Fund of Rs. 5 crores each) : Rs. 53,81.

The ASSETS, correspondingly, were, (i) Notes and coin : Rs. 18,10, (ii) Balances held abroad including Cash and short-

term Securities : Rs. 63,67, (iii) Loans and advances to Governments : Rs. 1,00, (iv) Other loans and advances : Rs. 28,61, (v) Bills purchased and discounted : Rs. 12,78, (vi) Investments : Rs. 39,55 and (vii) Other assets : Rs. 29,98.

ALL COMMERCIAL BANKS

(Rupees in Lakhs)

At the end of June 1955 the *number* of *reporting* Commercial Banks was 473, which varied between 510 in 1952-53 and 476 at the end of October 1955. The total LIABILITIES amounting to Rs. 1,210,97 comprised (*i*) Capital and Reserve : Rs. 75,75, (*ii*) Deposits : Rs. 1,033,68, (*iii*) Due to other banks : Rs. 37,21 and (*iv*) Other liabilities : Rs. 64,33. Further split into details, Paid-up Capital was Rs. 40,72 and Reserves : Rs. 35,03 ; Demand deposits amounted to Rs. 602,58 and Time : Rs. 431,10.

The total ASSETS of the *reporting* Banks (473) amounted to Rs. 1,183, 82 out of which (i) Cash in hand and Balances with Reserve Bank was Rs. 91,10, (ii) Balances with Agent of Reserve Bank and other Banks : Rs. 14,07, (iii) Bank Credit : Rs. 645,78, (iv) investments : Rs. 401,87 and (v) Other Assets : Rs. 31,00.

INDIAN SCHEDULED BANKS

Liabilities and Assets (Rupees in Lakhs)

At the end of June 1955 the number of *reporting* Banks was 74 with a total LIABILITY of Rs. 899,37 divided into (i) Capital and Reserve : Rs. 60,59, (ii) Deposits : Rs. 783,78, (iii) Due to other Banks : Rs. 14,32 and (iv) other Liabilities : Rs. 40,68.

With regard to (*i*), the share of Paid-up Capital was Rs, 32,67 and Reserves : Rs. 27,92 ; to (*ii*) the amount of Demand Deposits was : Rs. 26,29 and Time : Rs. 326,70.

The corresponding ASSETS were Rs. 878,31 of which (i) Cash in hand and Balances with Reserve Bank was Rs. 71,53, (ii) Balances with Agent of Reserve Bank and other Banks : Rs. 9,67, (iii) Bank Credit : Rs. 451,28, (iv) Investments : Rs. 324,65 and (v) Other Assets : Rs. 21,18.

With regard to (*i*), Cash in hand showed Rs. 31,37 and Balances with Reserve Bank : Rs. 40,16. Bank credit, (*iii*) above, was divided into (*a*) Money at call and short notice : Rs. 14,72,

(*b*) Advances : Rs. 364,08, (*c*) Bills purchased and discounted ; Rs. 68,18 and (*d*) Due from Banks : Rs. 4,30. Investments, (*iv*) above, showed (*a*) Central Government (including Treasury Bills and Treasury Deposit Receipts) : Rs. 263,84, (*b*) State Governments : Rs. 34,66 and (*c*) Others : Rs. 26,15.

Business in India **(Rupees in Lakhs)**

LIABILITIES : (Number of *reporting* Banks : 74). (i) The Demand and Time Liabilities was Rs. 788,65 divided into (*a*) Demand : Rs. 462,25 and (*b*) Time : Rs. 326,40 ; (ii) Borrowings from State Bank : Rs. 3,44 and (iii) Borrowings from Reserve Bank : Rs. 10,40.

ASSETS : (*a*) Cash in hand and Balances with Reserve Bank : Rs. 70,30 ; (*b*) Balances with other Banks in current A/c : Rs. 9,25 ; (*c*) Investments in Government Securities : Rs. 297,91, (*d*) Bank credit : Rs. 467,21.

EXCHANGE BANKS

Liabilities and Assets **(Rupees in Lakhs)**

At the end of June 1955 the number of *reporting* Banks was 15.

The total LIABILITY was Rs. 230,38 of which (i) Reserves amounted to Rs. 2,72, (ii) Deposits : Rs. 185,15 (of which Demand : Rs. 122,42 and Time : Rs. 62,73) ; (iii) Due to other Banks : Rs. 21,00 and (iv) Other liabilities : Rs. 21,51.

The total ASSETS were Rs. 224,48 of which (i) Cash in hand and Balances with Reserve Bank : Rs. 15,04, (ii) Balances with Agent of Reserve Bank and other Banks : Rs. 1,66, (iii) Bank Credit : Rs. 152,89 ; (iv) Investments : Rs. 49,63 and (v) Other Assets : Rs. 5,26.

Business in India **(Rupees in Lakhs)**

In June 1955 the number of *reporting* Banks was 14.

LIABILITIES : (i) Demand and Time Liabilities : 199,99 (of which Demand : Rs. 132,52 and Time : 67,47), (ii) Borrowings from State Bank : Rs. 2, and (iii) Borrowings from Reserve Bank : Rs. 8,88.

ASSETS : (i) Cash in hand and Balances with Reserve Bank : Rs. 13,79, (ii) Balances with other Banks in current A/c : Rs. 1,57, (iii) Investments in Government Securities : Rs. 47,56 and (iv) Bank Credit : Rs. 166,57.

ALL SCHEDULED BANKS

Business in India (Rupees in Lakhs)

Number of reporting Banks : 88. LIABILITIES : Rs. 988,64 (of which Demand : Rs. 594,77 and Time : Rs. 393,87), (ii) Borrowings from State Bank : Rs. 3,46 ; and (iii) Borrowings from Reserve Bank : Rs. 19,27.

ASSETS : (i) Cash in hand and Balances with Reserve Bank : Rs. 84,09 ; (ii) Balances with other Banks in current A/c : Rs. 10,82 ; (iii) Investments in Government Securities : Rs 345,47 and (iv) Bank Credit : Rs. 633,78.

Deposits : (Rupees in Crores)

In (June) 1955 the number of *reporting* Banks was 86 with a total Deposit of Rs. 963·8 of which the Share of the Scheduled Banks was Rs. 780·8 and of the Exchange Banks : Rs. 183·0.

The amount of *Demand* Deposits was Rs. 487·5 which formed 50·6% of the *Total* Deposit. The share of the Scheduled Banks was Rs. 272·2 and of the Exchange Banks : Rs. 115·3.

Savings Deposits with Rs. 155·5 formed 16·1% of the *total* Deposits and the share of the Scheduled Banks was Rs. 142·1 and of the Exchange Banks : Rs. 13·4.

Time Deposits amounted to Rs. 320·7 and formed 33·3% of the *total* deposit wherein the share of the Indian Scheduled Banks was Rs. 266·5 and of the Exchange Banks : Rs. 54·3.

Ownership of Deposits : (Rupees in Crores)

Out of *total* Deposit in 86 *reporting* Banks amounting to Rs. 963·7, (I) Business accounted for Rs. 351·5 (36·5% of the total), and *Business* further subdivided showed (*a*) Trading Concerns : Rs. 179·1 (18·6% of the total), (*b*) Financial Concerns : Rs. 82·4 (8·6%) and (*c*) Other Business : Rs. 90·0 (9·3%) ; (II) Personal

Deposits : Rs. 436·0 (45·2%) ; (III) Deposits of Government and quasi-Government bodies : Rs. 78 (8·1%) ; (IV) Other Deposits : Rs. 86·3 (9·0%) ; and (V) Unclassified : Rs. 11·9 (1·2%).

Advances of Scheduled Banks

(June 1955)

Number of *reporting* Banks : 87 **(Rupees in Crores)**

	Exchange	Indian Scheduled	All Scheduled
Industry	55·6 (32·5)	185·6 (40·8)	241·2 (38·6)
Commerce	97·4 (56·9)	194·9 (42·9)	292·3 (46·7)
Agriculture	7·1 (4·1)	5·4 (1·2)	12·5 (2·0)
Personal and Professional	6·0 (3·5)	48·8 (10·7)	54·8 (8·8)
All Others	5·0 (2·9)	19·9 (4·4)	24·9 (4·0)
Total	171·2 (100)	454·5 (100)	625·6 (100)

[Figures within brackets denote *percentages* of the total.]

Advances by Security

(June 1955)

Number of *reporting* Banks : 87 **(Rupees in Crores)**

The *total* amount of advances were Rs. 625·6 divided into (I) Secured Advances : Rs. 532·8 (85·2%) and (II) Unsecured Advances : Rs. 92·8 (14·8%).

Secured Advances further subdivided showed (*a*) Government and other Trustee Securities : Rs. 33·1 (5·3% of the total), (*b*) Shares of Joint-Stock Companies : Rs. 51·8 (8·3%), (*c*) Agricultural Commodities : Rs. 150·5 (24·0%), (*d*) Non-agricultural Commodities : Rs. 187·2 (29·9%), (*e*) Real Estate : Rs. 21·8 (3·5%), (*f*) Fixed Deposits : Rs. 11·3 (1·8%) and (*g*) Other secured Advances : Rs. 77·2 (12·3%).

Investments of Scheduled Banks

(Rupees in Crores)

	Exchange	Indian Scheduled	All Scheduled
No. of *reporting* Banks	15	73	88
Government Securities	48·0 (91·1)	310·7 (85·3)	358·7 (86·1)
Other Domestic Investments	4·2 (8·0)	30·7 (8·4)	34·9 (8·4)
Total Domestic	*52·2 (99·1)*	*341·4 (93·8)*	*393·6 (94·4)*
Foreign Investments	*0·5 (0·9)*	*22·8 (6·3)*	*23·3 (5·6)*
Total	52·7 (100)	364·1 (100)	416·8 (100)

[Figures within brackets denote *percentages* of the total.]

Scheduled Banks—Accounts and Deposits

(June 1955)

[Rupees in Crores ; Accounts in Thousands]

		Over Rs. one Lakh	Between Rs. 10,000 and Rs. 1 Lakh	Between Rs. 500 and Rs. 10,000	Less than Rs. 500	Total
Demand						
Amount :	Rs.	222	162	93	10	487
	%	45·6	33·3	19·1	2·0	100
Accounts :	Nos.	6	66	367	572	1,011
	%	0·6	6·5	36·3	56·5	100
Time						
Amount :	Rs.	146	106	67	2	321
	%	45·5	33·0	20·9	0·6	100
Accounts :	Nos.	4	57	233	104	398
	%	0·9	14·3	58·6	26·2	100
Savings						
Amount :	Rs.	—	—	137	18	156
	%	—	—	87·8	11·6	100
Accounts :	Nos.	—	—	600	1,595	2,195
	%	—	—	27·3	72·7	100

NON-SCHEDULED BANKS (JUNE 1955)

Number of *reporting* Banks : 384. **(Rupees in Lakhs)**

Total LIABILITIES amounted to Rs. 81,22 of which (i) Capital and Reserve showed Rs. 12,44 (Paid-up Capital : Rs. 8,05 and Reserves : Rs. 4,39), (ii) Deposits : Rs. 64,75 of which Demand : Rs. 23,08 and Time : Rs. 41,67), (iii) Due to other Banks : Rs, 1,89 and (iv) Other Liabilities : Rs. 2,14.

Total ASSETS was Rs. 81,03 of which (i) Cash in hand and Balances with Reserve Bank : Rs. 4,53, (ii) Balances with Agent of Reserve Bank and other Banks : Rs. 2,74, (iii) Bank Credit : Rs. 41,61 and (iv) Investments : Rs. 27,59 of which (*a*) Central Government (including Treasury Bills and Treasury Deposit Receipts) : Rs. 16,03, (*b*) State Governments : Rs. 5,85 and (*c*) others : Rs. 5,71.

Deposits :

(Banks each having deposits of Rs. 5 lakhs or more. Number of *reporting* Banks : 152). **(Rupees in Crores)**

Out of a *total* of Rs. 57·9, *Time* deposits formed 56·1% (Rs. 32·5), *Demand* deposits : 24·2% (Rs. 14·0) and *Savings* : 19·7% (Rs. 11·4).

Advances :

Number of *reporting* Banks : 360. **(Rupees in Crores)**

Out of a *total* of Rs. 39·6, *Industry* claimed Rs. 6·2 (15·6% of the total), *Commerce* : Rs. 18·9 (47·7%), Agriculture : Rs. 2·3 (5·9%), Personal and Professional : Rs. 9·9 (25·1%), All others : Rs. 2·3 (5·8%).

Advances by Security :

Number of *reporting* Banks : 360. **(Rupees in Crores)**

The total amount of ADVANCES showed Rs. 39·6 divided into (I) Secured Advances : Rs. 28·4 (71·6%) and (II) Unsecured Advances : Rs. 11·2 (28·4%). Secured Advances further sub-divided showed (*a*) Government and other Trustee Securities : Rs. 0·2 (0·6% *of the total*), (*b*) Bullion including gold and silver

ornaments : Rs. 6·5 (16·3%), (*c*) Shares of Joint-stock Companies : Rs. 1·0 (2·4%), (*d*) Merchandise : Rs. 7·8 (19·6%), (*e*) Real Estate : Rs. 8·0 (20·3%), (*f*) Other Securities (including Fixed Deposits) : Rs. 4·9 (12·4%).

Investments : (June 1955)

Number of *reporting* Banks : 365. **(Rupees in Crores)**

Out of a total Investment of Rs. 28·3, (*a*) *Domestic* Investments showed Rs. 27·8 (98·6% the total) and (*b*) *Foreign* : Rs. 0·4 (1·4%). Of (*a*), Government securities claimed Rs. 21·8 (77·2%) and other Domestic Investments : Rs. 6·0 (21·4%).

INSURANCE

On January 19, 1956, by an Ordinance promulgated by the President of the Indian Union, the business of the Life Insurance Companies working in India vested in the Government with immediate effect. On March 3, 1956, the Lok Sabha accepted the principle of nationalisation of life insurance business thereby making it easy for the formation of a State-owned Corporation to carry on the business. This measure excludes general insurance from its purview.

After the said legislation, the difference between the Indian and non-Indian insurers has disappeared and the two different accounts combined present a complete picture of the position of life insurance business in India.

Number of Companies :

In 1953 there were 319 Insurance Companies of which 215 were Indian and 104 non-Indian. Of these 113 Indian and 3 non-Indian firms transacted *Life Business* only, 41 Indian and 13 non-Indian, transacted *Life and other classes* of business, and 61 Indian and 88 non-Indian were engaged in transacting *general business* only. In 1954 "two insurers and three Provident Societies were wound up by the Courts. One Insurer and one Provident Society went into voluntary liquidation.

INDIAN INSURERS

Distribution of Insurance Companies by States :

Out of the total 215 Indian Insurers, Bombay has the largest number, viz., 88, West Bengal 45, Madras 30, Delhi 20 and each of all other states has less than 10. The distribution by States and the nature of business of Indian Insurers are as follows :

Life Business only : Assam 1, Bihar 2, Bombay 46, Delhi 12, Hyderabad 1, Madhya Pradesh 2, Madras 15, Orissa 1, Uttar Pradesh 5 and West Bengal 28—*Total 113.* In respect of *Life and Other Classes of Business* only : Ajmer has 1, Andhra 2, Bombay 20, Delhi 5, Madras 6, Mysore 1, Punjab 1, and West Bengal 5—*Total 41.* Insurers doing *Other Classes of Business* only are Bombay 22, Delhi 3, Hyderabad 2, Madhya Bharat 1, Madras 9, Orissa 2, Punjab 2, Saurashtra 8, and West Bengal 12 —*Total 61.*

Taking all classes of Indian insurance business into consideration : Ajmer has 1, Andhra 2, Assam 1, Bihar 2, Bombay 88, Delhi 20, Hyderabad 3, Madhya Bharat 1, Madhya Pradesh 2, Madras 30, Mysore 1, Orissa 3, Punjab 3, Saurashtra 8, Uttar Pradesh 5, and West Bengal 45 giving a *Total 215.*

NON-INDIAN INSURERS

Distribution by Country of Incorporation and Nature of Business :

There are 104 Non-Indian Insurers doing business in India of which Insurers doing *Life Business* only are 3 and Canada, Pakistan and United Kingdom has one each to its credit. Insurers doing *Life and Other Classes* of Business are 13 of which Canada has 1, Kenya 1, Pakistan 1 and United Kingdom 10. *All Other Classes* claim 88 of which Algiers has 1, Australia 2, Canada 2, France 3, Hong Kong 4, Indonesia 1, Italy 1, New Zealand 3, Straits Settlements 2, Switzerland 4, United Kingdom 56 and United States 9. The *total* for each country is Algiers 1, Australia 2, Canada 4, Hong Kong 4, Indonesia 1, Italy 1, Kenya 1, New Zealand 3, Pakistan 1, Straits Settlements 2, Switzerland 4, United Kingdom 67 and United States of America 9.

New Life Business (1950-1954)

(Rupees in Crores)

	Insurers		
	Indian	Non-Indian	Total
1950	125·8	13·7	139·5
1951	131·4	16·5	147·9
1952	130·3	16·4	146·7
1953	137·5	17·0	154·5

In 1954 the share of Indian Insurers was Rs. 213·3 crores and of the Non-Indian Rs. 16·2 crores in a total of Rs 229·5 crores, with a premium income of Rs. 10·67 crores and Rs. ·94 crores, respectively.

Life Insurance Business in Force (1954)

(Rupees in crores)

Insurers	No. of Policies	Sum insured and bonuses	Annual Premium Income
Indian	40,69,000	9,21·90	42·68
Non-Indian	2,44,000	1,36·93	7·45

Tho total revenue and expenditure for 1954 of Indian Insurers was Rs. 58·91 crores and Rs. 31·70 crores, respectively, while that of Non-Indian Insurers, Rs. 9·38 crores and Rs. 7·41 crores, respectively.

Assets and Forms of Investment (1953)

[Figures in brackets denote percentage of the total.]

(Rupees in Lakhs)

Central Government Securities : Rs. 1,26,78 (40·1) ; Securities of Part "A" States : Rs. 18,97 (6·0) ; Securities of Part "B" States : Rs. 3,35 (1·1) ; British, Colonial and Foreign Government Securities : Rs. 5,54 (1·8) ; Municipal, Port Trust and Improvement Trust Securities : Rs. 18,75 (5·9) ; Mortgage on Property : Rs. 14,59 (4·6) ; Loans on Policies : Rs. 23,44 (7·4) ; Loans on Stocks and Shares : Rs. 22 (0·1) ; Other Loans : Rs. 1,84 (0·6) ; Debentures of Indian Companies : Rs. 14,64 (4·6) ; Preference Shares of Indian Companies : Rs. 11,30 (3·6) ; Ordinary Shares of Indian Companies : Rs. 19,91 (6·3) ; Land and House Property : Rs. 17,44 (5·5) ; Agents' Balances, Outstanding Premiums, Interest, etc. : Rs. 15,46 (4·9) ; Deposit, Cash and Stamps : Rs. 16,68 (5·3) ; Miscellaneous : Rs. 6,89 (2·2). *Total : 3,15,80 (100·0).*

CO-OPERATIVE SOCIETIES

There are 189,440 Co-operative Societies in India with 1,43,15,909 members and a Working Capital of Rs. 327,10,39,934 (1952-53) to perform a great diversity of functions fashioned according to the needs of national economy. There are purely agricultural societies relating to agricultural production, their purchase and sale, supply of improved seeds, fertilisers, etc. as well as Societies for land colonization, land mortgage, joint farming, lift-irrigation, etc. In the industrial section, weaving (handloom), spinning, bleaching and calendaring, various types of work-shops for cottage and small industries, etc. have their respective places of importance. More societies are cropping up for transport, housing and townships. In the field of social services, health, better living (Punjab), medical aid and educational societies are coming into prominence. Societies for "economically disadvantaged persons" such as handloom weavers, toddy tappers, fishermen, etc. are a group by themselves. Over and above the conventional credit societies, grain banks, milk and ghee unions, marketing unions or federations, wholesale stores and supply unions are some of the institutions that cater to the needs of the rural population. In urban areas there is a variety of institutions which are suitable to town dwellers and they are principally taking the forms of urban banks. Other types of credit societies are being organised for specific purposes by employees of offices or workers of factories, etc., confining themselves "mostly to acceptance of thrift and savings deposits and advancing fixed loans."

The displaced persons, ex-servicemen, mazdoors and a few of the like have organised societies for the amelioration of their peculiarly difficult situations and have showed good promise of their power of organisation.

The multi-purpose societies are coming more and more into vogue and enlargement of the functions of some of the existing banks with a view "that co-operation should embrace all aspects of economic life of the Indian villagers" is noticeable at least in some quarters.

Total Number of Co-operative Societies in India

(1950-51 to 1952-53)

	No. of Societies (in Thousands)	Membership (in Lakhs)	Working Capital (Rs. in Crores)
1950-51	181·19	137·15	275·85
1951-52	185·65	137·92	306·34
1952-53	189·44	143·16	327·10

Central and State Banks in India

(1950-51 to 1952-53)

(Rs. in Lakhs)

	Paid-up Share Capital	Reserve and Other Funds	Total Deposits	Other Borrowings	Working Capital
CENTRAL BANKS					
1950-51	403·92	479·30	3,778·66	974·89	5,636·77
1951-52	462·15	518·54	3,823·47	1,207·24	6,011·40
1952-53	518·74	547·62	3,910·27	1,146·00	6,162·65
STATE BANKS					
1950-51	157·98	221·81	2,207·94	854·34	3,442·07
1951-52	189·93	236·18	2,118·35	1,127·24	3,671·70
1952-53	216·73	272·24	2,419·91	954·99	3,863·87

Working of State Co-operative Banks (1952-53)

The total number of Provincial Banks are 17 and *Membership* as *Individuals* : 9,447 and *Banks and Societies* : 16,164.

(Rupees in Lakhs)

The *Paid-up Share Capital* is Rs. 2,16·73 ; Cash : Rs. 3,59·92 ; Reserve and other Funds : Rs. 272·24 ; Borrowed Funds : Deposits : Rs. 24,19·91 plus Other Borrowings : Rs. 9,54·99. Working Capital : Rs 38.63·87 : Investments : Rs. 11.36·11.

State (Co-operative) Banks

(Rupees in Lakhs)

	No.	*Membership*		Working Capital	Deposits
		Individuals	Societies and Banks		
"A" States					
Assam	1	594	455	80·03	32·41
Bihar	1	49	105	1,48·70	81·47
Bombay	1	4,181	5,524	11,63·53	9,25·27
Madhya Pradesh	1	1,535	2,694	3,27·64	2,42·75
Madras	1	160	31	9,64·11	4,64·55
Orissa	1	105	54	52·55	20·53
Punjab	1	...	1,906	63·26	35·09
Uttar Pradesh	1	236	988	3,85·07	2,76·18
West Bengal	1	...	96	4,16·46	1,60·09
Total	*9*	*6,860*	*11,853*	*36,01·35*	*22,38·31*
"B" States					
Ajmer	1	450	401	20·00	12·51
Coorg	1	829	359	14·76	11·71
Delhi	1	80	565	33·67	27·89
Hyderabad	1	931	231	1,04·06	68·87
Mysore	1	197	2,152	68·32	53·39
PEPSU	1	10	351	4·92	1·14
Saurashtra	1	62	130	16·18	5·82
Vindhya Pradesh	1	28	122	·62	·24
Total	*8*	*2,587*	*4,311*	*2,62·53*	*1,81·58*
Grand Total	**17**	**9,447**	**16,164**	**38,63·87**	**24,19·89**

Central Banks and Banking Unions (1952-53)

The total number of Central Banks and Banking Unions are 505 and *Membership* as *Individuals* is 1,30,671 and as *Societies :* 1,71,979.

(Rupees in Lakhs)

Share-Capital—Paid-up : Rs. 5,18·74 ; Cash : Rs. 6,36·53; *Reserve and other Funds :* Rs. 547·52 ; *Deposits* : Rs. 39,10·87 ; *Working Capital* : Rs. 61,22·65 ; *Investments* : Rs. 17,60·70.

Central Bank (Central Credit Societies)

		Membership		(Rupees in Lakhs)	
	No.	Individuals	Banks or Societies	Working Capital	Deposits
"A" States					
Assam	13	362	512	7·32	3·85
Bihar	52	3,181	9,187	67·05	28·19
Bombay	33	40,164	9,676	15,23·38	12,26·76
Madhya Pradesh	41	37,920	8,873	3,55·93	1,78·55
Madras	31	4,066	20,405	21,25·02	11,65·09
Orissa	23	1,235	5,618	1,52·94	74·14
Punjab	63	2,253	12,969	6,65·20	4,81·04
Uttar Pradesh	62	6,717	20,052	3,63·27	2,52·98
West Bengal	41	1,848	10,023	2,26·56	1,16·56
Total	*359*	*97,746*	*97,315*	*54,86·66*	*35,28·16*
"B" States					
Ajmer	6	222	723	10·39	3·68
Bhopal	13	775	227	7·05	·41
Himachal Pr.	7	235	253	7·71	5·35
Hyderabad	45	5,306	4,477	1,53·75	89·10
Jammu & Kashmir	9	383	2,744	48·35	16·85
Madhya Bharat	25	6,303	6,854	2,04·33	1,30·55
Mysore	3	27	135	·41	...
PEPSU	16	904	1,500	37·04	19·40
Rajasthan	15	2,821	2,128	70·19	50·26
Saurashtra	5	14,160	180	35·49	10·96
Trav.-Cochin	2	1,789	1,443	61·28	55·57
Total	*146*	*32,925*	*20,664*	*6,35·99*	*3,82·13*
Grand Total	**505**	**130,671**	**171,979**	**61,22·65**	**39,10·29**

Distribution of Agricultural Credit Societies by States

The Agricultural Co-operative Credit Societies "which constitute the base of co-operative credit structure of the country are 1,11,625 (1952-53) : 89,521 in Part "A" States and 22,104 in Part "B" and "C" States with Rs. 49·18 crores (Rs. 42·71 crores in Part "A" and Rs. 6·47 crores in Parts "B" and "C" states as Working Capital and a membership of 51,26,002 (43,01,383 in Part "A" and 8,24,619 in Parts "B" and "C" States). This account

excludes "Grain Banks" and "Land Mortgage Banks" from its purview.

The highest **Number** is found in Uttar Pradesh. The number and share of some of the important States which account for nearly 60 per cent of the total are as follows : U. P. : 27,821 (24·8%) ; Madras : 17,189 (15.3%) : West Bengal : 10,270 (9.1%) ; Bombay : 10,089 (9%).

With regard to **Membership** the following four States account for 70% of the total : Madras : 15,36,374 (30%) ; Uttar Pradesh : 9,20,975 (18%) ; Bombay : 8,21,408 (16%) ; Punjab : 3,39,192 (6·6%).

Non-Credit Societies (1952-53)

STATE (PROVINCIAL) : Non-credit Societies consist of (i) Marketing Unions, (ii) Wholesale Stores and Supply Unions, (iii) Industrial Unions, and (iv) Other types.

The number of Societies is 48 with Membership of (i) Individuals : 7,721 and (ii) Societies : 8,714, and Working Capital : Rs. 8,28,08,000.

CENTRAL : Number of Societies ; 2,392 with *Membership* : (i) Individuals : 16,13,617, and (ii) Societies : 54,537, and Working Capital : Rs. 15,12,97,000.

AGRICULTURAL : Number of Societies : 35,568 ; Membership : 27,32,047 and Working Capital : Rs.20,00,00,000.

Non-Agricultural Credit Societies (1952-53)

Non-Agricultural Credit Societies include, among others, Salary Earners' Societies, Mill Workers' Societies and Urban Banks and come next in importance to Agricultural Co-operative Societies. The number of such societies are 8,234 out of which 5,266 are operating in Part "A" and 2,968 in Part "B" and "C" States with a total *Membership* of 25,15,120 divided into 21,06,922 for the first and 4,08,198 for the second group. Working Capital is Rs. 63,38,05,000.

Distributed *Statewise* the following five States account for 58% of the total : Out of a total of 8,234, Bombay has 1,592

(19·8%), Madras 1,271 (15·4%), Uttar Pradesh : 657 (8%) ; Mysore : 628 (7·7%) ; Punjab : 583 (7·2%) ; etc.

(Rupees in Lakhs)

Regarding *Working Capital*, Bombay claims Rs. 29,74·21 (47%) out of a total of Rs. 63,38·05, Madras : Rs. 12,18·16 (19·2%) ; West Bengal : Rs. 8,85·07 (14·%) ; they account for more than 80%.

Non-Agricultural Non-Credit Societies (1952-53)

Non-Agricultural Non-Credit Societies are engaged mostly in the purchase and sale of goods (such as Weavers' Societies) and the number of such societies is 22,463. They are mostly located in Part "A" States, 17,646 and 4,817 in Part "B" and "C" and "D" States. The total number of *Members* is 31,05,504 of which 25,82,370 belong to the first group and 5,23,134 to the second. The Working Capital is Rs. 48,70,79,000.

PAKISTAN

STATE BANK OF PAKISTAN (1954-55)

(Rupees in Thousands)

Issue Department :	
LIABILITIES :	
Notes held in the Banking Department	118,924
Notes in Circulation	2,416,625
Total	*2,535,549*
ASSETS :	
Gold and Silver (Bullion and Coin)	79,142
Sterling and other Foreign Securities (including Securities of the Government of India)	615,442
Indian Notes representing assets recoverable from Reserve Bank of India	299,647
Total Gold and Foreign Assets :	*994,231*
Rupee Coin	44,006
Government of Pakistan Securities	1,454,737
Domestic Assets Total	*1,498,743*

(Rupees in Thousand)

Banking Department :

LIABILITIES :	
Capital Paid-up and Reserve	60,000
Governments Deposits	171,511
Bank Deposits	194,053
Other Deposits	38,014
Bills payable and other Liabilities	47,774
Total Liabilities	511,352
ASSETS :	
Notes and Coin	118,924
Treasury Bills	1,692
Provincial Govts. Debtor Balances	21,506
Loans and Advances to Government	32,000
Investments and other Loans and Advances (including other Assets)	337,215
Total Assets	511,352

SCHEDULED BANKS (June 1955)

(Rupees in Millions)

Number of *reporting* Banks : 32.

Demand Liabilities : Rs. 1,356·6 ; Time : Rs. 562·5 ; *Total* : Rs. 1,919·1. *Borrowings* from State Bank : Rs. 9·8 ; *Cash* in Pakistan : Rs. 47·7. *Balances* : with State Bank : Rs. 187·8 ; with other Banks : 42·3 ; Call money : Rs. 67·5. *Investments* : Central Government Securities : Rs. 614·5 ; Provincial Government Securities : Rs. 91·3 ; Others : Rs. 20·4. *Bank Credit* : Advances : Rs. 746·9 ; Bills Purchased and Discounted : Rs. 137·2 ; *Total* : Rs. 884·1.

Statutory Reserve : Rs. 79·2.

CO-OPERATIVE SOCIETIES

Pakistan had 39,500 Co-operative Societies (1951-52) of which 27,894, *i.e.*, about 70 per cent were Agricultural Credit Societies, 6,745 were non-Agricultural non-Credit Societies and 2,444 Agricultural non-Credit Societies. But the largest Working Capital was found against Central Co-operative Banks, Rs. 1,604·86 lakhs out of Rs. 4,560·38 lakhs (or 35%). The next largest Working Capital is controlled by Provincial Co-operative

Banks, Rs. 965·13 lakhs followed by Agricultural Credit Societies with Rs. 833·05 lakhs. Non-Agricultural Credit Societies hold an important place amongst the various sorts of co-operative organisations in Pakistan but the Working Capital (Rs. 454·67 lakhs) per society seems to be rather low because of the huge number of such societies, *viz.*, 6,745. Non-Agricultural Credit Societies have a fair balance between the Number and the Working Capital, viz, Rs. 355·26 lakhs for 2,176 societies.

The largest number of individual members have been registered under non-Agricultural non-Credit Societies, roughly about 58 per cent, *i. e.*, 1,816,884 in a total of 3,172,700 resulting in the stake for each member being very small but with the redeeming feature of a very large support from the public. The next largest number, 975,685, are found under Agricultural Credit Societies followed at a great distance by Agricultural non-Credit Societies and non-Agricultural Credit Societies, *i.e.*, 190,070 and 164,520, individual members under each of them.

Co-operative Societies (1951-52)

	No.	No. of Individual Members	Rs. in Lakhs			
			Share Capital	Reserve Fund	Other Funds	Working Capital
Provincial Co-operative Banks	5	3,370	30·80	25·82	31·45	965·13
Central Co-operative Banks	113	7,209	66·55	99·84	131·96	1,604·86
Co-operative Banking Unions	21	155	0·64	1·07	1·96	18·54
Central Non-Credit Societies	102	11,807	30·34	5·81	19·31	178·54
Agricultural Credit Societies	27,894	975,685	139·48	195·45	24·89	833·05
Agricultural Non-Credit Societies	2,444	193,070	35·19	13·22	8·78	150·30
Non-Agricultural Credit Societies	2,176	164,520	83·17	37·66	21·22	355·26
Non-Agricultural Non-Credit Societies	6,745	1,816,884	138·83	56·76	15·57	454·67
Total	39,500	3,172,700	525·00	435·64	255·15	4,560·38

CHAPTER XVIII

PUBLIC FINANCE

Budget of the Government of India (1956-57)

The Budget of the Government of India for 1956-57 shows (A) Rs. 493·60 crores as *Revenue* and Rs. 545·43 crores as *Expenditure* under **Revenue Account.** As the effect of Budget proposals a total *increase* of Rs. 34·15 crores in Revenue is expected. *Tax* is to yield Rs. 424·69 crores, (86·8% of the total) and *Non-Tax* : Rs. 68·91 crores only.

Out of a total *Expenditure* of Rs. 545·43 crores, *Defence* alone accounts for 37·4 per cent (Rs. 203·97 crores) and *Civil* Expenditure : Rs. 341·46 crores.

The net result is a *deficit* of Rs. 17·68 crores after the effects of the Budget proposals have been taken into account.

The **Capital Account** shows Rs. 663·22 crores as *Receipts* (Rs. 135·54 crores as net Permanent Debt and Rs. 527·68 crores as net Other Debts) and Rs. 644·95 crores as *Disbursements* (Rs. 316·74 crores as the net Capital Outlay outside the Revenue Account and Rs. 328·21 crores as net Loans and Advances) leaving a *surplus* of Rs. 18·27 crores under this head.

Taking Rs. 0·18 crores as *Miscellaneous* Expenditure into account there is a net increase in **Cash Balance** of Rs. 0·41 crores which (in 1956-57) *opened* with Rs. 50·10 crores and *closed* with Rs. 50·51 crores.

Revenue Account

In the details of Revenue Account the figures of total revenue and expenditure as given in this statement differ a little from those appearing in the Budget papers as receipts from Forests, Opium and Currency and Mint have been shown on a *net* basis. Budget Estimates for 1956-57 relate to those presented to the *Lok Sabha*. Revenue and Expenditure estimates for 1955-56 (Revised) and 1956-57 (Budget) include Rs. 11·2 crores and Rs. 5 crores, respectively, on account of the sale proceeds of the evacuee property.

(Rupees in Crores)

Revenue	1954-55 (Accounts)	1955-56 (Revised)	1956-57 (Budget)
I. Taxes on Income :	**103·64**	**118·54**	**126·65** (+8·20)*
(i) Taxes on Income other than Corporation Tax	122·26	133·86	138·16 (+3·50)
Less : States' Share	55·95	55·16	53·35 (+1·80)
Net Receipts	66·31	78·70	84·81 (+1·70)
(ii) Corporation Tax	37·33	39·84	41·84 (+6·50)
II. Taxes on Commodities and Services :	**293·31**	**305·27**	**295·73** (+25·0)
(i) *Customs* :			
Imports	141·06	127·50	117·00
Exports	41·37	37·00	31·70
Other Revenue	4·76	3·50	4·10
Less : Refunds	—2·33	—3·00	—2·80
Net Receipts	*184·86*	*165·00*	*150·00*
(ii) Union Excise Duties	108·22	140·00	145·45 (+25·00)
(iii) Other Taxes and Duties	0·23	0·27	0·28
III. Taxes on Property and Capital Transactions :	**2·31**	**2·30**	**2·31**
(i) Estate Duty	0·81	2·00	2·50
Less : States' Share	0·57	1·87	2·32
Net Receipts	*0·24*	*0·13*	*0·18*
(ii) Stamps and Registration	1·62	1·72	1·67
(iii) Land Revenue	0·45	0·45	0·46
IV. *Total Tax Revenue*	**399·26**	**426·11**	**424·69** (+33·20)

* Figures within brackets are effects of Budget proposals.

(Rupees in Crores)

	1954-55 (Accounts)	1955-56 (Revised)	1956-57 (Budget)
V. Administration Receipts :	**12·96**	**16·56**	**13·46**
VI. Net Contributions of Public Undertakings :	**26·92**	**27·75**	**28·45**
(i) Railways	6·68	6·17	6·57
(ii) Posts and Telegraphs	2·60	2·27	0·65 (+0·95)
(iii) Currency and Mint (Profits of the Reserve Bank)	17·42 (17·50)	19·62 (20·00)	19·90 (20·00)
(iv) Others	0·22	—0·31	—2·27
VII. Other Revenue (including Forest, Opium, Irrigation, Electricity, etc.)	**10·72**	**24·16**	**21·42**
Total Revenue	**449·86**	**494·58**	**484·02**
Expenditure			
(i) Direct Demands on Revenue (excludes Forest and Opium)	26·44	29·51	31·73
(Of which States' Share of Union Excise Duties)	(15·11)	(16·57)	(17·04)
(ii) Civil Administration	30·63	35·19	38·39
(iii) Defence Services (Net)	186·66	185·07	203·97
(iv) Debt Services	39·72	37·85	35·50
(v) Pensions and Superannuation	8·87	8·99	8·83
(vi) Miscellaneous (including Grants to Educational Institutions)	18·68	49·12	49·39
(vii) Developmental services (*a*)	58·17	97·14	127·10

(*a*) Comprises irrigation and multi-purpose river schemes, ports and pilotage, light-houses and light-ships, scientific departments, education, medical, public health, agriculture, rural development, veterinery, co-operation, industries and supplies, aviation, broadcasting, civil works, post-war reconstruction and electricity schemes, community development projects, national extension service and miscellaneous departments.

(Rupees in Crores)

	1954-55 (Accounts)	1955-56 (Revised)	1956-57 (Budget)
(viii) Contribution and Miscellaneous Adjustments between Union and State Governments	29·79	35·80	38·00
(ix) Other Expenditure (including Famine, Stationery and Printing, etc.)	3·59	3·60	3·34
Total Expenditure	**416·35**	**482·27**	**536·25**
Surplus (+) or Deficit (−)	+35·51	+12·31	−17·68(*a*)

Capital Budget of the Government of India

The capital Budget for 1956-57 shows total *Receipts* as Rs. 703·90 crores and total *Disbursements* as Rs. 685·63 crores.

Of *Receipts*, Treasury Bills account for more than 50 per cent, Rs. 355·85 (50·5%) and New Loans : Rs. 140·10 or nearly 20 per cent (19·9) of the total. The other big source of income is Small Savings showing Rs. 64·95 as its share.

Capital outlay under *Disbursement* requires Rs. 316·74 crores 46·1% out of a total of Rs. 685·63 crores. Non-Developmental outlay is rather small, Rs. 54·28 crores, while outlay on Development projects shows Rs. 262·46 crores ; out of which Railways would require Rs. 113·43 crores and Industrial Development, Rs. 79·60 crores. Of Disbursement outside Capital outlay, Advances to State forms the biggest item : Rs. 278·06 crores out of Rs. 368·89 crores under this head.

Details of Receipts and Disbursements :—

CAPITAL BUDGET (1956-57)

(Rupees in Crores)

	1954-55 (Accounts)	1955-56 (Revised)	1956-57 (Budget)
Receipts			
New Loans ...	159·33	113·41	140·10
Inter-State Debt Settlement	14·64	0·92	—

(*a*) Taking into account the effect of Budget proposals.

(Rupees in Crores)

	1954-55 (Accounts)	1955-56 (Revised)	1956-57 (Budget)
Treasury Bills	136·92	240·00	355·85
Treasury Deposit Receipts	—0·12	—	—
Treasury Savings Deposit Certificates	5·00	4·25	5·00
Small Savings	49·61	60·55	64·95
Other Unfunded Debts	15·88	17·97	19·23
Railway Funds	—14·00	—0·89	5·99
Other Reserve Funds	0·81	0·34	—0·68
Appropriation for Reduction or Avoidance of Debt	5·00	5·00	5·00
E. P. T. and Income Tax Deposits	—6.71	—1·45	—0·95
Repayment of Loans by States	17·47	26·61	27·26
Special Development Fund	14·88	48·28	46·24
Other Items	10·93	41·22	35·91
Total Receipts	**409·64**	**556·21**	**703·90**
Disbursements : CAPITAL OUTLAY :			
Non-Development			
Defence	8·47	20·40	26·30
Payment and Commuted Value of Pensions	—7·03	—9·06	—9·01
State Trading Schemes	63·47	—11·03	9·51
Currency, Mint and Security Printing Press	0·37	8·98	1·21
Others	11·73	0·97	26·27
Total Non-Development	**77·01**	**10·26**	**54·28**
Development			
Railways	32·25	72·08	113·43
Posts and Telegraphs	9·33	10·73	9·75
Civil Aviation	3·28	4·91	3·37
Irrigation and Multi-purpose River Schemes	3·59	3·16	2·55
Civil works	17·14	29·19	28·30

(Rupees in Crores)

	1954-55 (Accounts)	1955-56 (Revised)	1956-57 (Budget)
Industrial Development ...	13·37	15·88	79·60
Other Heads ...	11·44	23·52	25·46
Total Development ...	**90·40**	**159·47**	**262·46**
Total Capital Outlay	**167·41**	**169·73**	**316·74**
Discharge of Permanent Debt	49·43	73·12	4·56
Inter-State Debt Settlement	1·10	0·68	0·06
Advances to States	195·29	254·29	278·06
Advances to States from S. D. F.	25·39	7·44	5·00
Other Loans and Advances	23·22	45·43	81·21
Total Disbursements	**461·84**	**550·69**	**685·63**

BUDGETARY POSITION OF THE STATES

Part "A" States (1956-57) :

The total annual **Revenue** (*Budget* Estimates for *1956-57*) of Part "A" States is Rs. 436·88 crores and **Expenditure :** Rs. 506·61 crores. Distributed amongst the several States on the proportion of Revenue **(Rs. in Crores)** the position is Uttar Pradesh : 19·5% (Rs. 85·36), Bombay : 17·8% (Rs. 78·10), Madras : 13·9% (Rs. 60·78), West Bengal : 11·2% (Rs. 49·36), Bihar : 8·3% (Rs. 36·36), Punjab : 7·1% (Rs. 31·01), Madhya Pradesh : 7·0% (Rs. 30·93), Andhra : 5·4% (Rs. 23·70) ; Assam : 5·05% (21·90) and Orissa : 4·5% (Rs. 19·38).

Regarding Expenditure, the corresponding position is **(Rs. in Crores) :**

Uttar Pradesh : 18·7% (Rs. 94·91), Bombay : 15·3% (Rs. 77·86), Bihar : 12·8% (Rs. 64·87), West Bengal : 12·5% (Rs. 63·55), Madras : 12·2% (Rs. 62·44), Madhya Pradesh 6·8% (Rs. 34·75), Punjab : 6·0% (Rs. 30·75), Andhra : 5·3% (Rs. 26·95), Assam : 5·0% (Rs. 25·55) and Orissa : 4·9% (Rs. 24·98).

Based on the **Budget** Estimates of **1955-56** the main sources of Revenue and Expenditure of the States are as follows :

Revenue

(Rupees in Lakhs)

	Taxes on Income	Taxes on Property and Capital Transactions	Taxes on Commodities and Services	Total	Non-tax Revenue	Total Revenue
	(a)	(b)	(c)		(d)	
ASSAM :						
1953-54	2,37	2,27	3,24	7,88	6,02	13,90
1954-55 (R. E.)	2,65	2,64	4,07	9,36	7,52	16,88
1955-56 (Bud.)	2,57	2,69	4,37	9·63	8,82	18,45
BIHAR :						
1953-54	6,45	6,23	12,42	25,10	8,07	33,17
1954-55 (R. E.)	6,03	6,92	11,80	24,75	21,61	46,36
1955-56 (Bud.)	5,52	8,97	12,26	26,75	10,23	36,98
BOMBAY :						
1953-54	10,76	12,11	27,48	50,35	20,68	71,03
1954-55 (R. E.)	10,39	13,31	29,41	53,11	17,18	70,29
1955-56 (Bud.)	9,56	13,43	28,80	51,79	26,75	78,54
MADHYA PRADESH :						
1953-54	3,25	6,53	6,82	16,60	7,42	24,02
1954-55 (R. E.)	3,16	7,01	6,90	17,07	11,04	28,11
1955-56 (Bud.)	2,91	7,01	6,62	16,54	14,70	31,24
MADRAS :						
1953-54	8,95	13,88	26,36	49,19	15,19	64,38
1954-55 (R. E.)	5,67	8,69	16,62	30,98	13,21	44,19
1955-56 (Bud.)	5,50	8,94	17,23	31,67	13,55	45,22

(a) Includes share of income-tax, agricultural income-tax and profession tax.

(b) Covers estate duty, land revenue, stamps and registration and urban immovable property tax.

(c) Comprises excise duties, sales tax, entertainment tax, electricity duties, motor vehicles tax, sugarcane cess, tobacco duties, taxes on prize competitions, raw jute, etc.

(d) Includes administrative receipts, net contribution of public enterprises, grants-in-aid and other contributions from the centre.

	Taxes on Income (a)	Taxes on Property and Capital Transactions (b)	Taxes on Commodities and Services (c)	Total	Non-Tax Revenue (d)	Total Revenue
					(Rupees in Lakhs)	
ANDHRA :						
1954-55 (R. E.)	3,29	5,51	6,38	15,18	5,69	20,87
1955-56 (Bud.)	3,00	5,66	6,47	15,13	6,22	21,35
ORISSA :						
1953-54	2,14	2,15	4,07	8,36	3,53	11,89
1954-55 (R. E.)	2,11	2,34	3,93	8,38	5,84	14,22
1955-56 (Bud.)	2,06	2,33	4,17	8,56	7,59	16,15
PUNJAB :						
1953-54	2,08	3,24	6,36	11,68	8,08	19,76
1954-55 (R. E.)	1,93	3,51	6,77	12,21	8,10	20,31
1955-56 (Bud.)	1,82	4,02	7,04	12,88	14,73	27,61
UTTAR PRADESH :						
1953-54	10,18	23,19	22,04	55,41	15,98	71,39
1954-55 (R. E.)	9,90	23,35	20,08	53,33	20,64	73,97
1955-56 (Bud.)	9,24	25,60	20,21	55,05	22,29	77,34
WEST BENGAL :						
1953-54	7,64	5,35	16,96	29,95	7,51	37,46
1954-55 (R. E.)	7,41	4,69	17,27	29,37	11,51	40,88
1955-56 (Bud.)	6,88	7,53	17,90	32,31	12,65	44,96
Total :						
1953-54	53,82	74,95	1,25,75	2,54,52	92,48	3,47,00
1954-55 (R. E.)	52,54	77,97	1,23,23	2,53,74	1,22,34	3,76,08
1955-56 (Bud.)	49,06	86,18	1,25,07	2,60,31	1,37,53	3,97,84

(a), (b), (c), (d) : for explanations please see footnotes on page 441.

Expenditure

(Rupees in Lakhs)

	Non-Development Expenditure (a)	Development Expenditure (b)	Total Expenditure	Total Revenue	Surplus (+) or Deficit (−)
ASSAM :					
1953-54	5,38	7,93	13,31	13,90	+59
1954-55 (R. E.)	6,30	12,54	18,84	16,88	−1,96
1955-56 (Bud.)	6,11	14,76	20,87	18,45	−2,42
BIHAR :					
1953-54	15,02	16,08	31,10	33,17	+2,07
1954-55 (R. E.)	21,59	26,14	47,73	46,36	−1,37
1955-56 (Bud.)	20,42	31,52	51,94	36,98	−14,96
BOMBAY :					
1953-54	34,84	35,04	69,88	71,03	+1,15
1954-55 (R. E.)	36,15	33,56	69,71	70,29	+58
1955-56 (Bud.)	36,12	42,20	78,32	78,54	+22
MADHYA PRADESH :					
1953-54	14,45	12,32	23,77	24,02	+ 25
1954-55 (R. E.)	14,49	15,54	30,03	28,11	−1,92
1955-56 (Bud.)	12,77	21,29	34,06	31,24	−2,82
MADRAS :					
1953-54	25,58	38,80	64,38	64,38	−
1954-55 (R. E.)	16,88	29,80	46,68	44,19	−2,49
1955-56 (Bud.)	16,22	32,31	48,53	45,22	−3,31

(a) Covers direct demands on revenue debt services, civil administration, miscellaneous, famine, pensions, stationary and printing, etc,

(b) Includes education, medical and public health, agriculture, veterinary and co-operation, irrigation, electricity schemes, rural and community development projects, civil works, industries, scientific department, miscellaneous departments, aviation, etc.

	Non-Development Expeudi-ture (*a*)	Development Expendi-ture (*b*)	Total Expendi-ture	Total Reve-nue	Surplus (+) or Deficit (−)
					(Rupees in Lakhs)
ANDHRA :					
1954-55 (R. E.)	9,74	14,62	24,36	20,87	−3,49
1955-56 (Bud.)	9,35	14,97	24,32	21,35	−2,97
ORISSA :					
1953-54	5,97	6,86	12,83	11,89	− 94
1954-55 (R. E.)	7,24	8,91	16,I5	14,22	−1,93
1955-56 (Bud.)	8,25	9,78	18,03	16,15	−1,88
PUNJAB :					
1953-54	10,78	8,12	18,90	19,76	+ 86
1954-55 (R. E.)	9,58	10,80	20,38	20,31	− 7
1955-56 (Bud.)	13,01	15,37	28,38	27,61	− 77
UTTAR PRADESH :					
1953-54	40,02	28,54	68,56	71,39	+2,83
1954-55 (R. E.)	40,32	33,65	73,97	73,97	-
1955-56 (Bud.)	42,21	40,63	82,84	77,34	−5,50
WEST BENGAL :					
1953-54	23,27	21,08	44,35	37,46	−6,89
1954-55 (R. E.)	29,59	27,21	54,80	40,88	−13,92
1955-56 (Bud.)	21,97	32,11	62,08	44,96	−17,12
Total :					
1953-54	1,72,31	1,74,77	3,47,08	3,47,00	−8
1954-55 (R. E.)	1,89,88	2,12,77	4,02,65	3,76,08	−26,57
1955-56 (Bud.)	1,94,43	2,54,94	4,49,37	3,97,84	−51,53

(*a*) and (*b*) : for explanations see footnotes on page 443.

Part "B" States

Based on the *Budget* Estimates of *1955-56*, the Revenue and Expenditure of the Part "B" States was Rs 123·76 crores and Rs. 140·21 crores, respectively.

Hyderabad has a large income, Rs. 30·21 crores, more than at least three other of the Part "A" States and Rajasthan can claim equal position with at least two of the same group. In detail they are as follows :

Revenue and Expenditure of Part "B" States (1955-56)

(Rupees in Lakhs)

	Revenue	Expenditure
Hyderabad	30,21	32,42
Madhya Bharat	18,07	18,25
Mysore	16,67	20,77
PEPSU	8,01	10,06
Rajasthan	21,58	23,97
Saurashtra	12,74	13,88
Travancore-Cochin	16,48	20,86
Total	*123,76*	*140,21*

Part "C" States

The total Revenue and Expenditure of the Part "C" States (based on the *Budget* Estimates of *1955-56*), respectively, was Rs. 20,97 lakhs and Rs. 21,87 lakhs. In detail they are as follows :

Revenue and Expenditure of Part "C" States (1955-56)

(Figures outsides the brackets represent **Revenue** and those within, **Expenditure.**)

(Rupees in Lakhs)

Ajmer : Rs. 2,70 (Rs. 2,70) ; Bhopal : Rs. 3,22 (Rs. 3,29) ; Coorg : Rs. 1,05 (Rs. 1,33) ; Delhi : Rs. 5,56 (Rs. 5,95) ; Himachal Pradesh : Rs. 2,91 (Rs. 3,00) ; Vindhya Pradesh : Rs. 5,53 (Rs. 5,60) ; *Total* : *Rs. 20,97 (Rs. 21,87).*

Central and State Government Loans

(Outstandings as on march 31, 1955)

(Rupees in Lakhs)

Central Govt. Loans : Amounts Outstanding :

2½% Loan, *1955* ; Rs. 60,45·01 ; 4½% Loan, *1955-60* : Rs. 9,05·64 ; 3% Victory Loan, *1957* : Rs. 1,14,06·89 ; 3% Loan, *1958* : Rs. 50,35·63 ; 4½% Loan, *1958-68* : 5,85·20 ; 4% Loan, *1959-61* ; Rs. 1,13,65·64 ; 2¾% Loan, *1960* ; Rs. 45,63·07 ; 4% Loan, *1960-70* : Rs. 63,30·26 ; 2½% Loan, *1961* : Rs. 57,00·69 ; 2½% Loan, *1962* : Rs. 75,86·72 ; 3% Loan, *1963-65* : Rs. 1,16,17·46 ; 3% Loan, *1964* : Rs. 30,33·10 ; 3% Funding Loan, *1966-68* : Rs. 1,10,11·78 ; 3% First Development Loan, *1970-75* : Rs. 1,15,05·83 ; 2¾% Loan *1976* : Rs. 14,77·48 ; 2½% Bhopal War Bonds, *1957* : Rs. 26·25 ; 2% Bhopal Loan, *1966-76* : Rs. 1,18·73 ; 3½% National Plan Bonds, *1961* : Rs. 75,29·00 ; 3% Loan, 1986 or later (Conversion Loan of *1946*) : Rs. 2,48,91·56 ; 3% Non-terminable Loan, 1896-97 : Rs. 8,93·35 ; 3½% National Plan Loan, 1964 : Rs. 1,58 09·48 ; *Total* : *Rs. 14,74,38·77.* Loans not bearing interest : Rs. 3,96·52. **Grand Total : Rs. 14,78,35·29.**

State Government Loans

(*A*) *Part A States*

(Lakhs of Rupees)

Amount outstanding

3% **Bombay** Loan, *1955* : Rs. 2,96·86 ; 3% Bombay Loan, *1956* : Rs. 2,99·35 ; 3% Bombay Loan, *1958* : Rs. 3,06·66 ; 3% Bombay Development Loan, *1960* : Rs. 2,92·30 ; 3% Bombay Tapi Irrigation and Development Loan, *1961* : Rs. 67·98 ; 3% Bombay Development Loan, *1962* : Rs. 5,63·12 ; 3½% Bombay State Development Loan, *1962* : Rs. 2 97·86 ; 4% Bombay State Development Loan, *1963* : Rs. 5,50·35 ; 4% Bombay State Development Loan, *1964* : Rs. *3,61·31* ; *Total Rs. 30,35·79.*

4% **Bihar** State Development Loan, *1963* : *1,31·29.*

3% **Madras** Loan, *1955* : Rs. 1,23·25 ; 3% Madras Loan, *1956* ; Rs. 1,25·10 : 3% Madras Loan, *1958* : Rs. 1,07·95 ; 3% Madras Loan, *1959* : Rs. 1,23·96 ; 3% Development Loan, *1960* : Rs. 2,78,44 ; 3% Madras Development Bonds ; Rs. 4,38·25 ; 2¾%

Madras Loan, *1961* : Rs. 3,81·77 ; 3½% Madras Loan, *1962* : Rs. 3,01·49 ; 4% Madras Development Loan, *1963* : Rs. 10,33·63 ; 4% Madras Development Loan, *1964* : Rs. *5,24·81* ; *Total* : *Rs. 34,38·65.*

3% **Madhya Pradesh** Loan, *1955* : Rs. 50·00 ; 3% Madhya Pradesh Loan, *1956* : Rs. 50·54 ; 3% Madhya Pradesh Loan, *1958* : Rs. 52·70 ; 3% Madhya Pradesh Loan, *1960* ; Rs 1,01·45 ; 3½% Madhya Pradesh Loan, *1962* ; Rs. 1,02·18 ; 4% Madhya Pradesh State Development Loan, *1963* : Rs. 1,10·18 ; 3% Madhya Pradesh State Development Loan, *1964* : Rs. *2,03·29* ; *Total* : *Rs. 6,70·34.*

3% **Uttar Pradesh** Loan, *1958* : Rs. 3,02·24 ; 3% Uttar Pradesh Loan, *1960* : Rs. 2,17·90 ; 2¾% Uttar Pradesh Loan, *1961* : Rs. 2,20·94 ; 3% Uttar Pradesh Loan, *1961-66* ; Rs. 1,57·43 ; 3½% Uttar Pradesh Loan, *1962* : Rs. 1.94·12 ; 4% Development loan, *1963* : Rs. 5,65·16 ; 4% Development Loan, *1964* : Rs. 6,11·45 ; 3¼% U. P. E. E. Act Bonds : Rs. 1,89·42 ; *Total* : *Rs. 24,58·66.*

3½% **West Bengal** Loan, *1962* : Rs. 1,75·50 ; 4% West Bengal Loan, *1963* : Rs. 3,60·23 ; 4% West Bengal Loan, *1964* : Rs. 2,00·00 : *Total* : *Rs. 7,35·23.*

Total Part A States : 1.04,69·96

(B) Part B States

4% **Hyderabad** State Development Loan, *1963* : Rs. *3.34·71.*

4% **Madhya Bharat** State Development Loan, *1963* : Rs. *1,04·78.*

4% **Mysore** State Development Loan, *1963* : Rs. *3,33·47.*

5% Mysore Loan, *1955* : Rs. 1,63·44 ; 4% Mysore Loan, *1953-63* : Rs. *2,95·85* ; 3% Mysore Loan, *1956-61* : Rs. *5,99·73* ; 3% Mysore Loan, *1958* : Rs. *5,08·86* ; *Total* : *Rs. 19,00·55.*

4% **Saurashtra** State Development Loan, *1963* : Rs. 1,13·16 ; 4% Saurashtra State (Local Bodies Development) Loan, *1964* : Rs. *2,52·00* ; *Total* : *Rs. 3,65·16.*

4% **Travancore-Cochin** State Development Loan, *1963* : Rs. 3,25,60

Total Part B States 30,30·80

Total of Part A and Part B States : Rs. 1.35.00·76

Interest-Bearing Obligations and Interest Yielding Assets of the Government of India

I. *Interest Bearing Obligations*

		Lakhs of Rupees	
In India	1953-54	1954-55 (Revised)	1955-56 (Budget)
Loans	1,366,05	1,474,91	1,531,11
Treasury Bills, Ways and Means, Advances and Treasury Deposit Receipts	405,29	554,95	894,95
Small Savings	454,87	505,39	556,99
Depreciation and Reserve Funds	171,96	174,25	166,78
Others	155,68	190,48	206,95
Total	*2,553,85*	*2,899,98*	*3,356,78*
In England			
Loans	113	70	67
Others	27,84	26,56	25,28
Total	28,97	27,26	25,95
Dollar Loans	111,80	111,91	126,06
Total Interest-bearing Obligations	2,694,62	3,039,15	3,508,79

II *Interest Yielding Assets*

Capital Advanced to Railways	875,16	901,72	967,81
Capital advanced to other Commercial Departments	88,24	115,33	138,19
Investment in Commercial Concerns	27,14	40,82	57,24
Capital advanced to States and other Interest-Bearing Loans	482,78	734,05	1,038,65
Debt due from Burma and Pakistan	348,15	300,00	300,00
Deposits with U. K. Government for redemption of Railway Annuities	4,33	3,18	1,99
Purchase of Annuities for Sterling Pensions	178,03	170,98	164,03

(Lakhs of Rupees)

	1953-54	1954-55 (Revised)	1955-56 (Budget)
Total Interest-Yielding Assets	*2,003,83*	*2,266,08*	*2,667,91*
Cash and Security held on Treasury Account	70,44	65,38	65,66
Balance of total Interest-bearing obligations not covered by above assets	620,35	707,69	775,22

Principal Items of Small Savings

(Lakhs of Rupees)

	1952-53	1953-54	1954-55
Post office Savings Bank			
Receipts (net)	17,83	14,26	21,06
Outstanding at the end of the period	92,03	106,29	127,35
National Savings Certificates			
Receipts (net)	18,49	20,29	19,80
Outstanding at the end of the period	94,26	114,55	134,35
Treasury Savings Deposit Certificates			
Receipts (net)	7,25	6,47	5,04
Outstanding at the end of the period	25,64	32,11	37,15
Post Office Cash Certificates, Defence Savings Bank Deposits and Defence Savings Certificates			
Receipts (net)	– 3,52	– 3,12	– 2,13
Outstanding at the end of the period	– 31,07	– 34,19	– 36,32
10 Year National Plan Certificates			
Receipts	—	—	54
Outstanding	—	—	54
Total			
Receipts	40,05	37,90	51,67
Outstanding at the end of the year	180.86	218,76	270,43

FOREIGN ASSETS AND LIABILITIES

In the ultimate result of accounting of India's Foreign Liabilities and Assets, India comes out (1953) as a creditor country when her foreign assets exceed liabilities.

India suffers from *long term* **Liabilities** to the extent of Rs. 1,036 crores, the liability of the *official sector* comprising the Central and State Governments, Local Authorities, such as Port Trusts, Municipalities, etc., and Statutory Corporations such as the Reserve Bank, the Damodar Valley Corporation, etc., is Rs. 583 crores. Liability of the *non-official private sector* is Rs. 453 crores.

The *liability* of *the official sector* is chiefly composed of (*a*) Securities owned by 'persons' resident abroad : Rs. 254 crores ; (*b*) Central Government liability on account of Pensions : Rs. 181 crores ; and (*c*) Loans repayable to Foreign Governments and International Financial Institutions : Rs. 138 crores.

In the *private sector* there is foreign business investments to the tune of Rs. 419 crores which constitute the bulk of the *liability* and the rest consists of Miscellaneous Loans of Rs. 34 crores, of which (i) Loans and advances cover Rs. 13 crores and (ii) Insurance liabilities Rs. 21 crores.

With regard to **Foreign Assets** there is a total of Rs. 1,175 crores of which assets of the *official sector* amount to Rs. 1,112 crores and that of the *non-official* : Rs. 63 crores only.

Assets in the *official* sector are chiefly composed of (*a*) Government Security : Rs. 347 crores, (*b*) Debts due from Pakistan : Rs. 300 crores and the Burma Government : Rs. 48 crores ; (*c*) Deposits : Rs. 186 crores, and the quota in and subscription to the International Monetary Fund and the International Bank for Rehabilitation and Development : Rs. 229 crores.

In the *non-official sector*, Government Securities amount to Rs. 26 crores, Shares and Debentures of Joint Stock Companies : Rs. 11 crores ; Immovable Property : Rs.12 crores and Loans and Advances : Rs. 7 crores.

The *short term Liabilities* of India amount to Rs. 63·70 crores in the *official*, and Rs. 35·40 crores in the *non-official*

sector ; whereas the position of *Assets* in the respective sectors is Rs. 433·75 crores and Rs. 11·40 crores leaving a surplus of Rs. 346·05 crores in the net position.

A *study by different countries* of the Liabilities and Assets for both the short and long terms as well as the official and the non-official sectors, reveals that :

In the *long term official* sector out of a total *Liability* of 582·45 crores, the largest amount (Rs. 234·20 crores) stands against the I. M. F. & the I. B. R. D., the second place being held by the United Kingdom (Rs. 214·73 crores) and the third by U. S. A. (Rs. 91·10 crores). The *Assets* are Rs. 1,112·13 crores divided mainly amongst the United Kingdom : Rs. 529·81 crores, Pakistan : Rs. 300·68 crores, the I. M. F. & I. B. R. D. : Rs. 228·58 crores, and Burma : Rs. 40·50 crores.

In the *long term non-official* sector the *Liabilities* are Rs. 441·21 crores and the highest is owed to the United Kingdom (Rs. 347·82 crores), the next coming to U. S. A. (Rs. 33·21 crores). In estimating the *Assets*, out of a total of Rs. 66·05 crores, nearly half (Rs. 31·24 crores) is held in the United Kingdom and the next in Pakistan (Rs. 19·25 crores).

In respect of *short term Liability* in the *official sector* (Rs. 63·70 crores), the I. M. F. & I. B. R. D. is the highest creditor with Rs. 48·00 crores, the next being Pakistan (Rs. 13·90 crores). In respect of assets amounting to Rs. 433·75 crores, the largest is found against the United Kingdom (Rs. 390·30 crores) and the next against U. S. A. (Rs. 40·10 crores).

India's biggest *Liability* in the *non-official* sector is Rs. 17·10 crores with the United Kingdom out of a total of Rs. 35·40 crores. The *Assets* in this section is rather small (Rs. 11·40 crores) in which the United Kingdom holds Rs. 6·70 crores and U. S. A. Rs. 2·30 crores. The net position in the short term section is a surplus of Rs. 346·05 crores.

FOREIGN AID

Beginning with August 1949 and upto January 1953 India has received 109·8 million dollars (Rs 52·3 crores) from the International Bank of Reconstruction and Development. Details of

the loans received on five counts for different purposes of national development are given below :

Year	Amount (M. dollars)	Purpose	Period in years	Interest %	Amortization starts
1949 Aug.	32·8 (*a*)	Railways	15	4	1950
1949 Sept.	7·5 (*b*)	Land Reclamation	7	3½	1952
1950 Apr.	18·5 (*c*)	D. V. C. (*f*)	20	4	1955
1952 Dec.	31·5 (*d*)	Ind. Iron & Steel Co.	15	4¾	1959
1953 Jan.	19·5 (*e*)	D. V. C. (*g*)	25	4⅞	1956

PAKISTAN

Overall Budgetary Position

(Rupees in Crores)

	1953-54	1954-55 (Rev. Est.)	1955-56 (Bud. Est.)
I. Revenue Accounts :			
A. *Revenue*	*112·50*	*115·45*	*119·02*
Customs	40·08	39·40	35·50
Central Excise Duties	13·08	12·36	13·25
Income Tax and Corporation Tax	17·59	18·36	19·15
Sales Tax	8·64	9·86	11·70
Other Tax Heads	6·27	6·39	6·72
Non-Tax Heads	26·84	29·07	32·70
B. *Expenditure*	*111·49*	*117·95*	*120·39*
Direct Demands on Revenue	2·53	2·87	3·38
Defence Services	64·69	64·05	71·15
Beneficent Departments	5·16	6·78	8·06
Civil Administration	16·23	18·67	19·16
Debt Services	7·95	8·68	9·50
Miscellaneous	14·94	16·90	9·14
C. Surplus (+) or Deficit (−)	+1·01	−2·51	−1·37

Rupees in Crores (*a*) 15·6, (*b*) 3·6, (*c*) 8·8, (*d*) 15·0, (*e*) 9·3.

(*f*) Bokaro Thermal Power Station extension and developement.

(*g*) Damodar Valley Corporation.

II. Capital Accounts :

(Rupees in Crores)

	1953-54	1954-55 (Rev. Est.)	1955-56 (Bud. Est.)
A. *Receipts*	*305·42*	*265·36*	*349·67*
1. Permanent Debt (Internal)	56·71	15·63	15·00
2. Permanent Debt (External)	1·74	5·47	11·16
3. Floating Debt	177·87	172·97	203·62
4. Unfunded Debt	22·21	24·40	27·16
5. Depreciation and Reserve Funds	8·08	10·88	9·16
6. Foreign Aid Fund	0·23	13·75	63·23
7. Other Funds	1·21	7·73	12·02
8. Other Deposits & Advances (net)	0·50	1·06	...
9. Recoveries of Loans & Advances	2·54	7·02	4·33
10. Misc. Capital Receipts	3·29	1·27	3·99
11. Schemes of State Trading (net)	31·04	5·18	...
B. *Disbursements*	*318·59*	*264·69*	*349·49*
1. Direct Capital Outlay	37·08	49·64	60·93
(*a*) Defence	15·26	15·95	8·85
(*b*) Development	21·62	33·54	51·95
(*c*) Currency	...	...	...
(*d*) Purchase of Annuity for payment of Sterling Pensions	...	...	...
(*e*) Others	0·20	0·15	0·13
2. Expenditure from Reserve Funds	3·48	7·92	13·37
3. Loans and Advances to Provinces & Others	38·44	30·56	50·09
(i) Development Loans	23·12	29·01	49·50
(ii) Other Loans and Advances	15·32	1·55	0·59
4. Redemption of Permanent Debt (Internal)	31·89	...	...
5. Redemption of Permanent Debt (External)	...	0·68	0·71
6 • Redemption of Pre-partition Debt	...	...	5·00
7. Redemption of Floating Debt	190·21	157·68	183·50
8. Redemption of Unfunded Debt	17·49	18·21	19·27
9. Other Deposits and Advances (net)	...	...	14·38
10. Schemes of State Trading (net)	...	...	2·24
C. Surplus (+) or Deficit (−)	−13·7	+0·67	+0·18

(Rupees in Crores)

	1953-54	1954-55 (Rev. Est)	1955-56 (Bud. Est)
III. Remittance and Transfer of Cash (net)	−0·81	−0·11	+0·14
IV. Overall Surplus (+) or Deficit (−)	−12·98	−1·96	−1·07

Budgetary Position of State Governments

(Rupees in Crores)

	1953-54	1954-55 (Rev. Est.)	1955-56 (Bud. Est.)
East Bengal :			
Total Revenue	22·42	24·64	25·31
Total Expenditure	26·15	28·45	28·08
Surplus (+) or Deficit (−)	−3·72	−3·81	−2·77
Punjab :			
Total Revenue	25·64	27·61	28·84
Total Expenditure	25·48	25·01	28·27
Surplus (+) or Deficit (−)	+1·6	+2·59	+0·57
Sind :			
Total Revenue	10·25	9·28	9·99
Total Expenditure	8·46	10·26	9·81
Surplus (+) or Deficit (−)	+1·79	− 0·98	+0·18
N.-W. F. P.			
Total Revenue	6·64	6·36	7·20
Total Expenditure	6·52	6·60	7·45
Surplus (+) or Deficit (−)	+0·13	−0·25	−0·25

Public Debt of the Central Government

(Rupees in Crores)

		Date of Issue	Amount outstanding
2½% Loan	1955-56	18th Oct., 1948	13·4
		14th Feb., 1950 (2nd Issue)	
2½% Loan	1956-57	20th July, 1950	7·0
2¾% Loan	1957-58	15th Oct., 1952	12·0
2¾% Loan	1958-59	18th Oct., 1948	10·3
		14th Feb., 1950 (2nd Issue)	
3% Loan	1958	15th June, 1953	39·6

(Rupees in Crores)

	Date of Issue	Amount outstanding
1½% Income Tax Free Bearer Bonds 1958	14th Feby., 1948	0·1
3% Loan 1959	...	10·9
3% Loan 1960	14th Feby., 1948	17·7
3% Loan 1961	15th June, 1953	12·1
3% Loan 1962	...	4·9
3% Loan 1963	18th Oct., 1948	3·0
3% Loan 1968	14th Feby., 1948 14th Feby., 1950 (2nd Issue)	14·5
3% Loan 1969-70	20th July, 1950 15th Oct., 1952 (2nd Issue)	5·3

Public Debt of the Provincial Governments

(Rupees in Crores)

	Date of Issue	Amount Outstanding
Punjab		
3% Punjab Bonds 1956	14th Sept., 1943	2·5
3% Punjab Bonds 1958	... ...	3·5
3% Punjab Bonds 1960	12th Sept., 1945	3·0
3½% Punjab Loan 1961	5th Nov., 1953	3·3
3½% Punjab Loan 1963	27th Nov., 1951	3·9
3½% Punjab Loan 1964	30th Aug., 1952	4·1
East Bengal		
3½% Bengal Loan 1960	8th Oct., 1953	3·3
Sind		
3% Sind Loan 1958	14th Aug., 1944	1·2
N.-W. F. P.		
3½% North-West Frontier Province Loan 1964	30th Aug., 1952	0·8

Small Savings

As on June 30, 1955

(Rupees in Lakhs)

(i) Savings Bank : Rs. 34,78·24 ; (ii) National Savings Certificates and Pakistan Savings Certificates : Rs. 16,83·19 ; (iii) Cash Certificates : Rs. 5,33·59 ; (iv) Defence Savings Certificates and Pakistan Defence Certificates : Rs. 1,88·20 ; (v) Defence Savings Bank : Rs. 6·37.

CHAPTER XIX

NATIONAL INCOME

The National Income of India is estimated at Rs. 10,600 crores (1953-54) derived mainly from Agriculture which alone (excluding Forestry and Fishery) contributes about 50 per cent (49·9%) or Rs. 5,290 crores. Mining, Manufacturing and Hand Trades in one group and Commerce, Transport, Communications in the other, each produces 17 per cent (Rs. 1,800 crores). A fourth group "Other Services" comprising (*a*) Professions and Liberal Arts (Rs. 540 crores), (*b*) Government Services (Rs. 490 crores), (*c*) Domestic Services (Rs. 140 crores) and (*d*) House Property (Rs. 440 crores) contributes 15·2 per cent of the total.

"Small enterprises" in the group of Mining, etc. has a very important place producing no less than Rs. 970 crores a year which is larger by Rs. 750 crores of the Railway income where investments have been very considerable.

The First Five Year Plan aims at increasing the total National Income which is very low in the list of civilized countries of the world. The influence of the working of the First Five Year Plan is already noticeable representing an increase of Rs. 1,690 crores or 18 per cent in 5 years or nearly 4 per cent per annum. In the Second FYP the rate of increase of income is expected to be about 4·5 per cent per annum, *i.e.*, at the end of the Plan period for an estimated population of 409·7 million, the National Income would rise to Rs. 13,480 crores or Rs. 330 *per capita* indicating an increase of 19 per cent over 1950-51, when the First FYP came into operation.

National Income by Industrial Origin

(Rupees in Crores)

	1953-54	% of total	1952-53	1951-52
AGRICULTURE :				
Agriculture, animal husbandry and ancillary activities	5,290	49·9	4,690	4,880
Forestry	70	0·6	60	70
Fishery	40	0·4	40	40
Total of Agriculture	5,400	50·9	4,790	4,990

(Rupees in Crores)

	1953-54	% of total	1952-53	1951-52
MINING, MANUFACTURING and HAND TRADES :				
Mining	100	0·9	90	90
Factory establishments	730	6·9	700	690
Small enterprises	970	9·2	970	950
Total of Mining, etc.	1,800	17·0	1,760	1,730
COMMERCE, TRANSPORT, COMMUNICATIONS :				
Post, Telegraph and Telephone	40	0·4	40	40
Railways	200	1·9	200	210
Organised Banking and Insurance	80	0·7	70	80
Other Commerce and Transport	1,480	14·0	1,470	1,460
Total of Commerce, etc.	1,800	17·0	1,780	1,790
OTHER SERVICES :				
Professions and Liberal Arts	540	5·1	520	500
Government services (Administration)	490	4·6	460	450
Domestic Services	140	1·3	130	140
House Property	440	4·2	430	410
Total of Other Services	1,610	15·2	1,540	1,500
Net Domestic Product at Factor Cost	10,610	100·1	9,870	10,010
Net earned Income from abroad	−10	−0·1	−10	−20
Net National Output at Factor Cost = National Income	10,600	100·0	9,860	9,990

Per Capita National Income

1950-51—Rs 246 ; 1952-53—Rs 261 ;

1951-52—Rs 252 ; 1953-54—Rs 276.

Estimates of National Income (1876-1951)

By Whom	Year when attempt was made to estimate	Year for which estimate is made	Per. Capita Income Rs.	Area Covered
Dadabhai Naoroji	1876	1868	20	Br. India
Baring Barbour	1882	1882	27	"
Lord Curzon	1901	1897-98	30	"
William Digby	1902	1899	18	"
F. J. Atkinson	1902	1875	27	"
—do—	1902	1895	35	"
B. N. Sharma	1921	1911	50	"
V. K. R. V. Rao		1925-29	76	"
—do—		1931-32	62	"
National Income Committee	1951	1948-49	255	Indian Union

PAKISTAN

NATIONAL INCOME

	(Rupees in Crores)	
Agricultural Sector		1,168
Major Agricultural Crops	629	
Minor Agricultural Crops	174	
Livestock Products	301	
Fishing	61	
Forest	3	
Mining Sector	7	
Manufacturing Sector	5	
Transport and Communications	16	
Government Sector	64	
Public Utility Services	20	
Services	251	
Rental Income	41	
Wholesale and Retail Trade Sector	137	
From abroad	—24	
Total		517
Net National Income		1,685
Per Capita Income in 1948-49 :		Rs. 230·4

National Income of Different Countries

National Income at factor cost—the aggregate of all incomes earned in the production of goods and services in the course of a year including net income from abroad.

Country	Year	Population (in millions)	Rupees (in Crores)	Per Capita Income—Rs.
India	1954-55	378·07	10,170	269
Pakistan	1953-54	78·81	1,931	245
Burma	1954	19·24	390	204
Ceylon	1954	8·38	477	569
Japan	1954	88·20	8,133	922
Philippines	1954	21·44	1,770	825
New Zealand	1954	2·09	1,070	5,119
Australia	1954	8·99	4,220	4,694
U. K.	1954	50·78	20,950	4,100
U. S. A.	1954	162·41	144,423	9,016
Canada	1954	15·20	9,190	6,046
France	1953	42·86	14,420	3,364
West Germany	1953	48·99	11,705	2,389
Italy	1953	48·07	6,832	1,421
Norway	1954	3·39	1,230	3,638
Sweden	1953	7·17	3,422	4,772
Netherlands	1953	10·49	2,451	2,336
Denmark	1953	4·37	1,580	3,616
Switzerland	1953	4·88	2,286	4,684

APPENDIX

SECOND FIVE YEAR PLAN

The total outlay in the public sector is Rs. 4,800 crores of which the States' share is 2,214 crores. Investment in the private sector will be in the neighbourhood of Rs. 2,300 crores so that the total productive investment may come to Rs. 6,100 crores. The share of the public sector will be 62 per cent.

As a consequence the National Income is expected to increase from Rs. 10,800 crores in 1955-56 to about Rs, 13,480 crores in 1960-61, *i.e.*, by about 25 per cent. This will enhance the *per capita* income by 18 per cent. (from Rs. 280 in 1955-56 to Rs. 330 in 1960-61).

The total outlay of Rs 4,800 crores in the public sector is expected to be distributed amongst Agriculture : Rs. 565 crores (12%) ; Irrigation : Rs. 458 crores (9%) ; Power : Rs. 440 crores (9%), Industries and Minerals : Rs. 891 crores (19%) ; Transport and Communications : Rs. 1,384 crores (29%) ; Social Services (including Housing) : Rs. 946 crores (20%) ; Miscellaneous : Rs. 116 crores (2%). Of the aggregate developmental outlay of Rs. 4,800 crores in the public sector Rs. 1,000 crores represents current expenditure of a developmental nature and Rs. 3,800 crores represents investment, *i.e.*, outlay on the building up of productive assets.

The **resources** are roughly (*a*) Surplus from current revenue : Rs. 800 crores (at existing rates of taxation) : Rs. 350 crores and additional taxation : Rs. 450 crores, (*b*) Borrowings from the public : Rs. 1,200 crores (Market Loans : Rs. 700 crores and Small Savings : Rs. 500 crores), (*c*) Contribution from Railways : Rs. 150 crores, (*d*) Provident Fund and other Deposits Rs. 250 crores, (*e*) External assistance : Rs. 800 crores, (*f*) Deficit financing : Rs. 1,200 crores, leaving an uncovered balance of Rs. 400 crores.

The revenue from *tax* will be increased over the period to Rs. 800 crores. This represents additional taxation of Rs. 450

crores. The tax revenue now forms 7 per cent of national income ; additional taxation of Rs. 450 crores will raise this proportion only slightly. The target for *loans* from the public has been set at Rs. 700 crores.

A *deficit* of Rs. 1,100 crores in the foreign exchange resources is anticipated. The deficit is expected to be covered by Rs. 200 crores by withdrawal of Sterling Balances and net inflow of private capital of Rs. 100 crores. The gap of Rs. 800 crores will be covered by external assistance in the shape of loans from the World Bank and other U. N. Agencies and credits available from the bigger projects.

Private Sector

Investment in the Private Sector is likely to be Rs. 2,300 crores of which organised industries and mining are to absorb Rs. 500 crores. Another Rs. 100 crores is meant for plantations, private transport and electricity undertakings. Further investments are on agriculture, village small and cottage industries, roughly Rs. 300 crores ; construction (houses, shops, hospitals, schools, etc.) Rs. 1,000 crores ; and investment in stocks, etc. Rs. 400 crores.

Provisional targets for production of important commodities and services are given in the following table

	1950-51	1953-54	1955-56 (Estimates)	1960-61
Agriculture				
Food grains (mill. tons)	50·0	65·7	66·0	76·0
Other food items (index)	—	—	100	125
Cotton (mill. bales)	2·9	3·9	4·2	5·8
Sugarcane (mill. tons raw *gur*)	5·6	4·6	5·0	7·5
Oil seeds (mill. tons)	5·1	5·6	5·6	7·0
Tobacco (thousand tons)	258	256	250	300
Tea (mill. lbs.)	607	675	675	750
Irrigation (mill. acres)	50	58	70	100
National Extension service and Community Projects (blocks)	—	479	1,200	5,600
Industries				
Pig iron, for foundries (m. tons)	—	—	0·35	1·8
Finished steel (mill. tons)	1·1	1·1	1·3	5·0

	1950-51	1953-54	1955-56	1960-61 [Estimates]
Cement (mill. tons)	2·7	4·0	4·8	10·0
Aluminium ('000 tons)	3·7	3·8	4·0	40·0
Fertilisers (index)	—	—	100	400
Heavy Chemicals (index)	—	—	100	300
Synthetic Petrol (m. tons)	—	—	—	·30
Cotton (mill) Textiles (m. yds)	3,718	4,906	5,000	5,500
Handloom and Powerloom (m. yds)	742	1,200	1,600	3,200
Woollen manufactures (m. lbs.)	18·0	19·6	20·0	25·0
Sugar (mill. tons)	1·1	1·1	1·4	2·1
Soap ('000 tons)—				
Large scale }	106	76	85	120
Small scale }	—	—	28	40
Footwear (mill. pair)				
Large Scale	5·2	5·7	6·0	7·0
Small scale	—	—	80·0	100·0
Vegetable oil (m. tons)	1·2	1·4	1·5	2·0
Electrical goods (index)	—	—	100	166
Bicycles ('000 nos.)	101	290	500	1,000
Sewing machines ('000 nos.)	33	68	90	150
Metalwares (small scale : index)	—	—	100	133
Minerals				
Coal (mill. tons)	32	36	37	60
Iron ore (mill. tons)	3	4	4	13
Mica ('000 cwts.)	162	—	150	200
Manganese (mill. tons)	1	2	2	3·5
Transport and Power				
Shipping (tonnage—in '000's)	391	525	610	—
Railway (mileage)	—	—	34,500	37,500
Roads ('000 miles)—				
National highways	11·9	12·2	12·5	17·5
State Roads	17·6	—	20·0	35·0
Electricity (m. kwh. Capacity)	2·3	2·8	3·5	6·0
Social Services				
Hospital beds ('000's)	107	112	125	250
Doctors (registered) ('000's)	—	65	70	90
Urban houses (lakhs)	101	—	120	150
Education (% of total children : 6—14 going to school)	32	—	40	60

The total amount of *net investment* for achieving the targets of production in the Second Plan is estimated at Rs. 5,600 crores which might be divided into several sections as follows :—

	Rs. crores	% of total
Agriculture and community development (including irrigation and flood control)	950	17·1
Power	500	8·9
Transport and Communications	900	16·1
Industries and Mining (including Small Scale)	1,400	25·0
Construction (houses, hospitals, schools, shops, etc.) ...	1,350	24·0
Stocks and Miscellaneous ...	500	8·9
Total	5,600	100·0

["It is more meaningful to speak of 'net investment' when referring to the economy as a whole while it is useful to retain the concept of 'developmental expenditure' (which includes outlay of a capital as well as current nature) in speaking of the public sector."]

Tentative investment on different industries and mining (under the Second Plan) :

	Rs. Crores	% of total
Iron and Steel ...	425	30·4
Synthetic Petrol ...	80	5·7
Heavy machinery (to fabricate plants for steel and producer goods) ...	150	10·7
Heavy Electrical Equipment ...	40	2·9
Machinery for Agriculture and consumer goods industries ...	50	3·6
Existing State Enterprises (Expansion)	50	3·6
Cement ...	50	3·6
Chemicals and Drugs ...	50	3·6
Fertilisers ...	100	7·1
Aluminium ...	30	2·1
Minerals and prospecting ...	75	5·4
Factory consumer goods ...	100	7·1
Small Scale and Village Industries ...	200	14·3
Total	1,400	100·0

Outlay in Public Sector

Of the total net investment of Rs. 5,600 crores as envisaged in the Second Plan, "some Rs. 3,400 crores would be organised through Governments' budgetary and other operations and the remaining Rs. 2,200 crores or so would represent private investment from Private Sources." It is most likely that this investment of Rs. 3,400 crores may ultimately amount to Rs. 4,300 crores.

Investment on different Items in the Public Sector

Rs. Crores

	Second Plan				*First Plan*	
	Investment outlay	Current outlay	Total outlay	Percentage	Total outlay	Percentage
Agriculture, irrigation and Community development	750	200	950	22		
Power	400	—	450	10·5		
			1400	33	990	44
Transport and Communications	850	100	950	22	536	24
Industry and minerals	1,000	100	1,100	26	178	8
Construction and Social services	250	500	750	17	544	24
Stocks	100	—	100	2	...	...
Total	3,400	900	4,300	100	2,248	100

Investment in the Private Sector

	Rs. Crores
Construction	1,100
Industry, Mining, Power, Transport	500
Agriculture and allied pursuits	200
Working Capital in Trade, Industry and Miscellaneous	400
Total	2,200

Expected growth in Investment and Savings over the Second Plan Period.

Crores of Rupees

	1955-56	56-57	57-58	58-59	59-60	60-61	Second Plan 1956-57 to 1960-61
National Income	10,800	11,300	11,825	12,375	13,000	13,700	62,200
Net Investment	730	810	930	1,060	1,300	1,500	5,600
Domestic Savings	650	680	800	930	1,170	1,370	4,950
Foreign Resources	80	130	130	130	130	130	650

INDUSTRIAL POLICY OF THE GOVERNMENT

On 6th April 1948, the Government of India enunciated its new industrial policy which laid down that besides arms and ammunition, atomic energy and railway transport, which would be the monopoly of the Central Government, the State would be exclusively responsible for the establishment of new undertakings in six basic industries—except where, in the national interest, the State itself found it necessary to secure the co-operation of private enterprise. The rest of the industrial field was left open to private enterprise.

In the directive principle of the State policy, it was stated, *inter alia*, that the ownership and control of the material resources of the community should be so distributed as to subserve the best interests of the community and that the operation of the economic system did not result in the concentration of wealth and means of production to the common detriment.

In December 1954, the Parliament accepted the socialist pattern of society and industrial policy, as other policies, is governed by these principles. As a corollary, all industries of basic and strategic importance or in the nature of public utility services, are to be in the public sector. Other industries which are essential and require investment on a scale which only the State, could provide, have also to be in the public sector.

Under the new policy the industries have been divided into three broad categories having regard to the part which the State would play in each of them. In the *first category* will be industries the future development of which will be exclusive responsibility of the State :

(i) Arms and ammunition and allied items of defence equipment ; (ii) Atomic Energy ; (iii) Iron and Steel ; (iv) Heavy castings and forgings of iron and steel ; (v) Heavy plant and machinery required for iron and steel production, for mining, for machine tool manufacture and for such other basic industries as may be specified by the Central Government ; (vi) Heavy electrical plant including large hydraulic and steam turbines ; (vii) Coal and Lignite ; (viii) Mineral oils ; (ix) Mining of iron ore, manganese ore, chrome ore, gypsum, sulphur,

gold and diamond ; (x) Mining and processing of copper, lead, zinc, tin, molybdenum and wolfram ; (xi) Minerals specified in the Schedule to the Atomic Energy (Control of Production and Use) Order, 1952 ; (xii) Aircraft ; (xiii) Air transport ; (xiv) Railway transport ; (xv) Ship-building ; (xvi) Telephone and telephone cables, telegraph and wireless apparatus (excluding radio receiving sets) ; (xvii) Generation and distribution of electricity. All new units in these industries save where their establishment in the private sector has already been approved, will be set up only by the State.

The *second category* consists of industries which will be progressively State-owned and in which the State will, therefore, generally take the initiative in establishing new undertakings, but in which private enterprise will also be expected to supplement the effort of the State. They are as follows : (i) All other minerals except "minor minerals" as defined in Section 3 of the Minerals Concession Rules, 1949 ; (ii) Aluminium and other non-ferrous metals not included in Schedule "A" ; (iii) Machine Tools ; (iv) Ferro-alloys and tool steels ; (v) Basic and intermediate products required by Chemical industries such as manufacture of drugs, dyestuffs and plastics ; (vi) Antibiotics and other essential drugs ; (vii) Synthetic rubber ; (viii) Fertilisers ; (ix) Carbonisation of coal ; (x) Chemical pulp ; (xi) Road transport ; (xii) Sea transport.

All the remaining industries will fall in the *third category* and it is expected that their development will be undertaken ordinarily through the initiative and enterprise of the private sector, though it will be open to the State to start any industry even in this category.

The State has been following a policy of supporting *cottage*, *village* and *small scale industries* by restricting the volume of production in the large scale sector by differential taxation or by direct subsidies. While such measures will continue, the aim of State policy will be to ensure sufficient vitality to the centralised sector to be self-supporting and its development to be integrated with that of large scale industry.

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