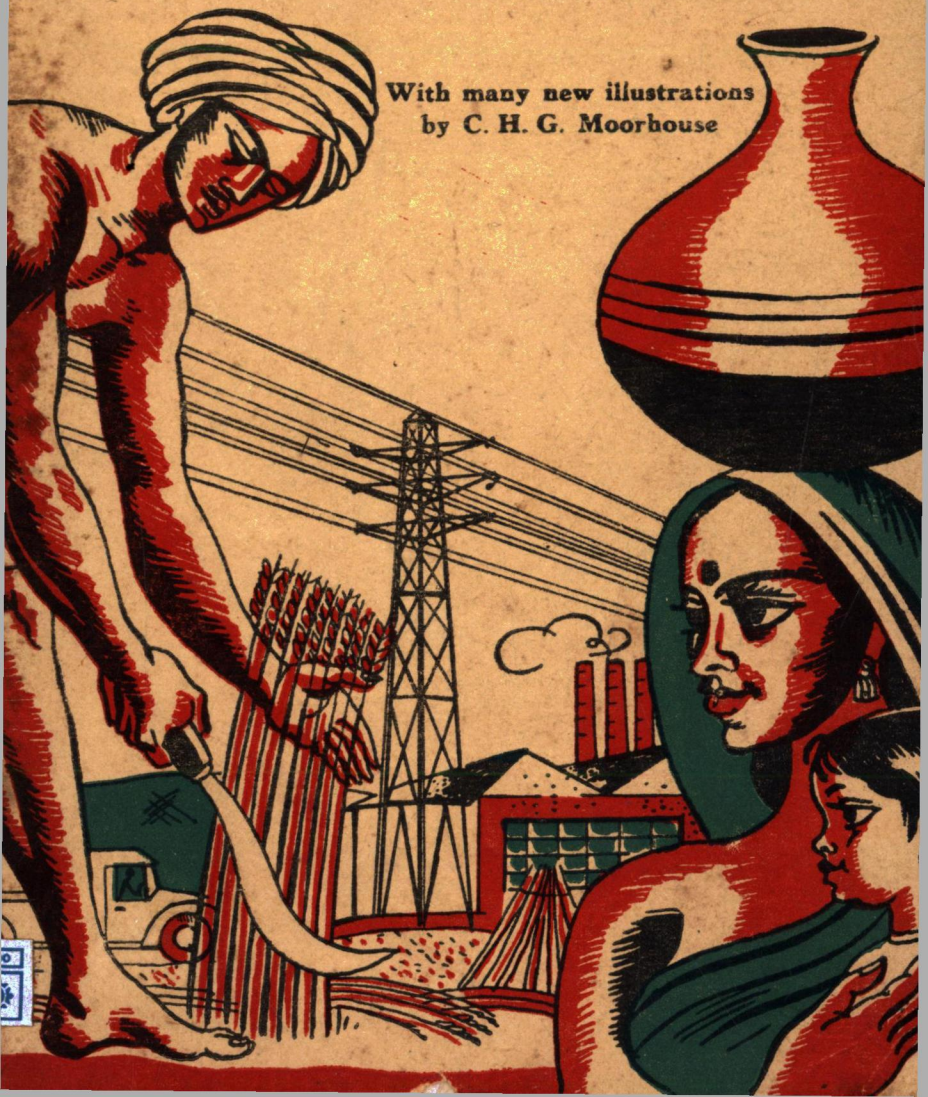
Our India

MINOO MASANI

With many new illustrations
by C. H. G. Moorhouse



OUR INDIA

Our India

BY

MINOO MASANI

With many new illustrations by

C. H. G. MOORHOUSE

CALCUTTA
OXFORD UNIVERSITY PRESS
DELHI BOMBAY MADRAS

Oxford University Press
OXFORD LONDON GLASGOW NEW YORK
TORONTO MELBOURNE WELLINGTON CAPE TOWN
DELHI BOMBAY CALCUTTA MADRAS KARACHI LAHORE DACCA
KUALA LUMPUR SINGAPORE JAKARTA HONG KONG TOKYO
NAIROBI DAR ES SALAAM LUSAKA ADDIS ABABA
IBADAN ZARIA ACCRA BEIRUT

Our India, first published October 1940
Over 500,000 sold
Our India—1953, first published September 1953
First cheap edition, June 1954
Eighth impression 1975

The paper used in printing the book was made available by the Government of India at a concessional rate.

Printed in India by offset by N. K. Mitter at The Indian Press Pvt Ltd, 93A, Lenin Sarani, Calcutta 700013 and published by C. H. Lewis, Oxford University Press, Calcutta 700013

PREFACE TO 'OUR INDIA'

A little learning, it is said, is a dangerous thing. Statistics of Indian life are so scanty and scrappy that reliance on them is bound to endanger one's conclusions. A little book of this nature does not, fortunately, have to pretend to scientific accuracy. Nor can it be burdened with footnotes giving references to works from which facts and figures were derived. That makes it all the more necessary, however, to acknowledge the author's indebtedness to various sources from which he has drawn much of his material. Such a list can hardly be complete, but among the works which he would like to mention are Jathar and Beri's *Indian Economics*,[1] Arnold Lupton's *Happy India*,[2] Soni's *Indian Industry and its Problems*,[3] Gyan Chand's *India's Teeming Millions*,[2] V. K. R. V. Rao's *India's National Income*,[2] Wadia's *Geology of India*,[4] Ram Manohar Lohia's *India in Figures*,[5] H. G. Wells' *Work, Wealth and Happiness of Mankind*,[6] Otto Neurath's *Modern Man in the Making*,[7] and the *Statistical Year Book of the League of Nations*.[8]

The verses on pages 57-8, 66 and 69 have been quoted from Hivale and Elwin's *Songs of the Forest*,[2] Ilin's *Moscow Has a Plan*,[6] and Mrs E. M. Milford's translation of Jasimuddin's *The Field of the Embroidered Quilt*.[1]

I am indebted to many friends for suggestions, particularly to Professor M. L. Dantwala of the New Commerce College, Ahmedabad, Mr J. C. Kumarappa, Secretary of the All India Village Industries Association, Dr Nazir Ahmed, Director of the Indian Cotton Technological Institute, Professor F. R. Bharucha of the Royal Institute of Science, Bombay, Mr S. M. Zubair of the Tata Hydro-Electric Power Company Ltd,

[1]Oxford University Press. [2]Allen & Unwin. [3]Longmans Green. [4]Macmillan. [5]U. P. Provincial Congress Committee, Lucknow. [6]Heinemann. [7]Secker & Warburg. [8]Cape.

Mr P. B. Karanjia and Mr Jabir A. Ali. To Mrs Sarojini Naidu, I owe a special debt for her encouragement and interest.

Thanks are also due to the Secretary of the National Planning Committee for permission to peruse reports and drafts of various sub-committees.

M. M.

Bombay, September 1940

PREFACE TO 'OUR INDIA–1953'

There are few parallels in history for the great changes that have taken place in India during the brief period of thirteen years since this book was first published. The Second World War brought about rapid changes in our economy. The Partition that was the price of Independence brought even more—geographic as well as economic. It is therefore the story of a New India that this book tells.

Our India may claim that it has played a small part as a pioneer in making India planning-minded and in preparing the way for the Five-Year Plan on which the country is now launched. The dream of yesteryear is thus on the way to becoming reality. The original book was mainly about the future; the new book shows that the present has to a certain extent caught up with the future. What a lot, however, remains to be done!

M. M.

Bombay, August 1953

CONTENTS

I. ONE IN SEVEN 1

II. CAN YOU EAT THE SUN? 15

III. A PUZZLE 28

IV. A HOUSE OF CARDS 37

V. 'THE SALT OF THE EARTH' 48

VI. SOME IFS AND BUTS 69

VII. NOT ENOUGH LAND! 89

VIII. WOOL ON A TREE 105

IX. OUR BURIED TREASURES 115

X. POWER 131

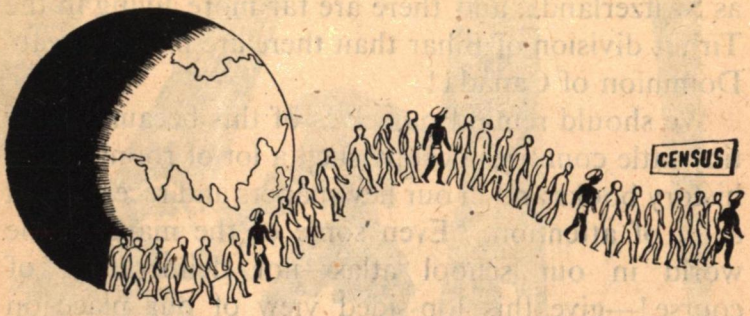
XI. MEN OF STEEL 147

XII. HINDOSTÁN HAMÁRÁ 159

I

ONE IN SEVEN

One man in every seven is an Indian. The other six are, let's say, an American, a European, a Negro, an Arab, a Russian and a Chinese. Here they are being counted.



Doesn't that make you feel very important? It is rather a staggering thought, isn't it, that we Indians are not much less than a seventh of the human race and that, next to China, our country has the biggest population in the world? And doesn't it make us feel keen to take our proper share in the ordering and settling of the world's affairs?

Besides, what a huge country ours is! Extending 2,000 miles east to west and 2,000 miles north to south, and with an area of one and a quarter million square miles, it is as big as the whole of the continent

of Europe outside the Iron Curtain, as you can see from the picture opposite. India is as big as all the countries whose shadows fall on it.

The size of an ordinary district in India is 4,000 square miles, and some of our districts are as big as entire States in Europe. Thus, both the area and population of the district of 24-Parganas in West Bengal are bigger than those of Denmark; Malabar District in Madras contains almost as many people as Switzerland; and there are far more living in the Tirhut division of Bihar than there are in the 'great' Dominion of Canada!

We should remind ourselves of this because many tiny little countries occupy such a lot of room in our history books and in our newspapers and receive such a lot of attention. Even some of the maps of the world in our school atlas—not deliberately, of course!—give this lop-sided view of our place on the globe. Do you know that one of them actually makes India look only *half* as big as it really is compared to England?

Now, size or bigness is not in itself much good. It is what one makes of one's bigness that matters. It has its advantages and its disadvantages. It faces us with big difficulties and big problems. But it makes it possible for us to do things in a big way.

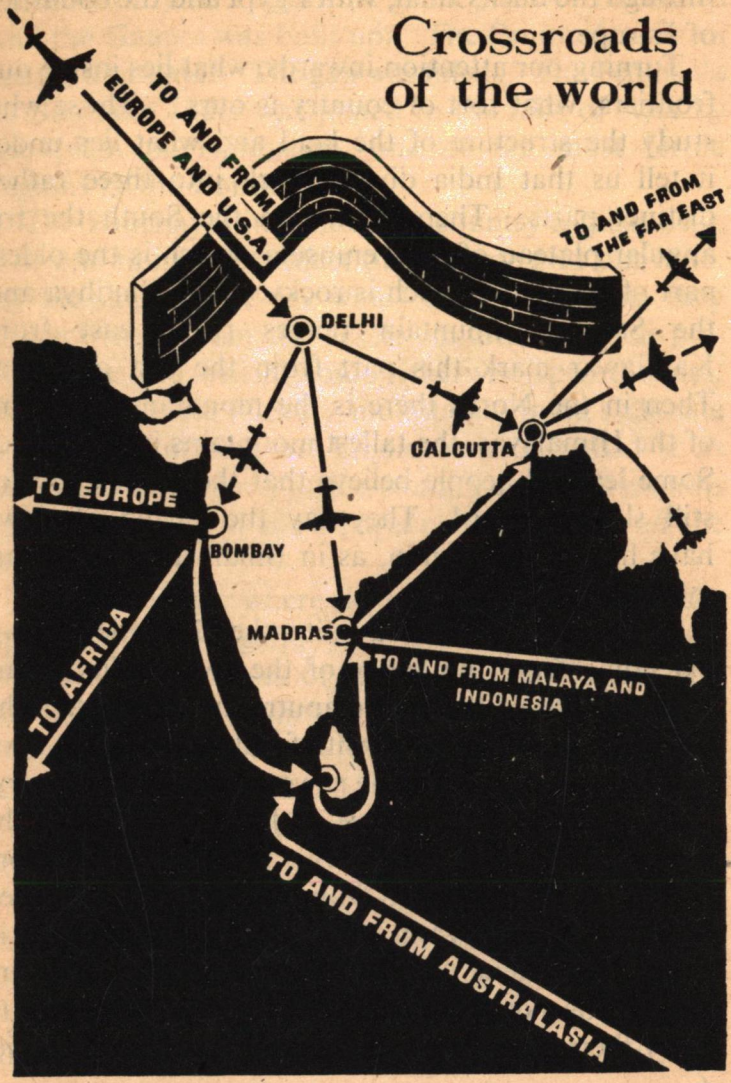
We Indians are like a landlord with a big estate. but we have to ask ourselves where and how it is situated. Is it provided with well-marked


EIRE
U.K.
SWITZ.
W. GERMANY
AUSTRIA
SAAR
PORTUGAL
SPAIN
NORWAY
SWEDEN
HOLLAND
BELGIUM
FRANCE
ITALY

boundaries to distinguish it from neighbouring estates or not? Is it placed on the main road or is it in some remote corner approachable only through dark and winding lanes?

Until a few years ago India and Pakistan were a single country, which was so big that it formed what was called a sub-continent. A sub-continent is a natural region, well marked out from the rest, which is bigger than a country and just a little smaller than a whole continent. Even now, on the north, India is marked off from the rest of the world by one of the loftiest mountain ranges in the world, the Himalayas. In the south, the land-mass juts out into a broad expanse of deep blue ocean. A mountain and an ocean, aren't these the best and the most natural things with which one could paint a country's border lines on a map?

Although India is so well marked out and sheltered, we are by no means cut off from the rest of the world. Pakistan is, of course, our next-door neighbour and not even a hedge separates the two countries, and there are no natural barriers to trade. For trade with other foreign countries, well, the ocean itself provides a highway, and India lies on important shipping and trade routes from Europe and the Near East to the Far East and Australasia. She can trade with equal ease with China, Japan, Thailand (Siam) and Malaya, with Australia and New Zealand, with Africa, with Iran, Iraq and,


Crossroads of the world
TO AND FROM EUROPE AND U.S.A.
TO AND FROM THE FAR EAST
DELHI
CALCUTTA
TO EUROPE
BOMBAY
MADRAS
TO AFRICA
TO AND FROM MALAYA AND INDONESIA
TO AND FROM AUSTRALASIA

through the Suez Canal, with Egypt and the countries of Europe.

Turning our attention inwards, what lies inside our frontiers, what sort of country is ours? Those who study the structure of the land and what lies under it tell us that India divides itself into three rather distinct parts. There is first in the South the triangular plateau of the Peninsula, which is the oldest part of India and which is rocky. The Vindhya and the Satpura mountain ranges rising east from Kathiawar mark this part from the rest of India. Then in the North there is the mountainous region of the Himalayas, the tallest mountains in the world. Some learned people believe that the Himalayas are still slowly rising! They say the earthquakes we have had in this region, as in Bihar, are due to this movement.

In between is the third unit—the Gangetic Plain—extending from the valley of the river Indus in the West to that of the Brahmaputra in the East. The Gangetic Plain is blessed with fertile soil of great agricultural value, and it is the newest part of our country.

For a long time it lay under the sea, and the Peninsula was an island. But the great rivers from the North scraped earth from the Himalayas, rushed down the valleys with it and dropped their mud in the calm waters of the inland sea. Slowly, very slowly, the bottom of the sea rose, the rivers had to carry their mud farther before they could find a quiet

place to drop it, and so the great plain of the Indus and the Ganges was built up. The Peninsula was no longer an island. The gap was filled. The Peninsula of Southern India was joined to the hills of Asia by the plain of Hindustan, one of the most fertile regions in the world.

The Himalayas influence our country a great deal. For one thing, they affect our climate and our land. By keeping off the dry winds of Central Asia, they protect India from the desert conditions which prevail there and which would otherwise spread south. Thanks to these friendly mountains, India's climate is so pleasant that an Englishman described it as delightful in *all* parts of the country for *some* months of the year and in *some* parts of the country *all* the year round.

Another thing, where do the great rivers of India spring from? Again, the Himalayas! On their slopes lie the sources of the Indus, the Ganges and the Brahmaputra, which provide the people of North India and Pakistan with water, irrigate the soil and provide a means of transport. Also, they are still dropping mud on the land and making it more fertile.

To keep these big rivers flowing endlessly from mountain to sea, Nature has devised for us something as marvellous as the jinn that could be conjured up by Aladdin's lamp. This jinn is our familiar friend, the Monsoon. In the middle of each year, he

transports, as you can see in the picture below —through the action of the sun, the clouds, the wind and the rain—indescribable quantities of water back from the sea to the mountain tops. From there the rivers take the water to the parched fields on mountain slopes and in the plains. The rivers in South India have water in them as long as the



monsoon feeds them with it, but the rivers in North India, which have their source in the Himalayas, get their water not merely directly from the Monsoon but also in the summer, when the snow of the mountain-tops starts melting. The snow-laden peaks of the Himalayas act like a reservoir, feeding the rivers for all the remaining months after the Monsoon has finished his job for the year.

Next to the Monsoon, perhaps the most striking thing about India is the tremendous variety of its climate, its land and its people. No wonder, for Cape Comorin is only 8° north of the Equator and Srinagar in Kashmir is 34° north. India has every variety of climate from the blazing heat of the plains, as not in places as hottest Africa—Nagpur can be in summer as much as 120° in the shade—down to below freezing-point, to the Arctic cold of the Himalayan region. While Cherrapunji in the Assam hills has 460 inches of rain in the year, Rajasthan has about 3 inches only. In general, we have eight completely dry months followed by four months of a continual downpour of rain. We have the fertile Gangetic plain in which almost anything will grow, and the rich tropical forests along the coast of the Peninsula, as in Malabar; but we also have the dry, sandy desert regions of Rajputana and Cutch.

How often we just look at a man and say, 'I don't like his looks!' or 'He must be a nice chap'. Why? Because instinctively we feel that a person with such

a face cannot be nice or that another man with a certain expression in his eyes must be exceedingly nice. And indeed, our instinct is often right—though sometimes we make a wrong guess—because what a man is like is generally to be seen from his face and his expression. Now, the land and the mountains and the rivers and the climate of a country are its face, while its men and women are its mind and soul. Only, in this case, because the people arrived so long after the country took its present shape and form, the process is reversed and the face of India is reflected in its mind and soul.



It is only natural therefore that the wide variety in its physical features should be found repeated in the people who live in India. The Indian can be as fair as the blondest of Scandinavians, he can be as dark as the African negro. He can be the tallest of men, he can be as short and squat as an Australian bushman. He can be stalwart and strong, he can be frail and rickety. Even in 1953, you can find him living, both in his mode of existence and in his way of thinking, in every century from the fifth to the

twentieth. Perhaps nowhere in the world, except in Soviet Russia, can we find such a variety of human types as in India. He can be like the picture on the right or like the picture on the left.





And what tremendous man-power its huge population of nearly 365 millions gives to India—next to China, the biggest in the world.

The fact that there are so many of us and such different kinds of us may, and does, produce rather difficult problems for us to solve in the way of living together peacefully and happily. On the other hand, just think what a tremendous source of strength it can be!

A lot of the progress men have made in supplying themselves with food, clothes, houses and other things they need, is due to increasing division of labour amongst themselves. Your father doesn't grow everything he eats, and make with his own hands everything he uses, does he? No. Very wisely he takes advantage of the greater experience of the peasant in growing corn and rice and of the greater skill of those who make his clothes and his shoes and his razor and his books for him. If he tried to do everything for himself with his own hands, he wouldn't get very far for all his cleverness (hush,

fathers are *always* clever!), would he? No, none of us—not even the strongest and the cleverest—can possibly find the time or the energy to learn to make all or even a twentieth of the things we need for our use every day. So, learning wisdom through the ages, we have divided the work among ourselves, some of us in the fields growing wheat and rice and vegetables and fruits to eat, others in the factories making cloth and shoes and motor-cars and radio-sets, with yet others sitting at tables and writing books. So far has this process gone that nowadays a small thing like a piece of clothing may be the work of scores of workers specializing in one of numerous processes like growing cotton, ginning it, pressing it, carding it, spinning yarn out of the cotton, weaving cloth out of the yarn and making something to wear out of the cloth.

Different people are clever at different kinds of work. So too, different types of men display qualities of mind and body which fit or unfit them for particular kinds of work.

Similarly, different kinds of land can produce different crops; and different kinds of climate are, according to their heat or cold, dampness or dryness, fitted or unfitted for particular processes of cultivation or manufacture.

Just think how lucky a country like India is—and how rich it ought to be—which has all types of men, all sorts of land and all kinds of climate!


MANPOWER
365,000,000

It means that India is a country which has, somewhere or other, all the possible raw materials for making all the things its people want. It means that we Indians can grow or make in India most of the things we require. Can you imagine, for instance, cotton being grown in England or apples in Arabia? But in India we can have *swadeshi* cotton AND *swadeshi* apples.



II

CAN YOU EAT THE SUN?

The great English poet Milton speaks in *Paradise Lost*, the greatest piece of poetry he wrote, of 'the wealth of Ormus and of Ind'. Indeed, the wealth of India was proverbial in times long past.

It was tales of gold and silver, diamonds and rubies, silks and brocades, musk and camphor that fired the imagination of distant peoples and made them covet the riches of India. If you were to ask me, however, what India's most precious possessions have been or are, I would point, not to the gold in the vaults of the Nizam of Hyderabad nor to the bank-balances of our millionaires who own factories and shops nor to the palaces of the princes and mansions of the rich, but to the sun and to the land and the rivers and the rains and the mountains of our great country and, above all, to those crores upon crores of men, women and children who live in it.

Perhaps like good, practical, matter-of-fact young people of the twentieth century, you will jib at this. 'You can't eat the sun or drink the rivers or live on the mountains!' you will exclaim. Can't you, though? And are you so sure you don't? I don't mean literally—though some wise and saintly people do that too, almost! But quite seriously, doesn't

every one of us get what he eats and drinks and what he wears and what he lives in from precisely these elemental things?

Take, for instance, the green vegetables you eat—what are they but the sun's rays, earth, water and air? Water is the biggest part of all vegetables, and from the air they take a gas called carbon dioxide and from the soil salts called nitrates. These are the most important things in all vegetable matter. The energy which transforms these things into food comes from the light and heat of the sun. Do you know, for instance, that the cabbage you eat is 91·5 per cent water?

These are just examples. They should make you think and warn you not to be taken in if some teacher at school happens to tell you that the wealth of the country lies in its banks. You just tell yourself you know better, remind yourself that India has enough sun and rain for raising two crops in the year in almost *all* districts and three crops in *some* of them —and smile in a mysterious and superior manner!

Let us now make a little catalogue of our country's riches—not by any means a complete one. Big fat books have been written by learned old professors in an attempt to prepare such a catalogue, but still they are never really complete. So just let us pick out a few items to give us an idea how rich we are, since most of us don't happen to know it and feel unnecessarily sad and forlorn.

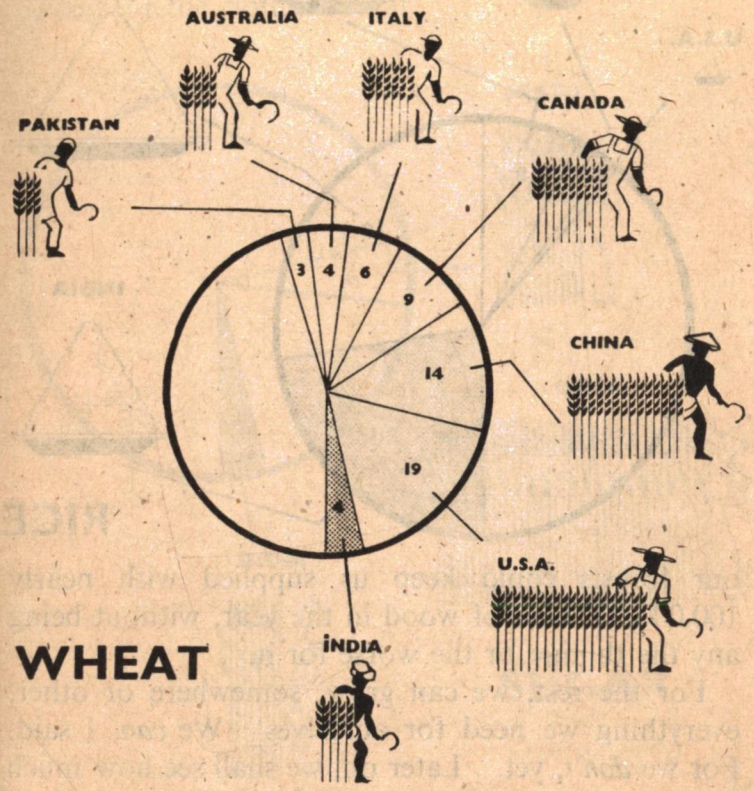

SUN
NITRATES
WATER

What shall we put at the head of our list of valuables? I suggest we don't be modest and put—OURSELVES. A great thinker and lover of humanity, an Englishman named Ruskin—whose little book *Sesame and Lilies* you will perhaps read at school or college—was never tired of insisting that happy, healthy people are the most valuable things a country can possess. And he was right.

Think what tremendous strength and energy to make and to move things, what great power—Man-power—its huge population of 365 million gives to India.

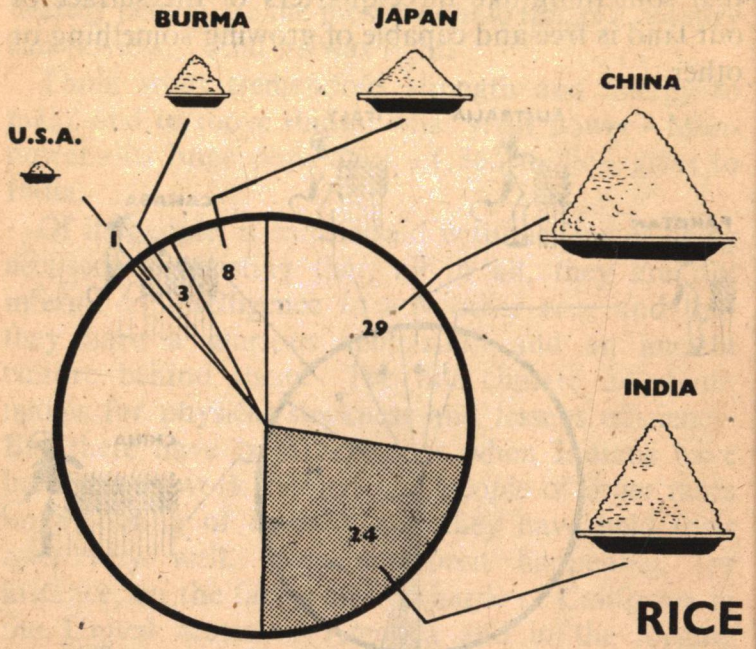
Of its people, it can be said without fear of being accused of boasting that, all in all, they are not inferior in intelligence to any other race and that they have a glorious civilization and an ancient culture behind them. The hot climate no doubt makes for physical slackness and lessens efficiency. But there have been occasions when Indians have been put to work alongside of people of other races on a footing of equality and they have held their own very well. This has been happening, for instance, on the farms and orchards of California in the United States of America and in the logging camps and lumber-mills of Oregon and Washington and of British Columbia in Canada. There Indians have proved themselves as efficient at work as Americans, Canadians, Mexicans, Chinese and Japanese. And, as we have already seen, along with quality we have infinite variety.

Let us place second on our list our LAND. Now, all the surface of our land is not available for cultivation. On some of it cities and towns and villages are built. There is some which is not available or is unfit for cultivation. Even so it is estimated that something like three-quarters of the surface of our land is free and capable of growing something or other.



WHEAT

Nature itself has done our work for us already over nearly 147,000,000 acres—nearly a fifth of our total land area. It has covered up this part with thick woods and supplied us with ready-made forests. An English engineer once calculated that

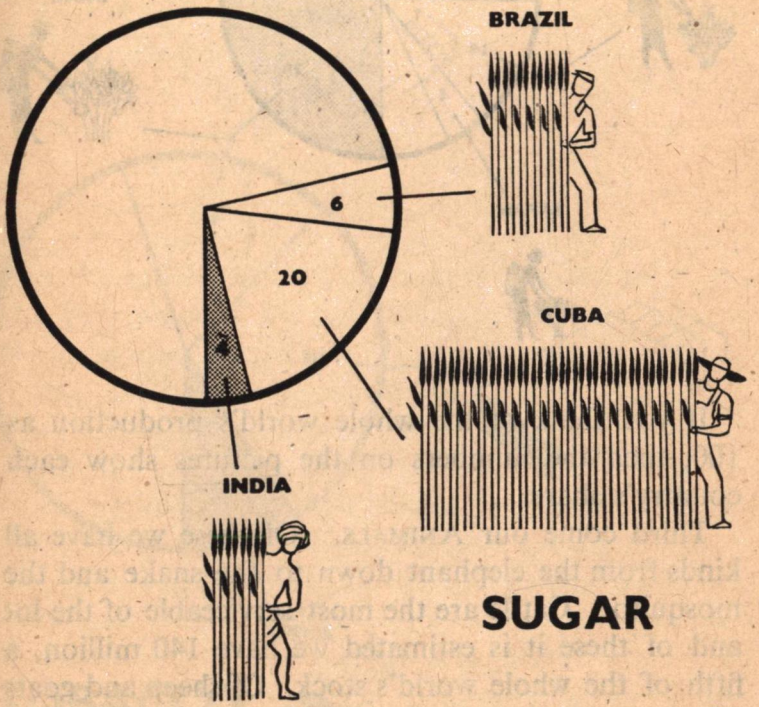


our forests could keep us supplied with nearly 100,000,000 tons of wood in the year, without being any the thinner or the worse for it.

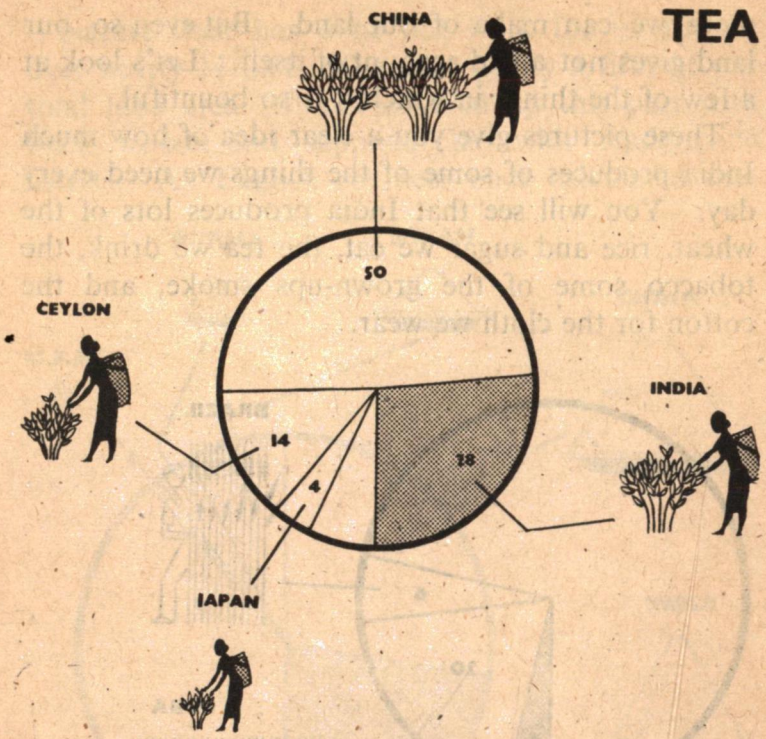
For the rest, we can grow, somewhere or other, everything we need for ourselves. We *can*, I said. For we *don't*, yet. Later on, we shall see how much

more we can make of our land. But even so, our land gives not a bad account of itself. Let's look at a few of the things in which it is so bountiful.

These pictures give you a clear idea of how much India produces of some of the things we need every day. You will see that India produces lots of the wheat, rice and sugar we eat, the tea we drink, the tobacco some of the grown-ups smoke, and the cotton for the cloth we wear.



SUGAR

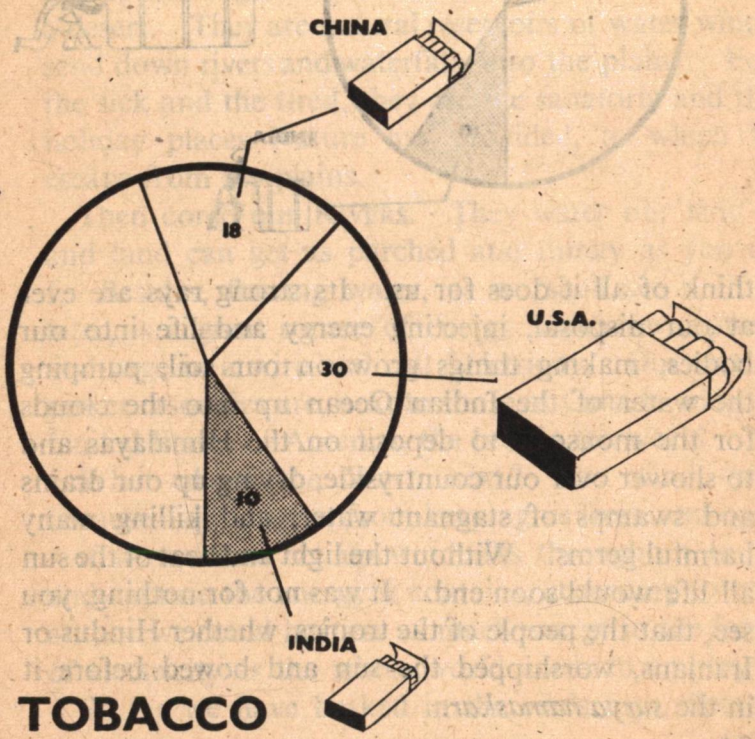


If you think of the whole world's production as 100, then the numbers on the pictures show each country's share.

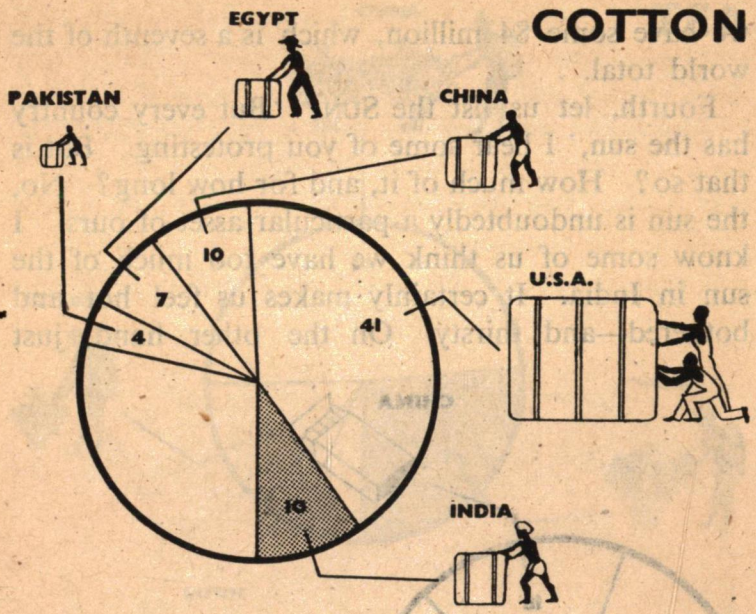
Third come our ANIMALS. Of these we have all kinds from the elephant down to the snake and the mosquito. Cattle are the most serviceable of the lot and of these it is estimated we have 140 million, a fifth of the whole world's stock. Of sheep and goats

we have some 84 million, which is a seventh of the world total.

Fourth, let us list the SUN. 'But every country has the sun,' I hear some of you protesting. But is that so? How much of it, and for how long? No, the sun is undoubtedly a particular asset of ours. I know some of us think we have too much of the sun in India. It certainly makes us feel hot and bothered—and thirsty. On the other hand, just



TOBACCO



think of all it does for us. Its strong rays are ever at our disposal, injecting energy and life into our bodies, making things grow on our soil, pumping the water of the Indian Ocean up into the clouds for the monsoon to deposit on the Himalayas and to shower over our countryside, drying up our drains and swamps of stagnant water, and killing many harmful germs. Without the light and heat of the sun all life would soon end. It was not for nothing, you see, that the people of the tropics, whether Hindus or Iranians, worshipped the sun and bowed before it in the *surya namaskar*.

The MONSOON, to which our peasants look so anxiously to water their land, is our fifth great asset. As we have seen, it also carries the water back from the sea to the mountain tops and helps the rivers to keep flowing.

Our MOUNTAINS—the Himalayas and the lesser giants—are the next item in our catalogue. They shelter us somewhat from attack by other people and from the hot, dry winds of Central Asia which would dry up our vegetation and reduce Northern India to a desert. They are natural reservoirs of water which send down rivers and waterfalls into the plains. For the sick and the tired, they are the sanatoria and the holiday places Nature has provided, to which to escape from the plains.

Then come our RIVERS. They water our land—and land can get as parched and thirsty as you or I. Besides, flowing water, as we shall see a little later, is a great source of energy which we capture and cage in a wire and call Electricity. Our water-power resources are, next to those of Canada and the United States of America, the best in the world.

What about the WIND next? The wind, yes, because—quite apart from keeping us fresh and cool—if we were to set up windmills throughout India and capture the energy it contains, according to one author we could harness as much energy in the form of electricity as the whole world needs to employ!

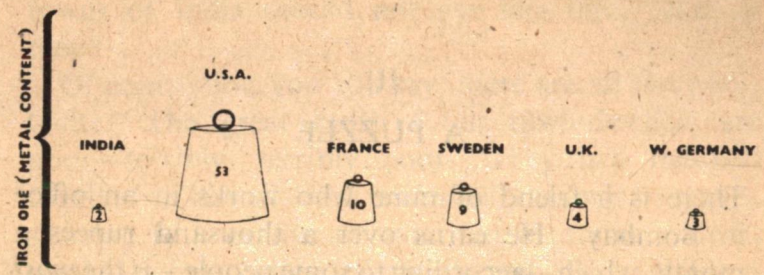
So far we have basked in the sun's rays, floated

with the clouds, flown with the wind and stepped on firm soil. Let us now burrow underground and look at our hidden treasures. Not all our stocks of minerals have yet been located, let alone unearthed. We know, however, that we have large stocks of COAL, though not by a long way as large as those of some more favoured countries like Great Britain, the U.S.A. and the Soviet Union. We produce only 32 million tons a year, although we have reserves of workable coal estimated at 20,000 million tons. The picture below shows the percentage of the world's coal produced in various countries every year.

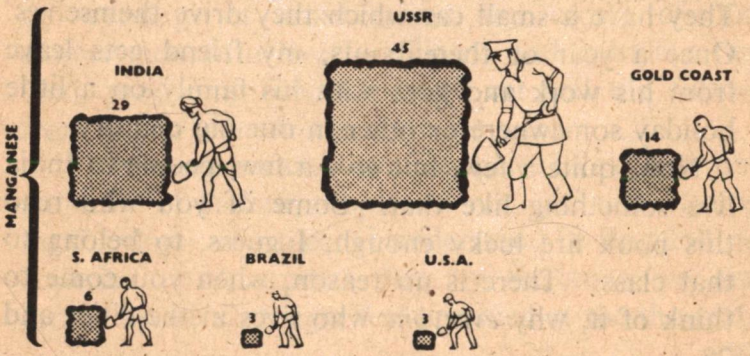


We are much better off in IRON ore, with what are believed by many competent people to be the world's largest reserves, next to those of the United States and of France. Not only that, in quality they are believed to be also among the world's richest iron reserves. But you can see from the picture that we are using little of our iron.

With the exception of Soviet Russia, which produces about two million tons, India is the world's largest producer of MANGANESE ore, with 1,300,000 tons—more than a quarter of the world total.



I can go on telling you of our natural wealth until your head fairly reels. But I won't. Let us close our catalogue. I only wanted you to realize that India is a country of which you and I may well be proud. Whether India can be equally proud of you and me is, I am afraid, altogether another matter! But that we shall go into a little later. Meanwhile, I am waiting for you to ask me, as you will be asking, if you are intelligent or curious: 'Yes, but what do we *make* of our wonderful country? To what *use* do we put all its great resources?' I shall try to answer you, but not in this chapter.



III

A PUZZLE

There is a friend of mine who works in an office in Bombay. He earns over a thousand rupees a month, which—according to some people —is the *most* any man should be allowed to earn for himself in India as things are today, but which I think is what anyone who works honestly for his living should be paid, if he is to live as a really civilized man should do.

Anyway, this friend of mine lives with his wife and two children in a well-furnished three-room flat in a fairly clean and healthy part of the city. His children go to a good co-educational high school. He and his wife are members of a circulating library from which they get the newest books to read and of a club where they play tennis and other games. They have a small car which they drive themselves. Once a year or thereabouts, my friend gets leave from his work and goes with his family on a little holiday somewhere or other in our big country.

Now, quite a few, but *only* a few, people in India live something like that. Some of you who read this book are lucky enough, I guess, to belong to that class. There is no reason, when you come to think of it, why *everyone* who lives in the cities and

towns of India should not live like that. But *do* they?

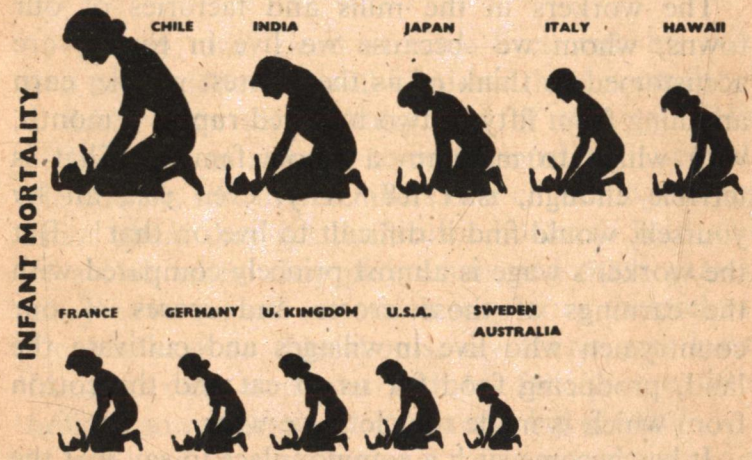
Of course not, you will say, there are all the poor. Quite. The great bulk of our town-dwellers are poor—terribly, terribly poor. They live huddled together in dismal, dark and smelly chawls or slums, sleeping four or five or even ten in a small, dark, smoky room, eating of the barest, their children denied education beyond what are called 'the three R's'—reading, writing and arithmetic—which, once they leave school, they soon forget. The lot of our common people is dreadful.

The workers in the mills and factories of our towns, whom we—because we live in towns—are accustomed to think of as the poorest people, earn anything from fifty to two hundred rupees a month, with which to maintain a whole family. That is terrible enough, isn't it? Why, even *you*, all by yourself, would find it difficult to live on that! But the worker's wage is almost princely compared with the earnings of those crores and crores of our countrymen who live in villages and cultivate the land, producing food for us to eat and the cotton from which is made the cloth we wear.

It has become such a commonplace to say that the majority of Indian people do not get one square meal a day—as a meal is understood in England or America or Australia—that by the time we are grown up we no longer feel horrified at the thought.

Yet it is not an exaggeration but a grim fact. Learned professors in our universities have estimated that the ordinary peasant in our country with a wife and three children has to live along with his family on about Rs 80 a month, which is the average income for all kinds of Indians rolled into one.

Such are the starvation and the filth and the wretched homes in which they are born that little babies die like flies before they are even a year old. Infant mortality is the big name by which this terrible tragedy is known. You see from this picture that it is four times larger in India than in Sweden.

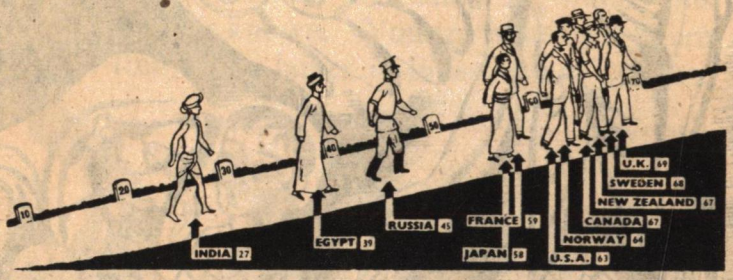


Now let us see: How long do you expect to live? 'Till I'm seventy,' you say. 'Or at least sixty.' Well, there's nothing like being an optimist! I am afraid, however, all that you, as a boy or girl at


Rs
80

school, are likely to live if you are an average Indian is another 30 years! You don't like the idea, do you? But then you are lucky, you know, to have survived your first year of life!

If, for instance, a baby brother or sister were to be born in your home—don't mention this to your mother or father, it'll only hurt their feelings, because grown-ups *are* like that!—the little baby, sad to say, is due to die at the age of 27.



In this picture you can see the nations walking along the road of life. Look at the Englishman, striding along till he is nearly 70. But sad to say the Indian is going to collapse before he gets to the 30-year mark.

Why should this be so? Why can't all Indians live just as long and have just as many of the good things of life as my friend who works in that office? Don't they work as hard as he does? Of course they do. Many of them do the hardest and most unpleasant work and are still the poorest! Unfortunately,

according to our present ways of living and arranging things, reward is not always in proportion to the work done. But even if this were not so, even if every one of us was paid equally, our college professors tell us that our income per head of population would only rise from Rs 190 per annum, which it is today for the vast mass of our people, to Rs 255 in the year or Rs 21-4-0 in the month. Let us try this on a family of five, which is most common. Given a fair and equal division of our country's production, Mr Indian would get no more than Rs 1,275 (=255 × 5) a year or Rs 106-4-0 a month, out of which to maintain himself, Mrs Indian, Master Indian and the two Misses Indian. Work it out—about Rs 3-8-0 a day for an entire family of five Indians!

Is ours then such a poor country that its children have to starve? Is it a barren, dry desert with little that grows on its land and nothing that lies below it? Is it Nature that has been so unkind to us?

You will shout 'No!' because you have already seen that, far from our country being a particularly unfortunate part of the Earth's surface, India has been blessed by Nature with a huge area, with a hospitable and varied climate, with fertile soil and plenty of water, with rich deposits of valuable minerals below the ground and thick forests above it, with a large stock of cattle and, above all, with a population, consisting of a seventh of the human



race, which is not inferior to any other race in intelligence or other qualities, and which has a great civilization and an ancient culture behind it.

And so India presents a paradox—poverty in the land of plenty. It is a puzzle, but every puzzle has, as you know, a key or clue with which to solve it.

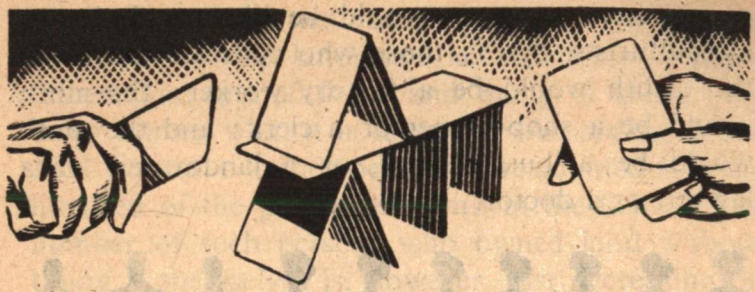


In this book you will find lots of clues, and your young and fresh minds, used to conundrums and crossword competitions, will say at the end: 'But how too simple!' And simple it really is, though all the statesmen and the politicians and the economists and the captains of industry and the other Wise Men of the East shake their heads woefully and

argue interminably over each little twist and turn of the tangle—and just get nowhere!

It is simple, yes. But only if all the young lads and girls of India are prepared to join hands in working out the solution. Which is why it is so important that they should be given a few timely clues in the chapters that follow.





IV

A HOUSE OF CARDS

If I asked you to draw a picture of a typical Indian, what would he look like and what would he be doing?

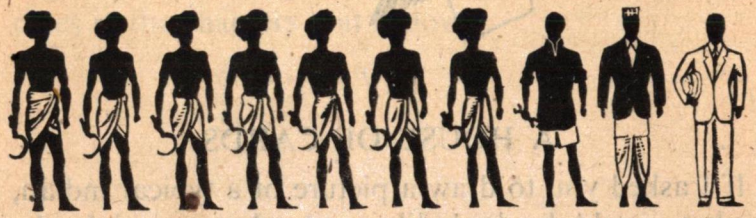
Would you put him in a suit and seat him at a table? Or would he be walking down a street in a long sherwani, tight pyjamas, a turban on his head and turned-up slippers on his feet? Or would your Indian be dressed in a snow-white shirt and dhoti with a Gandhi cap on his head?



Now, I can't draw for nuts, but luckily I have got this artist to draw my Indian for me with his body bare to the waist, his feet bare, the rather thin pagri on his head and a short dhoti being all the clothing he wears. He carries a sickle in his hand. That is how I see the typical Indian.

If you stood ten Indians in a line

to represent us, seven would be like my Indian—agriculturists, that is, those who cultivate the land; the eighth would be a factory worker; the ninth would be a shop-keeper or a clerk; and the tenth would be a businessman, or a landowner, or a lawyer, or a doctor.



That, at least, is what we learn from all those questions that the Government puts to us every ten years, when everyone is asked his name and age and what he does. That inquiry is called the Census, and we last had one in 1951.



One of the first things the Census teaches us is that, one way or another, some 83 out of every 100 people in India live in villages and 70 depend for their livelihood on agriculture—the cultivation of land. There are crores and crores of such people, spread over five and a half lakhs of villages.

Of course, not all of them, even the grown-ups,

till the land with their own hands. A few are big landlords, whose lands are left to them by their fathers and grandfathers, and many of them have never known what it is to work. According to the 1951 Census, two such persons were counted in every hundred of the people met with in the fields. The number of such persons who owned land without tilling it themselves is, however, fast decreasing on account of the law for abolition of landlordism (zamindari) passed in certain States such as Uttar and Madhya Pradesh and Madras, in which most of the agricultural land was under the zamindari system. Other States which have this system of land-holding, like Bihar, Assam, Orissa and Bengal, are also taking steps to abolish zamindari.

Most of those who live in the countryside, however, are small cultivators—they are called ryots—who till their own land. About 80 per cent of the agricultural population in all the States put together belongs to this class of small cultivators. The plots of land owned by them are generally very small indeed. For instance, in Uttar Pradesh, about four-fifths of the holdings are of 5 acres or less and about one-eighth are bigger than 5 acres but smaller than 10 acres. In order that the big landlords, big as they already are, should not be in a position to add to their estates by buying land from the small cultivators, the Government is thinking of fixing some sort of maximum limit—a ceiling, as it is

called—to the size of the land which any one person can own.

The rest of the agriculturists—18 per cent—are persons who do not own any piece of land at all—whether big or small. They work on other people's farms for a wage paid either in cash or in grain. When paid in cash, they get about a rupee a day, but often they get less than this just because there are so many of them and there is not enough work for all of them. The Government is trying to fix a minimum limit—a floor, it is called—for the wage which a landless labourer must be paid every day.

Now it is not in all countries that so many people live on the land. There are many countries where not *quite* so many people live in the villages and not *quite* so few in towns. There are many countries like the United States of America, for instance, where only some 15 out of every 100 work on the land. There are even some countries, and England is one of them, where only five in every 100 do so, and most people live in cities and towns and work in factories and shops and offices.

Once upon a time, not so very long ago, England too was a truly rural country, like India. In the last two hundred years or so, however, the British took to building factories and big cities very fast, and England went through what your history books call the Industrial Revolution. A funny name to

call it by, perhaps, since a revolution is supposed to happen very quickly and this one went on for two hundred years and, according to some people, is still continuing.

Will India also go through such a change? Will its peasants too go to cities and work in factories? That is a big question and one which you and I will have to answer. We shall leave it till the end of this book.

One thing is quite clear, though, that whatever changes or revolutions India may go through, it is bound to remain—as far as we can look ahead—a country of villages, a nation of cultivators, dependent as now for their livelihood on the land and what they can get out of it.

You see, we are increasing so fast in our numbers that, even if industries and cities grow very fast, we shall find it very hard to absorb in them even our extra population! Our present population of 365 million will increase by another 43 million in the next ten years if our number grows at the rate at which it has grown in the last two decades. Five years hence there will, say, be 21 million more of us, and of this number some 8 million will be of an age at which they must look out for themselves and earn their livelihood. How shall we accommodate these 8 million extra people? Even if industries, road-building, laying dams across rivers and other similar activities expand as rapidly as is hoped, that

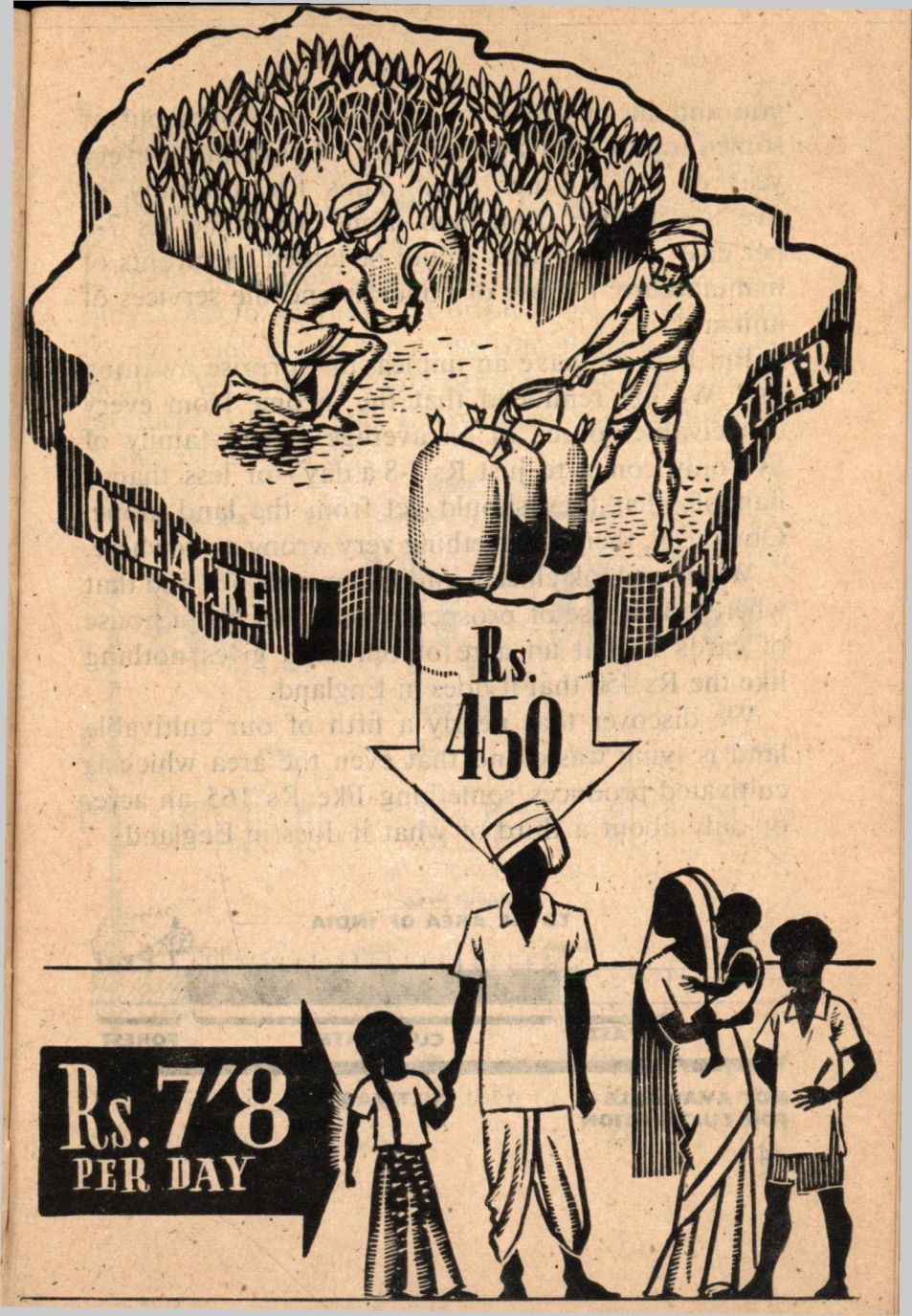
would give additional employment to only about $3\frac{1}{2}$ million at the end of five years. The remaining $4\frac{1}{2}$ million will have, therefore, to seek work on the land *in addition to* the whole of the present population which is already dependent on it!

If then we are to solve the puzzle which we have set in the earlier chapters, we must first tackle the problems of our land, the people who work on it and the things they produce from it.

We have seen already what a huge country ours is—twenty times the size of England and Wales. But of course we can't grow things on *all* the land in India. Some of it is occupied by cities and towns and, even in villages, some of it is built on. Some is mountainous and rocky, some low and marshy, some dry and sandy. Leaving aside all such land, however, you remember we still have three-quarters of the land on which we can grow something or other.

Now this is a tremendous area. If we can produce as much from our land as the Englishman does from his—and England is by no means the country which gets the most out of its land—we should be able to produce from each acre crops worth Rs 450 every year. And really, there is no reason why this should not be so, because the natural fertility of our soil and the intelligence of our people are in no way inferior to those in England.

Do you know how much this would mean to

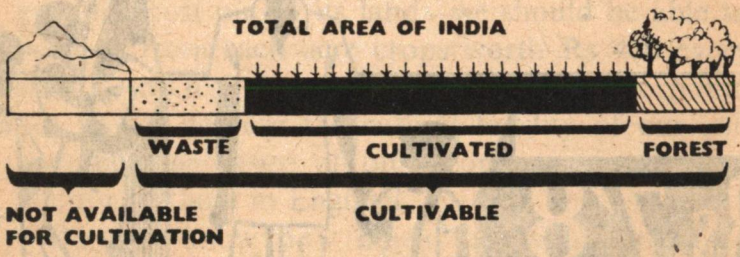

ONE ACRE
PER YEAR
Rs.
450
Rs. 7'8
PER DAY

you and me in terms of money? It works out at something like Rs 540 per head of population every year or Re 1-8 per day. Thus for a family of five the income from land alone would be Rs 7-8 per day. And to that would be added the profits of manufacture, the use of minerals and the services of animals.

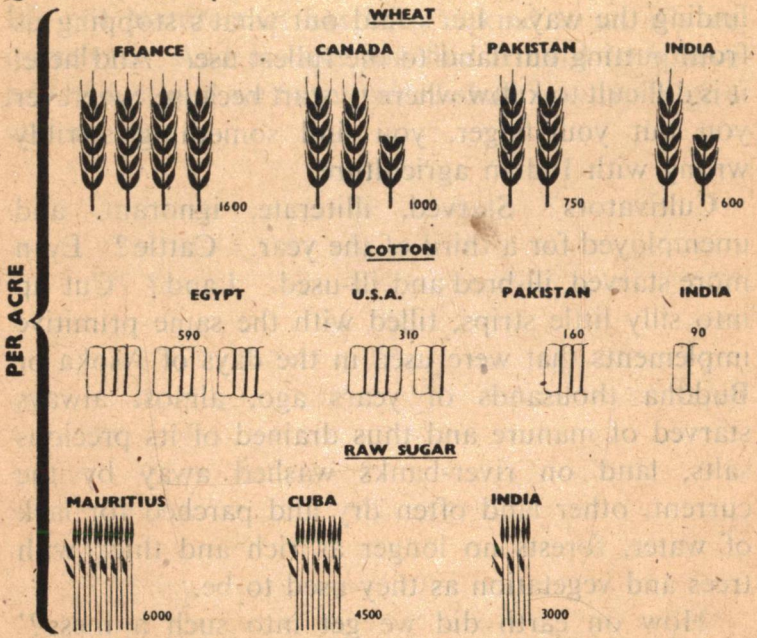
But here we have an unpleasant surprise awaiting us. We are reminded that the income from every conceivable source of an average Indian family of five only comes to just Rs 3-8 a day—or less than a half of what they should get from the land alone. Obviously, there's something very wrong somewhere.

When we look closely into this matter, we find that where our house of prosperity collapses like a house of cards is that an acre of our land gives nothing like the Rs 450 that it does in England.

We discover that nearly a fifth of our cultivable land is lying waste and that even the area which is cultivated produces something like Rs 165 an acre, or only about a third of what it does in England.



Grain is a fair example. An acre of land in France produces about 1,600 lb. of grain in a year; in India it yields only 600 lb. Or take sugarcane, of which I am sure you are all very fond. Over 6,000 lb. of it grow on an acre of land in Mauritius, only 3,000 lb. in India. Cotton is one of our main 'commercial crops', that is, something not to be eaten. We produce 90 lb. per acre. But the U.S.A. produces 310 lb. and Egypt does even better and grows 590 lb. per acre.



Was it very wrong of me then to raise your hopes by building the picture of prosperity I did?

Frankly, I am not sorry. If our soil were of distinctly lower quality than 'England's green and pleasant land' or if our people were dull savages, it would be different. But that is far from being the case. And so, even if we *don't* grow Rs 450 worth of crops per acre, I insist we *can* and *should* grow something like it, even though it may not be quite as much.

And I suggest we set ourselves the job of doing so or, since you can't really do that in a book, of finding the way. Let's find out what's stopping us from putting our land to the fullest use. And here, it is difficult to know where to start because, wherever you put your finger, you find something terribly wrong with Indian agriculture.

Cultivators? Starved, illiterate, ignorant, and unemployed for a third of the year. Cattle? Even more starved, ill-bred and ill-used. Land? Cut up into silly little strips, tilled with the same primitive implements that were used in the days of Asoka or Buddha thousands of years ago, almost always starved of manure and thus drained of its precious salts, land on river-banks washed away by the current, other land often dry and parched for lack of water, forests no longer as rich and thick with trees and vegetation as they used to be.

'How on earth did we get into such a mess?' you may well ask. 'You said we were an intelligent people.' I am afraid that for an answer—or rather,

for various answers—to your question you will have to go to your history books. Here we are looking *forward*, not *back*. So the question we should attack instead is—how on earth do we *get out* of this mess? For we *can* get out of our present plight—and quicker than many people think. Of course, people like to throw the blame for their troubles on others. As a cute proverb which is popular in the Punjab says: '*Zamindar ki beaqli, Parmeshwar ka qusur!*', 'If the peasant's a fool, blame it on God!' It's not Nature that has been unkind to us, it's we ourselves. And in case you find it hard to believe just how stupid we have been, I shall now try to give you an idea.

V

'THE SALT OF THE EARTH'

In the Bible, the finest people are called 'the salt of the earth'. The word salt is used to suggest excellence—the highest quality.

'But there is no salt in the earth,' you will object, 'we get ours from the sea.'

Yes, it's true that the salt you and I put in our food is got from deposits of salt from sea-water. But that is only one kind of salt. There are also several other varieties, and some of these are to be found mixed in the earth. Some of these natural salts in our soil are necessary for growing plants as they contain nitrogen, potassium, phosphorus and lime. What they are called does not matter much, but what they *do* does matter a lot.

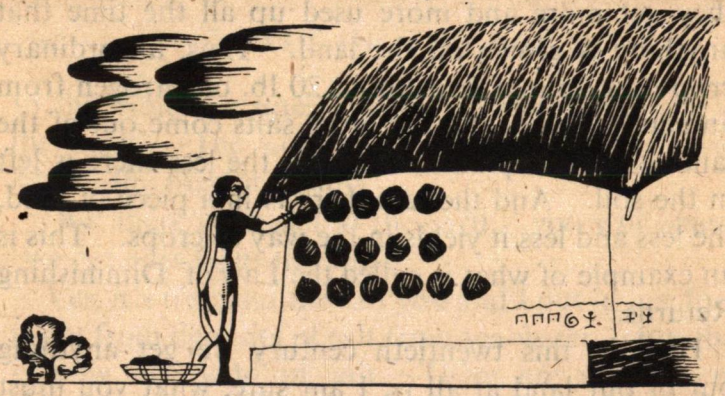
We saw earlier that what makes things grow on the land is the combined work of sun, water, air and earth. But what is there in the earth itself that helps things to grow? The answer is—the salts of the earth. When these salts are found in a particular plot of land in sufficient quantity and the right proportions, things grow fast and we call that land fertile. When they—or some of them—are absent, the land is said to be barren.

Now, as is true of all good things, the stock of

natural salts in the earth is more or less limited. There is only a certain amount of them to start with and, though some replacement is made naturally, they get more and more used up all the time that anything is grown on the land. Thus, an ordinary crop uses up in a year about 20 lb. of nitrogen from an acre of land. So the more salts come out of the land as part of plants or grains, the less there is left in the soil. And the less there is in a piece of land, the less and less it yields in the way of crops. This is an example of what is called the Law of Diminishing Returns.

How in this twentieth century we get anything out of our land at all is, I am sure, what you must be puzzling over. By this time *all* the land in the world should have become comparatively barren and we should all be starving! And you aren't so far wrong either. Something like that might have happened, but for one thing—that, in one way or another, men have managed to replace in the earth the stolen salts, and supplement the natural supply. They have done so by mixing in the soil things like ashes, bones, dung and lime which contain the very salts which came out of it with crops. Things of this kind are called manures or fertilizers. Another way in which these stocks of salts have been supplemented is by growing in turn different crops on the same field. As each crop takes some particular salt out of the soil, this prevents any one salt getting

exhausted. This system is known as the Rotation of Crops and has been practised in India for centuries —long before Europeans learned its value.



When you have been in a village or passed through one (if you haven't, you'd better hurry up and do so!) have you noticed the cakes of dried cowdung stuck up neatly on the walls of huts? And have you asked yourself what happens to them? Well, to start with, some of the dung gets blown away as fine dust by the strong winds. Some is used for covering the floor and walls of the villagers' huts. Most is used as fuel—that is, burnt in the fire on which the peasant cooks his food or by which he sits, in winter, to keep warm.

'But what has all this to do with the salts in the earth?' you will be wanting to ask me. Well, only this—that cowdung contains almost all these salts and is one of the finest manures we can get.

Nature has in this way supplied us with most of the things the soil needs. The farmyard cattle serve us in many ways, and not the least important of their functions is to provide us with manure.

And what do we go and do with it? Throw it in the fire and burn it! And incidentally, groundnut cake and bones, which are also good manures, we sell to foreign countries though we need them so much ourselves! Can you imagine millions of grown-up people being quite so stupid?

Well, let's go and ask one of these stupid peasants —we'll call him Rama—why he burns cowdung in the fire instead of mixing it in his land.

'Well, it's useful for burning,' says Rama.

'Yes, but it's much more useful for making the crops grow,' you protest.

'Maybe,' grunts Rama; 'but then how am I to cook my food?'

'Well, *we* cook on gas,' you say.

But Rama just shakes his head. He's never known or heard of gas!

'Well, there's coal—or wood,' you persist.

'Costs too much money,' says Rama. 'Cowdung costs me nothing.'

You wonder how to bring light to Rama's dull mind. Suddenly an idea comes to you. You smile knowingly.

'Have you a five-rupee note?' you ask.

'I haven't one now,' says Rama sadly, 'but when



I go to sell my crops, I shall have one.'

'Will you put the note into the fire to keep it burning?' you ask.

'Why, no. How absurd!' And Rama laughs loudly at your stupidity.

'But why is it absurd?' you persist.

'Because I can buy so many things with five rupees,' says Rama.

'Quite!' you cry triumphantly. 'But don't you see that cowdung too has a better use than to be burnt? Don't you see that if you mix the cowdung in the soil your crop will be two or three times as big and you will have more five-rupee notes with which to buy all the wood you need for your fire and many other things besides?'

'That's all very well, brother,' answers Rama, 'but please will you tell me with what I am to keep the home fire burning and the pot boiling while I am digging the manure and the crop is growing and the five-rupee notes are slowly trickling in?'

And at this point, not having an answer ready, let's leave Rama for a while and retire to learn a few things about manures and fuels so that we can return later and help to solve his problem.

The first thing we learn is that while cowdung contains several salts, there are yet others the soil

needs. Cowdung is not a complete manure.

We also learn that, apart from its *chemical* value, cowdung has a very helpful *physical* effect, making a heavy soil porous and binding a sandy soil. Besides, being an organic manure, it helps the growth of helpful bacteria whose activity is important for the growth of plants.

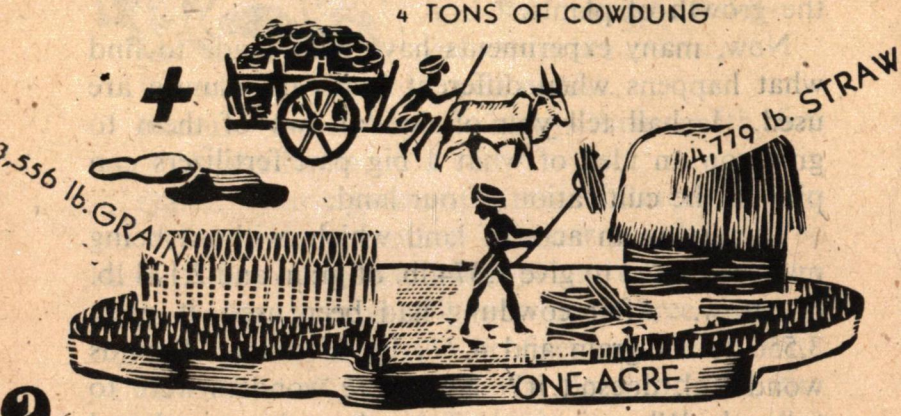
Now, many experiments have been made to find what happens when different kinds of manure are used. I shall tell you of one or two of them to give you an idea of what a big part fertilizers can play in the cultivation of our land.

There was an acre of land which, without being manured, used to give 1,374 lb. of grain and 2,174 lb. of straw. After cowdung had been used, it grew 3,556 lb. of grain and 4,779 lb. of straw. Sounds wonderful, doesn't it? But more wonders were to follow! When, instead of cowdung, bonemeal and saltpetre were next tried, the crop rose still further to 4,389 lb. of grain and 6,178 lb. of straw. So the same acre of land gave *three* times as much as it did before.

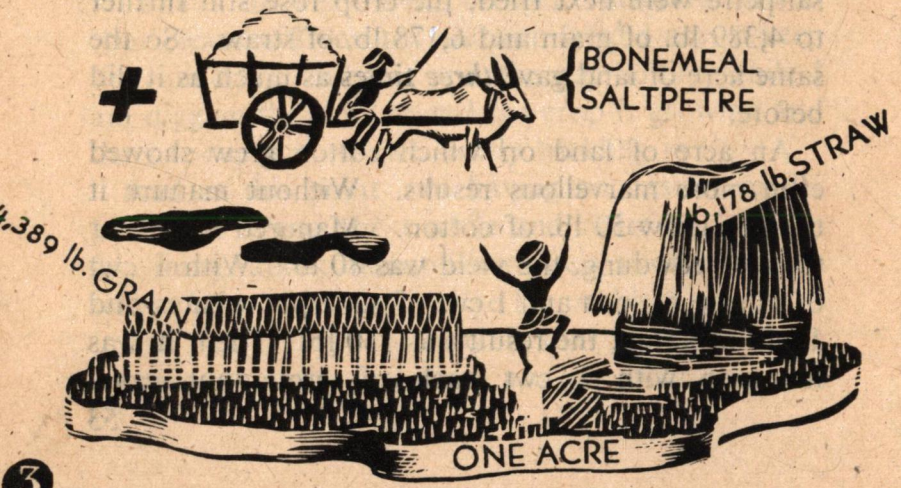
An acre of land on which cotton grew showed even more marvellous results. Without manure it used to grow 50 lb. of cotton. Manured with four tons of cowdung, the yield was 80 lb. With 1 cwt of nitrate of soda and 1 cwt of superphosphates and 1 cwt of kainit, the result was 150 lb. Then, it was manured with 2 cwt each of groundnut cake,


1374 lb GRAIN
12,174 lb. STRAW
ONE ACRE

1


4 TONS OF COWDUNG
3,556 lb. GRAIN
4,779 lb. STRAW
ONE ACRE

2


BONEMEAL
SALTPETRE
4,389 lb. GRAIN
6,178 lb. STRAW
ONE ACRE

3

superphosphates and kainit, and the crop gave 200 lb. of cotton—*four* times the quantity.

Recently we have taken a big step forward in producing ammonium sulphate, which is an important source of the salts needed by the land. A big factory has been set up by the Government for the production of fertilizers at Sindhri, and this produces 350,000 tons of ammonium sulphate in a year, besides many other useful chemicals. It is the biggest factory of its kind in Asia.

So we see that minerals scientifically used are even more valuable than cowdung. But Rama must know just *which* salts his land needs. All land cannot be fed the same way, any more than all of us can eat the same food. How is Rama to know just what his land needs? His soil must first be analysed by a chemist who can find out what salts it lacks. And that means Rama must pay the chemist's fees!

Well, supposing Rama pays the fee and finds out what to put in his land along with cowdung, where is he to get it from? He hasn't money. Annoying, isn't it? Because if he could only get the manure, his next crop would give him enough money to pay for the manure and many other things besides. You've got it!—What Rama needs is manure on account. He needs credit. He needs a loan of manure, to be paid for *after* his next crop. We must find somebody to give it to him. At present, sad



PER ACRE

1



+ 4 TONS OF COWDUNG



2

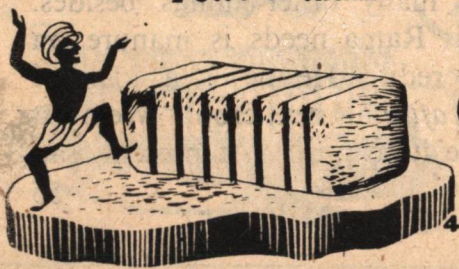


+ 1 CWT OF NITRATE
1 CWT OF SUPERPHOSPHATES
1 CWT OF KAINIT



3

+ 2 CWT OF GROUNDNUT CAKE
2 CWT OF SUPERPHOSPHATES
2 CWT OF KAINIT



4



to say, although there are money-lenders eager to advance a loan for all kinds of objects at very high rates of interest, there is nobody who will give Rama a loan at a rate which he can really afford to pay and who will explain to him how to use the money to do most good to his farm.

Supposing we find somebody to give Rama the manure his land needs without asking for cash, Rama will still need something to burn in place of the cowdung. What shall we give him? Gas has not reached the village. Coal costs much too much. But wood? Surely, there's lots of wood in our country. Why is there so little in the village? Here's another little knot for us to untie before we can go any further.

About a fifth of the land area in India is covered with rich forests which are among our most valuable possessions. There are 147 million acres of them, producing things worth Rs 600 million for us every year. In our climate trees and plants grow so fast that we can take 100 million tons of wood in a year without our forests being any the thinner for it at the end. Here is a Song of the Forest which the Gonds sing:

Plant the mango, plant the tamarind and plantain.
Clusters of fruit will weigh their boughs.
Plant ten *kachnar* trees for flowers.
In a garden set the *tulsi*.
Water them unweariedly, but they will always wither.

But the trees in the forest,
Which depend on God alone,
Never wither and die.
The forest trees grow always.

Some people have an idea that all our forests are in the Himalayas. That is not correct. Which is lucky, because what a lot it would then cost us to carry wood to Madras! Of course, forests are not spread equally over all parts of India. The Himalayas do have splendid forests of pines, deodars, oaks, chestnuts and bamboos, and there are parts like Rajasthan which have none. Taking India as a whole, however, it would be difficult to find a cultivated area much more than 100 miles from a forest which can supply it with firewood. Where there is a lot of rain, there are evergreen forests consisting of palm, ferns, bamboos and rubber trees. The high hills are covered with pine forests, and lower down grow trees like teak and babul.

Maybe, in some places, a railway line or a road would have to be built to transport the timber from the forests to the villages. An English engineer wrote that if the crop increased by 20 per cent, it would more than pay for all the railways and roads that are necessary. But we have seen that, with manuring, the crops would increase not 20 but 200 or 300 per cent.

But have we enough wood to replace all the cow-dung? A little simple arithmetic will give us the

answer. Roughly speaking, there are three head of cattle for every five members of our rural population. Rama with his wife and three children has three head of cattle, which should provide him with ($3 \times 1\frac{2}{3}$) 5 tons of dung in the year. Well, less than two tons of dry wood give as much fuel.

In rural India, we have 50 million families like Rama's to supply with fuel. That means we require 100 million tons of dry wood for fuel alone. Have we got that much? We can just do it. We can, as we saw, get 100 million tons of wood from our forests without their being any the thinner for it.

But that does not mean that everything about our forests is as it should be. We are not getting out of them anything like what we should. And, good as they are now, they were better still in times past. Formerly, the greater part of India was covered with thick forests. Unfortunately, before their full value was seen, our forests were largely destroyed, either because timber was wanted or because the land was wanted for cultivation or for grazing for cattle.

One of the bad results of this was that the land began to be eaten away. That happens in three ways. The rivers take away earth along their banks, until slowly quite a lot of land along the riverside just disappears. The strong rains wash away the layers of earth all over the place until the rocks start sticking out. Land also gets eaten into by the strong

winds blowing away the dry earth on top. This action of water and wind is called Erosion.

The forests in north-western India where the Emperor Babar hunted the rhinoceros four hundred years ago are now a waterless tangle of ravines. You see the contrast in the picture opposite.

This eating up of the land has been specially bad, for instance, in parts of Uttar Pradesh. The bed of the great river Jumna where it passes through the State is now 50 feet lower than it was 500 years ago, because torrents of water rush down from the mountains in the rainy season in a way that would not have been possible if the forests had remained to break their force.

A district called Etawah was in fact fast becoming a desert, at the rate of 250 acres a year. And so an effort at planting fresh forests, called afforestation, was made there, to stop erosion as well as to obtain fuel and fodder.

The sort of trees planted there were babul, shisham and teak, and at the end of only three years there were handsome plantations to be seen, two to four times the height of a man.

The planting of new trees costs about Rs 80 per acre—which is a very small price to pay for a forest, when you get in return not only timber for building, but fuel, fodder, raw material for various industries (like lac, turpentine, bamboo, resin, rubber, tanning materials), shelter from the sun, the cooling of the

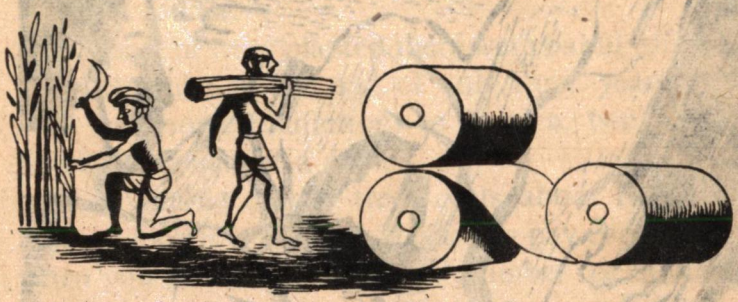


summer heat, regulation of rivers in flood and of waters during heavy rains, protection of the soil from erosion and even increased rainfall.

All sorts of things can be made out of these jungle products. There is so much disease in India, and our people need medicines. Our forests with their herbs are a wonderful storehouse of drugs.

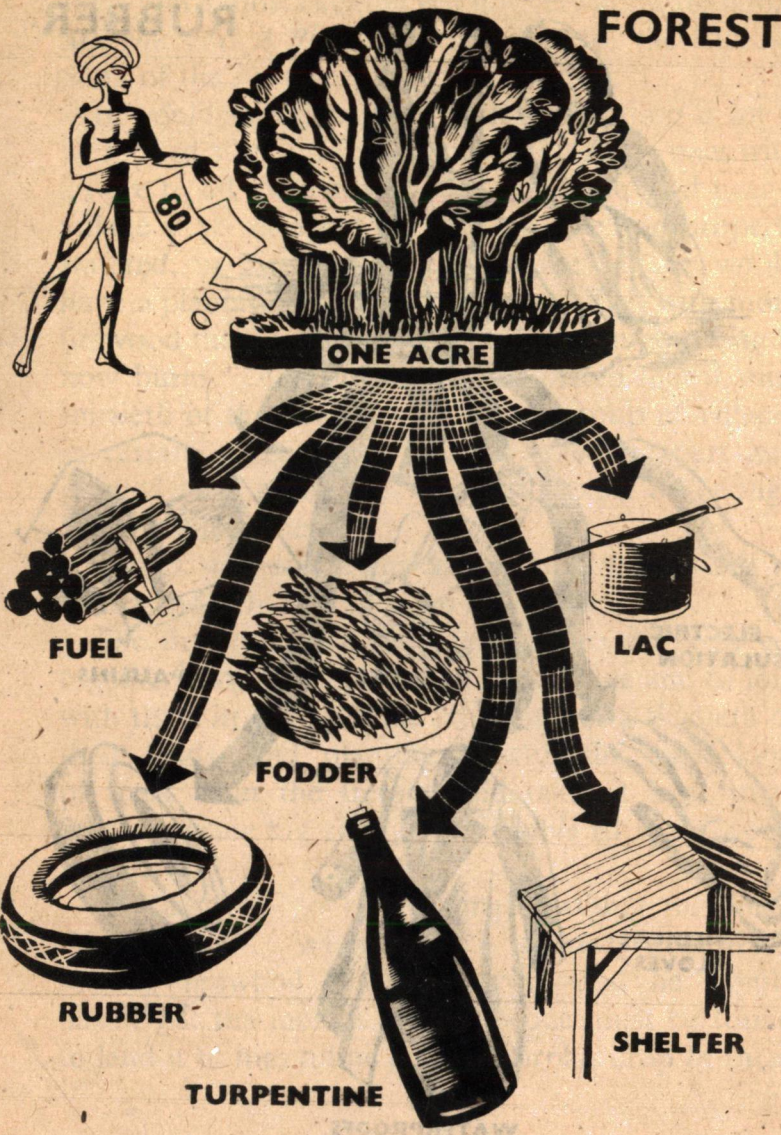
Or take the case of rubber. Once upon a time the only use for rubber was to rub out pencil marks. That's how it got its name. But today—why, we should have silence and darkness without it! Rubber imprisons the electric current for us and, without it, the lights would go out and the telephone would stop ringing.

Or take the paper on which this book is printed. Where do you think it comes from? From the forests of Orissa. It is from the bamboos that grow there that this paper is made.

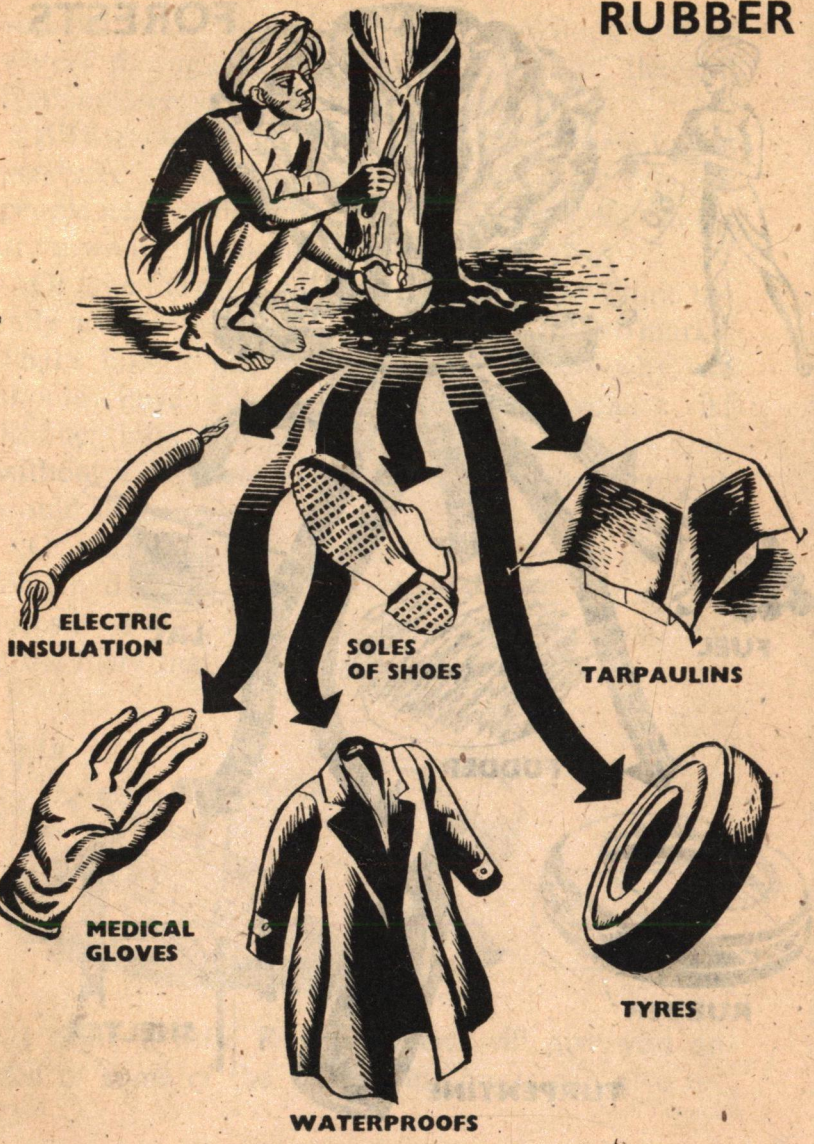


I think a little Russian poem will give you an idea of some of the things our forests can give us.

FORESTS



RUBBER


ELECTRIC INSULATION
SOLES OF SHOES
TARPAULINS
MEDICAL GLOVES
WATERPROOFS
TYRES

It is from a most exciting but not very accurate book, *Moscow Has A Plan.* So turn over for the Russian Song of the Forest.

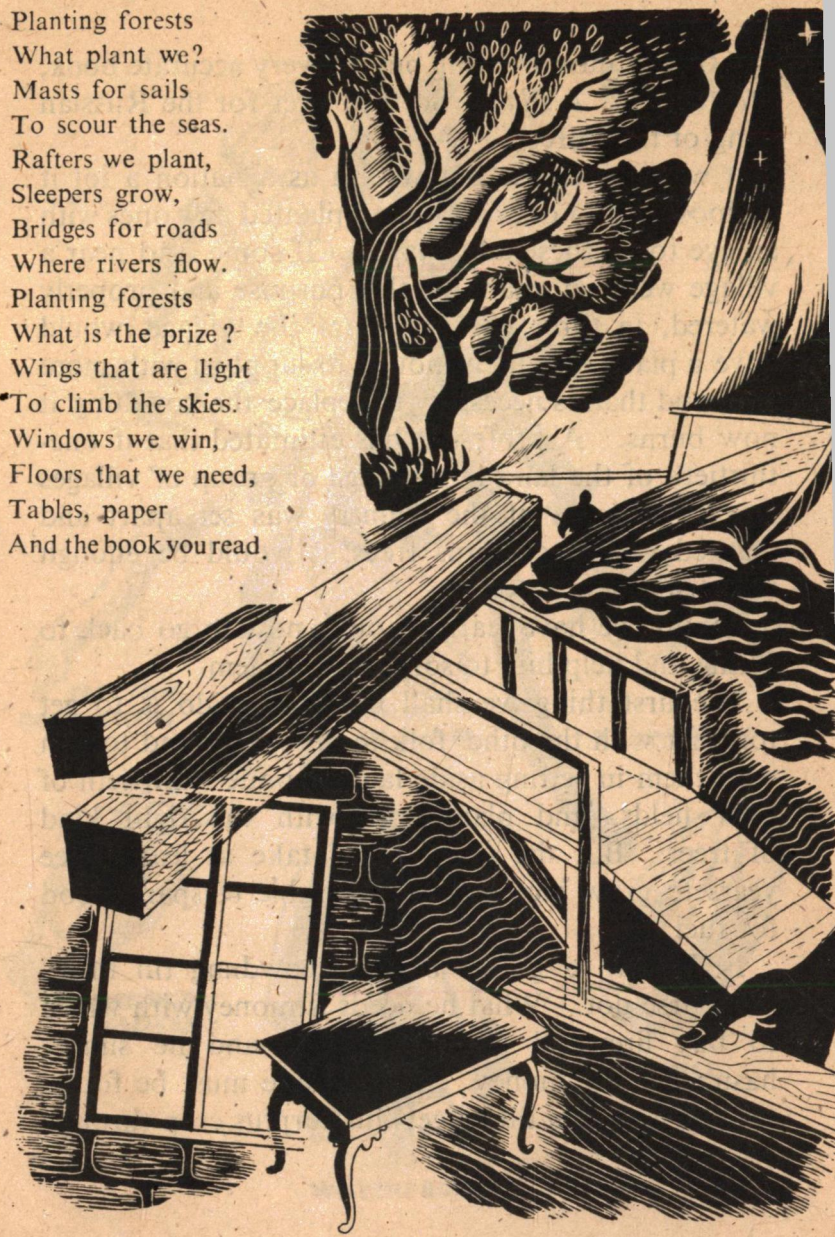
It would increase our wealth as a nation a lot if we looked after our forests and planted new ones with an eye to all these advantages. If some land near a village were set apart for this purpose and properly watered, in three or four years the village would have a plantation high enough to supply it with more firewood than is necessary to replace the cowdung it now burns. A professor has estimated that if one-thirtieth of the land in a village or group of villages in certain parts of the country was set apart and planted with eucalyptus trees, it would be enough to satisfy their needs.

I think we have learnt enough now to go back to Rama and help him to solve his problem.

The first thing we shall tell him to do is to get together with the other folk in his village and to join with them in setting aside land—about a thirtieth of their fields—and planting it with the right kind of trees. But the trees would take at least three years to grow big enough to be able to spare wood for fuel.

Is Rama to go on burning cowdung till then? Of course not. What he needs is money with which to buy firewood in the interval—and he simply hasn't got the money. So someone must be found to lend it to him till he gets his surplus crop through

Planting forests
What plant we?
Masts for sails
To scour the seas.
Rafters we plant,
Sleepers grow,
Bridges for roads
Where rivers flow.
Planting forests
What is the prize?
Wings that are light
To climb the skies.
Windows we win,
Floors that we need,
Tables, paper
And the book you read.



using the cowdung as manure. I should think that this is the Government's job, but unfortunately the Government in our country does not have enough money to spare for Rama. If Rama is a member of a Co-operative Society, that might give him a loan. And if he is lucky enough to get such a loan at a reasonable rate of interest, and wise enough to spend it carefully, he will soon be able to pay it back from the much bigger crop his land will be growing. At the end of three years, the plantation will give him and his neighbours all the firewood they need.

Won't they be ever so much more prosperous then? Yes, but there are some 'ifs' to it. *If* he and his neighbours have sense enough to put aside some land for planting trees, *if* someone gives him a loan and—biggest *if* of all—*if* the monsoon is kind and gives him enough rain for a good crop. All our well-laid plans for Rama would, like the 'best laid plans of mice and men', go wrong *if*—





VI

SOME IFS AND BUTS

'Black Cloud, come down, come down;
Flower-bearing Cloud, come down, come;
Cloud like cotton, Cloud like dust,
O let your sweat pour down !

Blind Cloud, Blind Cloud, come,
Let your twelve Brother Cloudlets come,
Drop a little water that we
May eat good rice.

Straight Cloud, Strong Cloud, come,
Lazy Cloud, Little Cloud, come,
I will sell the jewel in my nose and buy
An umbrella for your head !

Soft Rain, gently fall,
In the house the plough neglected lies,
In the burning sun the farmer dies,
O Rain with laughing-face, come !'

Don't you like this song of the village maidens from a Bengali poem by Jasimuddin? It is a rather beautiful poem about the love of a peasant boy and a village girl and it makes the simple village folk come to life before us. And, as this song tells us, one of their main anxieties is to get rain. Sometimes village folk meet and hold prayers for rain to come.

This utter dependence on the rainfall is something

peculiar to India. It dominates the life of our people in a way that people in most countries find difficult to understand. But all peasants know how important rain is.

That is why at the end of the last chapter we said that manuring the land would lead to a crop three times as big as it yielded otherwise, *if* there was a good monsoon.

We have seen what a great part the monsoon plays in providing our land with water, without which little would grow on it. That part is played in two ways: first, by the rain which falls throughout the country, and secondly, by adding to the flow of the rivers that come down from the mountains and flow through the plains.

The first function is very important because rivers cannot and do not water *all* the land in our country. There aren't enough rivers for that, and there are large areas which have no rivers at all. So the rain from the clouds is in many places the only water the dry land gets. Of course, as we saw earlier, there are parts of India such as Rajasthan where there is hardly any rain.

Now the trouble with the monsoon is that even where it does come, it is irregular, unreliable and full of tricks. It is like a playful giant with, in turn, very kind moods and very bad ones. You never know where you are! So one year there will be lots of rain and the next year very little! One year



it will rain more heavily in Gujarat than in Madhya Pradesh, and the next year it will be just the other way about! One year it will come early and disappear soon. The next year it will come late and linger on for a long time! The sad thing is that no one, not even the Government weather-experts who are watching all the time, can really tell in advance what sort of monsoon is coming in any particular year. And so the farmer has to go on waiting anxiously with one eye turned up to the sky. Every year there is this huge gamble in which our farmer must, whether he wants to or not, take part. The end of the season may leave him either rich or ruined. Then again, even with good rain there are some crops like rice and sugarcane which require *such* a lot of water and *so* regularly that they only grow naturally in the most favoured areas. And the second or winter crop always needs extra water.

Must our peasants always be left to the mercy of the elements like this? Can't anything be done to free them from this cruel uncertainty?

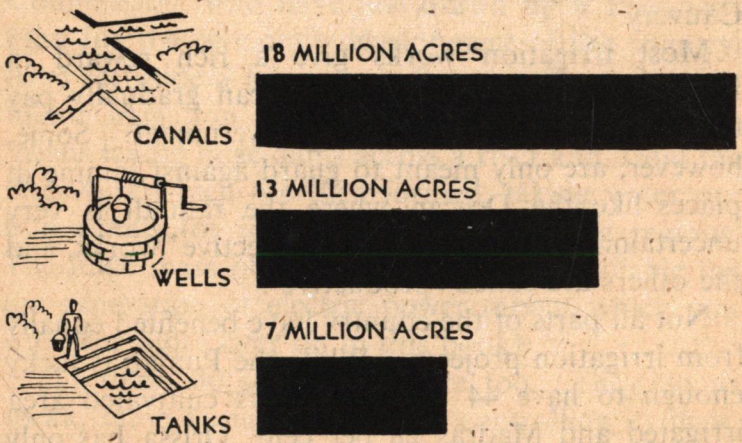
Yes, a lot can be done. And something has been done, but there is still much more to do. Where, of course, a river flows past or near the fields, it is possible to draw some water from the stream to water the land. But that is true of only a very little of the land. For the rest, canals have to be built into which water from the rivers can be turned and

taken through parts of the country which lack water. Watering the land in this way is called irrigation.

From quite anoient times people have tried to store water in huge tanks and to reach water under the ground by wells. In the last hundred years, more has been done in the way of utilizing the surplus water of big rivers by means of canals, and today a sixth of the cultivated land of India is irrigated in one way or another.

Wells are the oldest and most effective form of irrigation and serve about a fourth of the irrigated area in India. There are believed to be $13\frac{1}{2}$ million wells in India. They tap some of our underground stores of water.

Tanks also are ancient devices. Popular in Madras, where there are 40,000 of them, they are



practically unknown in Rajasthan. You can't store much, can you, if you have only 3 inches of rain in the year?

It is canals which are now the most important form of irrigation. Of 44 million acres irrigated in 1942-3, 18 million acres were irrigated by canals, 13 million by wells, 7 million by tanks and 6 million otherwise.

Canals get their water either from rivers from which water is diverted, as in the North and in Madras, or from rain-water stored up during the monsoon in lakes made by building a dam across a valley. You can do this where the rainfall is heavy and the country hilly, as it is in Bombay and Madhya Pradesh. Dams or barrages can also be built across rivers, as has been done in the case of the Mettur Dam in Madras across the river Cauvery.

Most irrigation works give a rich reward in increased crops, and the farmer can gradually pay for them in taxes to the Government. Some, however, are only meant to guard against famine in places like the Deccan where the rainfall is very uncertain. These are called 'protective' works, and the others are called 'productive'.

Not all parts of the country have benefited equally from irrigation projects. While the Punjab is lucky enough to have 44 per cent of its cultivated area irrigated and Madras 28 per cent, Orissa has only

22 per cent to its credit, West Bengal 16 per cent and Bombay, lowest of the low, 5 per cent. Of course, the Punjab needs more irrigation than Bombay, but even so what a lot remains to be done! We want more tanks and wells and canals—canals from rivers and from reservoirs of rain-water collected in valleys—until almost *all* our land can fall back on irrigation of one kind or another. A well can be sunk and fitted with a pump, and where a farm is too small to afford it, several farmers can join together to pay for it.

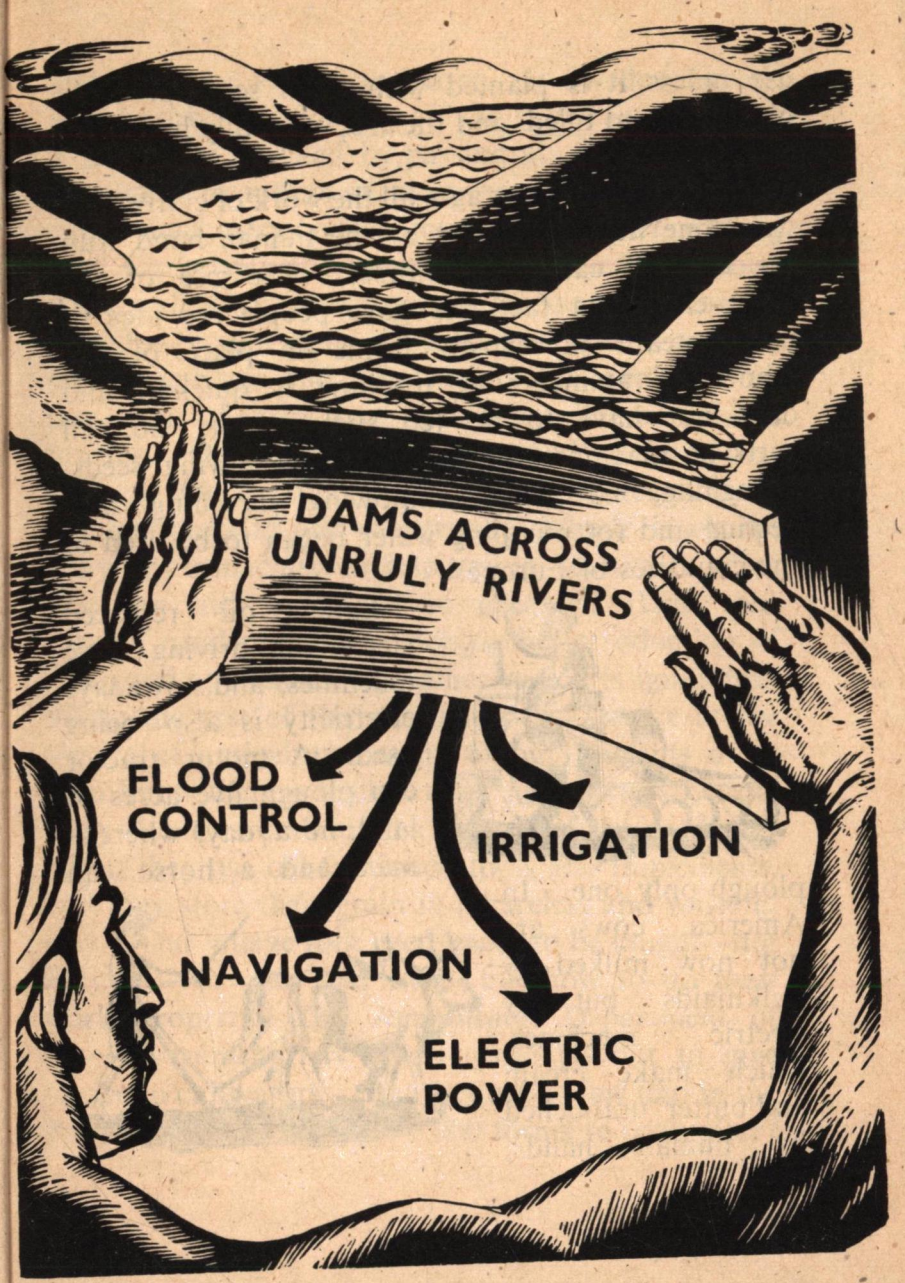
You know how a regular and assured supply of water is essential for combating the threat of famine in an area which happens to get little or no rain in any year and also for making agriculture more prosperous in all areas. Realizing this as well as you do, a body of wise men known as the Planning Commission, who have just drawn up a Five-Year Plan for the economic development of the country, have set aside a large sum of money for major and minor irrigation works. A major irrigation work means laying huge dams across a river and, from the reservoirs which are then formed, taking water out into canals for irrigating the surrounding regions. The huge mass of water also becomes available for the generation of electric power (about which you will hear more later on in this book).

The dams do something more too. They, so to speak, tame an unruly river by controlling its flow.

This is how the Damodar river, which is a very unruly river in north-east India, is being tamed. Every year this river floods and submerges thousands of villages in West Bengal, causing destruction of life and property. After it is tamed, the Damodar river will be more useful for navigation: boats will be able to sail or steam along it at all seasons of the year, without fear of swift currents or summer shallows. Irrigation, electric power, flood-control and navigation—these are the four big things which a major project of laying dams makes possible. That is why such projects are called multi-purpose projects.

Under the Five-Year Plan, the Central Government has launched four such big multi-purpose projects, namely, Bhakra Nangal, Hirakud, Damodar Valley and Harike, although not all of them will be completed within the five-year period. Besides these big projects, each State Government has drawn up a plan for a number of such smaller irrigation works as the sinking of wells and the construction of storage tanks. In five years' time all these projects will irrigate an additional area of 19·5 million acres, besides the 44 million acres which are already irrigated. Upon completion of all the major works, the irrigated area will increase by a further 8 million acres.

Even if land is properly fed with fertilizers and given enough water, however, it will be of little


DAMS ACROSS
UNRULY RIVERS
FLOOD
CONTROL
IRRIGATION
NAVIGATION
ELECTRIC
POWER

use, unless it is planted with good seed, properly ploughed and tilled, and the crop carefully harvested and stored.

Till a hundred years ago, all the work of cultivation was done the world over by the human hand with the help of cattle and horses. The use of the steam-engine in factories gave people the idea of using steam power on farms in place of the labour of animals. A machine is quicker, and does not have to be fed such a lot. So, all sorts of machines for crushing and sowing seeds, ploughing, harrowing, winnowing, threshing, harvesting and for pumping water began to be used in the countries of Europe.



Later, oil replaced steam for driving these machines, and nowadays electricity is also being used. A motor tractor can plough five acres of land in a day, where a man and a horse can plough only one. In America, cows are not now milked by milkmaids but by electric machines, which make cream and butter 'untouched by human hand',



and so all the cleaner and safer. In Sweden, experiments are being made to see if things will grow quicker if the soil is warmed by passing an electric current through it by means of an underground cable!

Are machinery and the inventions of science being used for getting the most out of our land too? Alas, no! Our cultivators use the same old wooden plough—though some do use an iron one—and the same methods and implements as were in use thousands of years ago. There are several reasons for this. Our people are so poor, and machines cost money. On the other hand, with 10 crores of landless labourers in our countryside, labour is cheap. Why buy a machine to help you in your work when you can hire a 'hand' so cheaply? Thus, our surplus rural population delays the introduction of improved appliances. Another reason is ignorance. While the rest of the world has put science at the service of agriculture, many of our peasants don't even know there is such a thing as a motor tractor! They don't care about the quality of the seed they plant, they use old-fashioned tools and implements, and they store their grain in a careless and wasteful way. Our village folk need badly to be taught—not only how to read and write, but how to do their work properly. The Agricultural Department of the Government has officers who go out to give advice to cultivators. But they are so few that in the Punjab each of them has 9,000 farms to look after!

The Government is now slowly waking up to its responsibility for teaching the peasants and for giving to them the implements and materials which they need for getting the most out of their land. The basic idea of how it is being done is very simple.

The Government of every State in India has at its headquarters experts in different departments—experts who know how to run tractors, experts who know good seed, experts in manuring, in dairying, in feeding livestock, and so on, experts in almost everything with which the farmer is concerned. The knowledge which they carry in their heads is made available to the farmers through something that goes under the name of the National Extension Organization. This organization is a chain of specially trained and skilled men.

If you were to plot this organization on a map, it would make rather a funny picture. It would look like a thousand serpents with their heads tied together in one knot and placed in a big city, say Nagpur, which is the headquarters of Madhya Pradesh. The tails of all the thousand serpents would stretch out in all directions and cover with their long squirming bodies almost the whole area of the State. The best farming knowledge and skill that are available in the State are concentrated in the mouths of these serpents. What is there at the end of each tail? There is one local expert called the multi-purpose village worker. He is in charge of about ten villages

It is his job to talk to the farmers in his ten villages and to teach them how to improve their methods of farming. He distributes specially selected seed and fertilizers. With the money obtained partly from the villagers and partly from Government, he goes about sinking wells, constructing tanks and bunds. He persuades the farmers to combine their small plots of land into bigger farms and to share the use of machinery bought in common for all.

One step higher in the chain of the Extension Organization is a Development Officer, in charge of about a hundred villages. These form what is called a Development Block. This Development Officer meets the ten or so multi-purpose village workers in his Development Block and gives them all the help they need. Still higher up in the chain is the Collector, who looks after all the extension work that is being done in his district. When he turns to one side, he talks with the experts at the State Headquarters and obtains from the State Government all the money and the materials which he requires for his district. Then he turns his face to the other side and talks to the Development Officers. He distributes among them the money and the materials he has obtained, with instructions on how best to use them.

The new machines for our cultivators must be sold to them as cheaply as possible, which means that big factories should be set up where such machines and

tools can be made in large numbers. They should be carried to the villages by our railways at reduced fares.

Besides the small machines which the farmers need to keep on their farms all the time, it is also necessary to have big machines like tractors which can be *lent* to the farmers in a village for the little while when they have use for them. Such heavy machinery is not needed all the time. It is needed, for instance, for felling trees and clearing forests, for moving hillocks from one place to another, and for burrowing specially deep in the land to remove any weeds that have taken strong root there. All such machinery is kept at a central place, or at sub-stations in different parts of the country. As tractors are the most important machines in this class, the shed in which the machinery is housed is called the Central Tractor Organization. When the experts in any State see the need for using a tractor on any part of their land, they send for one from this Central Organization and down rolls a tractor to the required spot.

All this was made possible by a big loan of Rs 48 million from the World Bank in 1949 for the purchase of 375 tractors and other equipment from America. Have you heard of this World Bank? Its real name (you know, every one of us has a real name which goes on the school roll as well as the name our friends call us by) is the International Bank for

Reconstruction and Development. It is very much like any other bank—the only difference is that it can raise very very big sums of money in the rich countries which it then lends out to poor countries like ours. We can borrow money from the World Bank and use it for buying from other countries things required for our industries or for our agriculture. Just the thing to be done, you will say.

Another thing our cultivators should be taught is to use improved varieties of seeds. The rice crop in America has been raised from 1,000 lb. to 2,000 lb. per acre by the scientific breeding of seed.

Among the things which the peasant uses for cultivating his land are his cattle. Generally, there is a pair of bullocks and a cow on the farm, but that is not so everywhere. Many years ago, in 1934, Mahatma Gandhi was going on a walking tour through the villages of Orissa, which is one of the poorest parts of our country. I was lucky enough to be with him on his march for ten days, and during that time I remember we came across several villages where there was no cow at all, and therefore no milk. I felt sorry for the poor little children in those villages. They looked so puny.

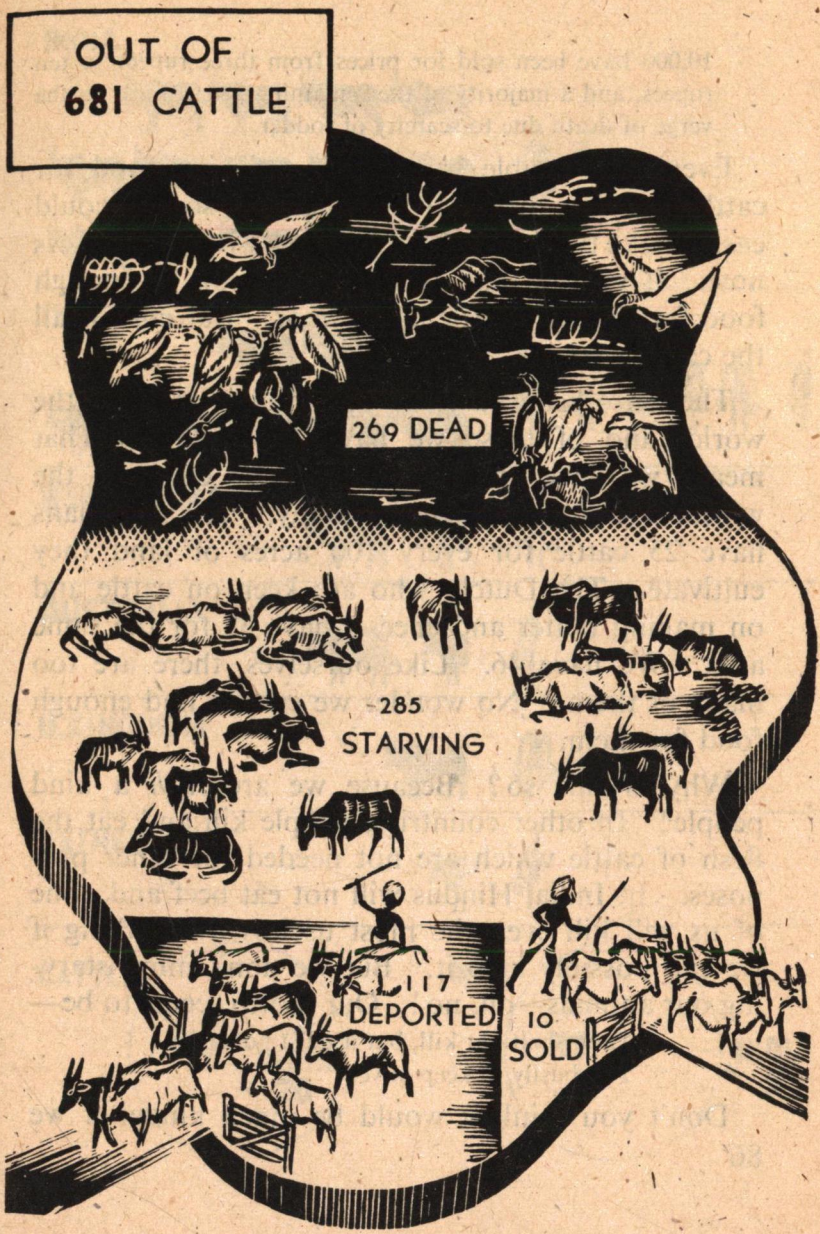
Next to the land, his cattle are the peasant's most precious possession. They are useful to him, you see, in so many ways. The bullocks draw the plough up and down his fields and pull the cart to and from the market. The cow bears young calves

which fetch a fair price. She gives milk, which the peasant's children need so badly. Besides, as someone has said, 'in a vegetarian country, what can be worse than to have no milk, butter or *ghee*?' In fact, everything about these animals—their skins, teeth, bones, horns and hoofs—can be put to some use for making other things. And let's not forget the cowdung. Which is perhaps why the farmer is so anxious not to lose his cattle that he and his family often sleep in the same room with them!



But though we guard our cattle well, we don't bother to feed them properly. Most of our cattle are really starving. There is not much land set apart for growing their food, which is called fodder. The monsoon makes young grass grow and then the cattle eat well, sometimes too much, and get indigestion! But by December there is little grass left and from then till June the life of the cattle gets more and more pitiable. They roam sadly about the bare, dry fields and look like skeletons. Where there is famine, the lot of the cattle is simply awful. This is what I read in my morning paper some years back:

> Out of a total of 681,000 cattle in the district, about 269,000 have died, 117,000 have been sent out of the district,


OUT OF
681 CATTLE
269 DEAD
285
STARVING
117
DEPORTED
10
SOLD

10,000 have been sold for prices from three rupees to ten rupees, and a majority of the remaining 285,000 are on the verge of death due to scarcity of fodder.

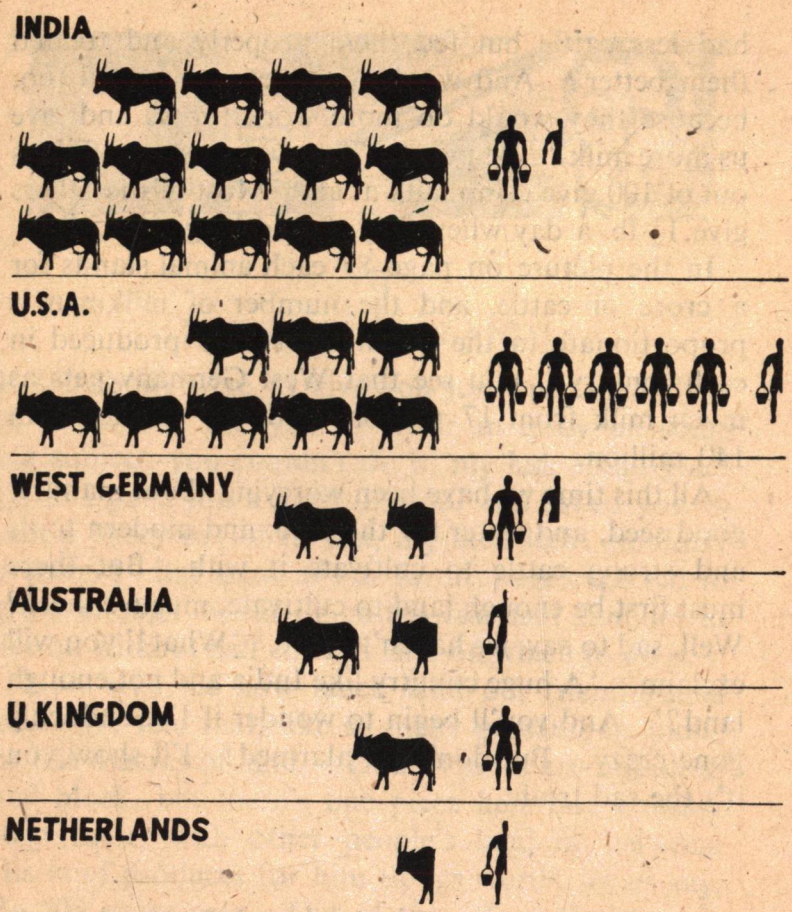
Even less trouble is taken in growing food for cattle than for men. If that was not so, we could easily make two blades of grass grow where one grows now. If we did that, there would soon be enough food for as many cattle as we *need*. But *not* for all the cattle we *have*.

There are believed to be 650 million cattle in the world, and of these we have 140 million. That means we have about a fifth of the cattle in the world, and that is much too many. The Egyptians have 25 cattle for every 100 acres of land they cultivate. The Dutch, who are keen on cattle and on making butter and cheese, have 38 for the same area. We have 46. Like ourselves, there are too many of them! No wonder we cannot find enough food for them.

Why is this so? Because we are *such* a kind people! In other countries, people kill and eat the flesh of cattle which are not needed for other purposes. In India, Hindus will not eat beef and none of us will kill even the most useless living thing if we can possibly help it. But we don't mind starving our animals—oh, no! Our motto seems to be—

Thou shalt not kill, but need'st not strive
Too busily to keep alive.

Don't you think it would be much kinder if we


INDIA
U.S.A.
WEST GERMANY
AUSTRALIA
U.KINGDOM
NETHERLANDS
CATTLE
80
INDIA
20
MILK
95
INDIA
5

had less cattle but fed them properly and treated them better? And wouldn't it be more useful too, because they would do more work for us and give us more milk? At present 70 cows and she-buffaloes out of 100 give us no milk at all. Most of the others give 1½ lb. a day when they should be giving 5 lb.

In the picture on page 87 each animal stands for a crore of cattle, and the number of milkmen is proportionate to the quantity of milk produced in each country. You see that West Germany gets as much milk from 17 million cattle as we do from 140 million.

All this time we have been worrying about manure, good seed, and water for the land, and modern tools and strong cattle to cultivate it with. But there must first be enough land to cultivate, mustn't there? Well, sad to say, we haven't got it. 'What!' you will exclaim. 'A huge country like India and not enough land?' And you'll begin to wonder if I've suddenly gone crazy. But don't get alarmed! I'll show you it's the sad truth.

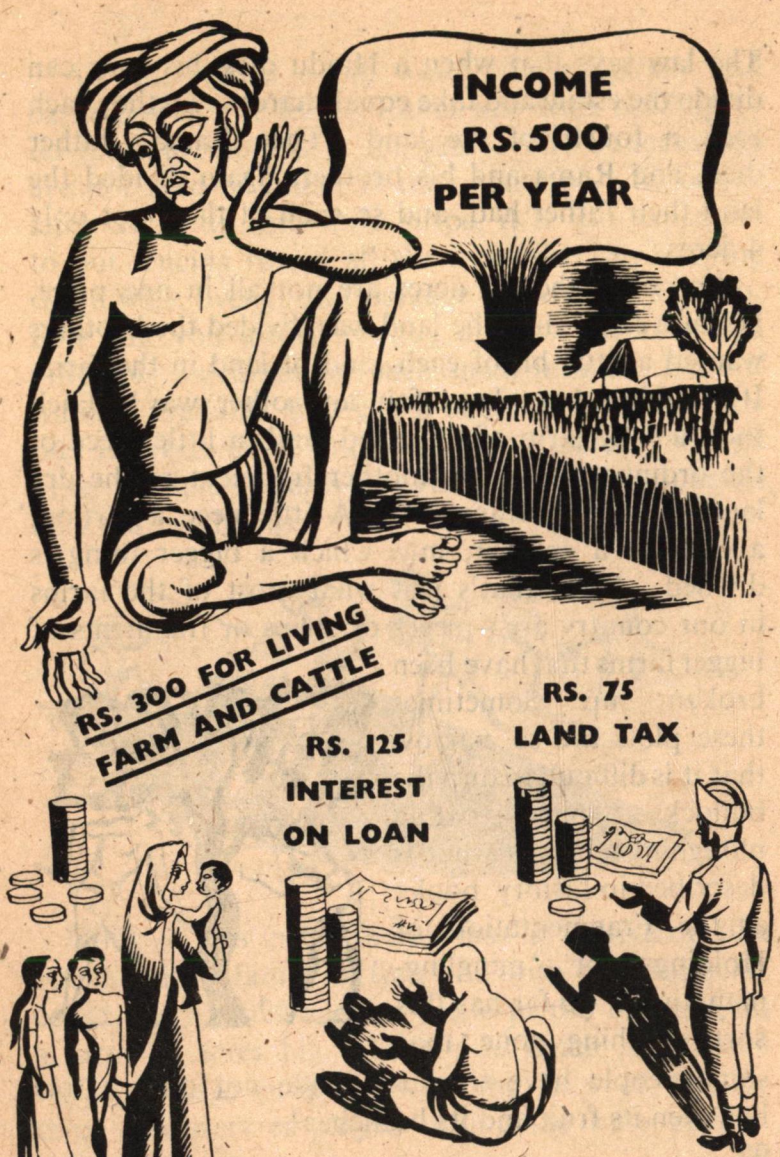


VII

NOT ENOUGH LAND!

If somebody were to give you just one small sheet of paper and ask you to write an essay on some big subject, you couldn't do it, my lad, could you? Or if I gave you a yard of wool and asked you to knit a jersey out of it, you, my little lady, wouldn't even try! But most of our farmers are expected to grow enough wheat or cotton for their families to live on without half enough land on which to do it.

Now let's see how much land our friend Rama has. We find that, like so many peasants in India, he has 4 acres of land. These 4 acres are not all in one block, but there's one piece here and another strip there, with other people's land in between. His land produces for him things worth, let us say, Rs 500 every year. Out of this, Rama has to pay Rs 75 to the Government as land revenue or tax; and Rs 125 he pays as interest on some money he had borrowed from a money-lender in the village. That leaves him with Rs 300 to spend on himself, his wife and three children, his cow and two bullocks,


INCOME
RS. 500
PER YEAR
RS. 300 FOR LIVING
FARM AND CATTLE
RS. 125
INTEREST
ON LOAN
RS. 75
LAND TAX

and his farm; that is, Rs 25 a month! Any wonder then that the family are half-starved and in rags, that he has malaria and his children have rickets? Any wonder that his cattle too look famished, their bones sticking out painfully, and that his cow gives only 1½ lb. of milk a day when she should be giving 5 lb.? Any wonder they all live in a hut with just one room, Rama's family at one end and the cattle at the other?

Do you know how much land farmers cultivate in other countries? The British farmer cultivates 26 acres of land, while the Canadian manages to look after 140 acres. How did Rama come to have only 4 acres of land?

The answer is the Law of Supply and Demand—too many mouths to feed and too little land. The number of people living in India has gone on increasing year after year, but the size of the country has remained the same. That has been happening in other countries also. There, however, cities with big factories have come into existence and people from the villages have gone to the cities to live and work there. In Germany, industry found room for 25 million people from the villages between 1870 and 1914. In our country, however, three out of four persons still depend on the land for their living.

Rama's grandfather had much more land than Rama has, but he had four sons, and when he died his sons decided to divide the land between them.

The law says that when a Hindu dies, his sons can divide the estate and take equal shares. So they each took a fourth of the land. Then Rama's father died, and Rama and his brothers again divided the land their father had, and so each of them got only 4 acres.

And even these 4 acres are not all in one piece, because every time the land was divided the brothers wanted a little bit of each kind of land in the farm. It wouldn't have been fair any other way! Each took a little strip of the good land, a little piece of the ordinary land and another fragment of the dry land. What is a fragment? A little piece, a portion, a chip or a splinter, into which a bigger thing is divided. Well, that's just what most of the farms in our country are—pieces or strips or fragments of bigger farms that have been broken up. Sometimes these plots are so narrow that it is difficult to turn the bullocks round while ploughing! This is what is described in history books as the Fragmentation of Holdings, or 'mingling-mangling'. So far has this sort of thing gone that some people have tried to divide not only a tree but even its fruit and its branches!



All this means a big waste of man-power and cattle-power. It leaves Rama idle with nothing to do for four months in the year. The bullocks too are not used as much as they could be. Since the land is cut up into little strips, it is too expensive to put fencing round all the fragments, so straying cattle walk over it and damage the crops. Besides, how can you afford to buy and use tractors and other big machines for such small farms? Even if water is available, how can it be taken to all the little bits of your land without making canals through other people's fields? That leads to quarrels between neighbours.

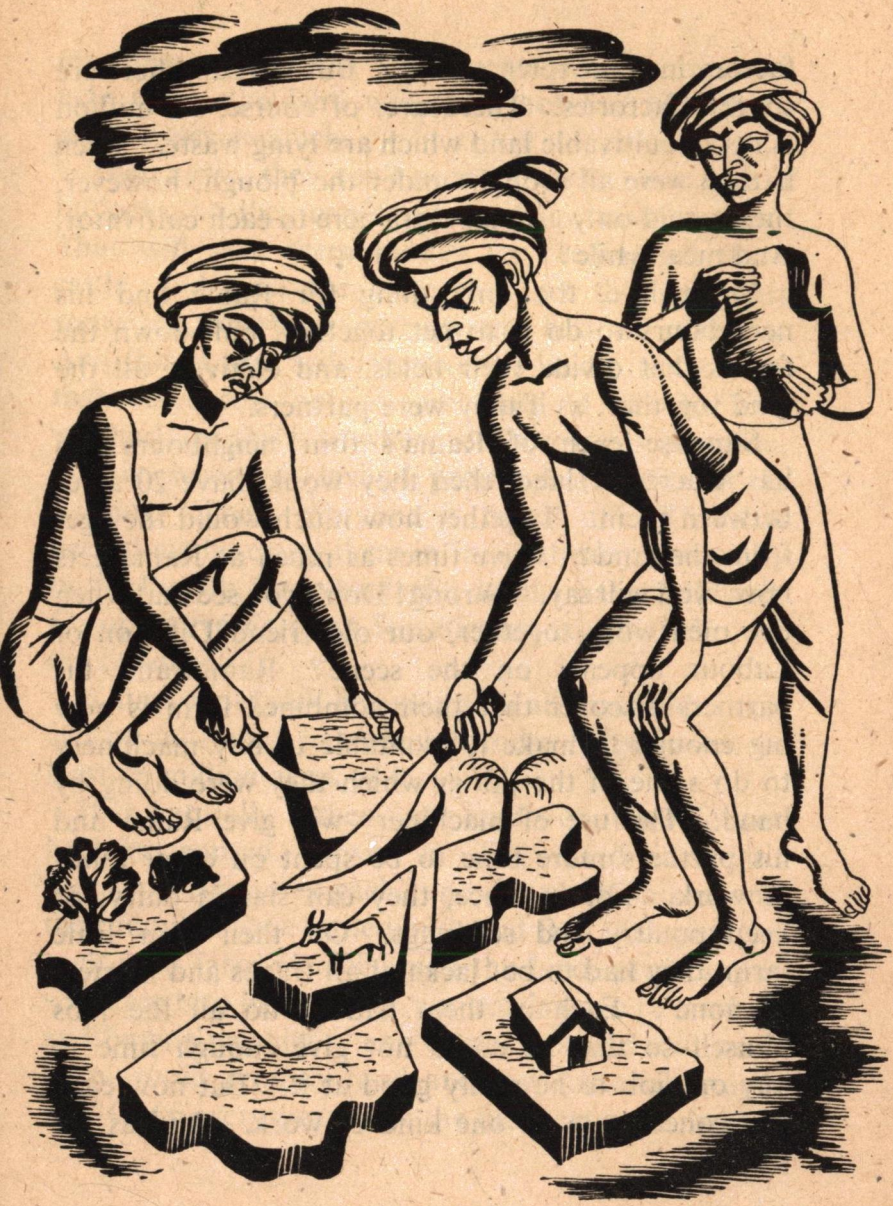


Now, it has been found that a cultivator like Rama, with a family of four and with two bullocks, could put himself and his cattle to the best use on a farm 20 acres big. That is as much land as he could manage properly with the help of two or three labourers employed during the busy season.



That would give Rama a farm five times as big as he has today. His earnings would be five times his present earnings even before he learns to get from each acre more than he gets today, by using his land in a better way. You see how much more money he would have left for spending on buying good seed and wood for fuel and new instruments for tilling.

Is there any way in which we can give Rama another 16 acres of land? Well, why not? One way would be to take it away from some neighbours of his. This has been done in other countries, and farms of a reasonable size established. But what are those whose lands are taken away from them to do? In other countries, they would find work in a



factory in some town or city. But in India there are so few factories. There are, of course, 93 million acres of cultivable land which are lying waste. Even if they were all brought under the plough, however, they would only give an extra acre to each cultivator. And meanwhile?

Meanwhile, the only thing for Rama and his neighbours to do is to get together, pull down the fences that divide their fields, and cultivate all the land together, as if they were partners.

Suppose each of Rama's four neighbours also has 4 acres of land, then they would have 20 acres between them. Together how much would they get from the land? 'Five times as much as Rama gets now,' you will say. Wrong! Don't you see that when five men work together, our old friend Division of Labour appears on the scene? Rama and his partners discover that their combined farm is now big enough to make it profitable to buy machinery to do some of the things which they were doing by hand. The use of machinery will give Rama and his partners more time to be spent on other kinds of work. For instance, they can start a dairy, or keep poultry and sell eggs. On their own little farm, they had to be 'jacks of all trades and masters of none'. Each of them had to do all the jobs himself so that he could not give enough time to any one job to be really good at it. But now each can concentrate on one kind of work. And as the

machinery and other implements will be there to help them, the land will grow not five but six or seven times as much.

Then again, they don't need more than one pair of bullocks, so they can sell four pairs between them. That will save them money for feeding all those cattle, and with the price they get they can buy some machinery or perhaps the best of manures. And this in turn will improve the land. So you see that sometimes—but *just* sometimes—$4 \times 5 = 30$! You will find that this is so whenever there is co-operation, that is, whenever several people join hands to do a thing. Then, everyone is better off. This has been done here and there in India already, especially in the Punjab, and wonderful results have followed. Co-operative Farming Societies are required all over the country.

A start could well be made with all that land which can be cultivated, but which is today lying waste—at least 93 million acres of it.

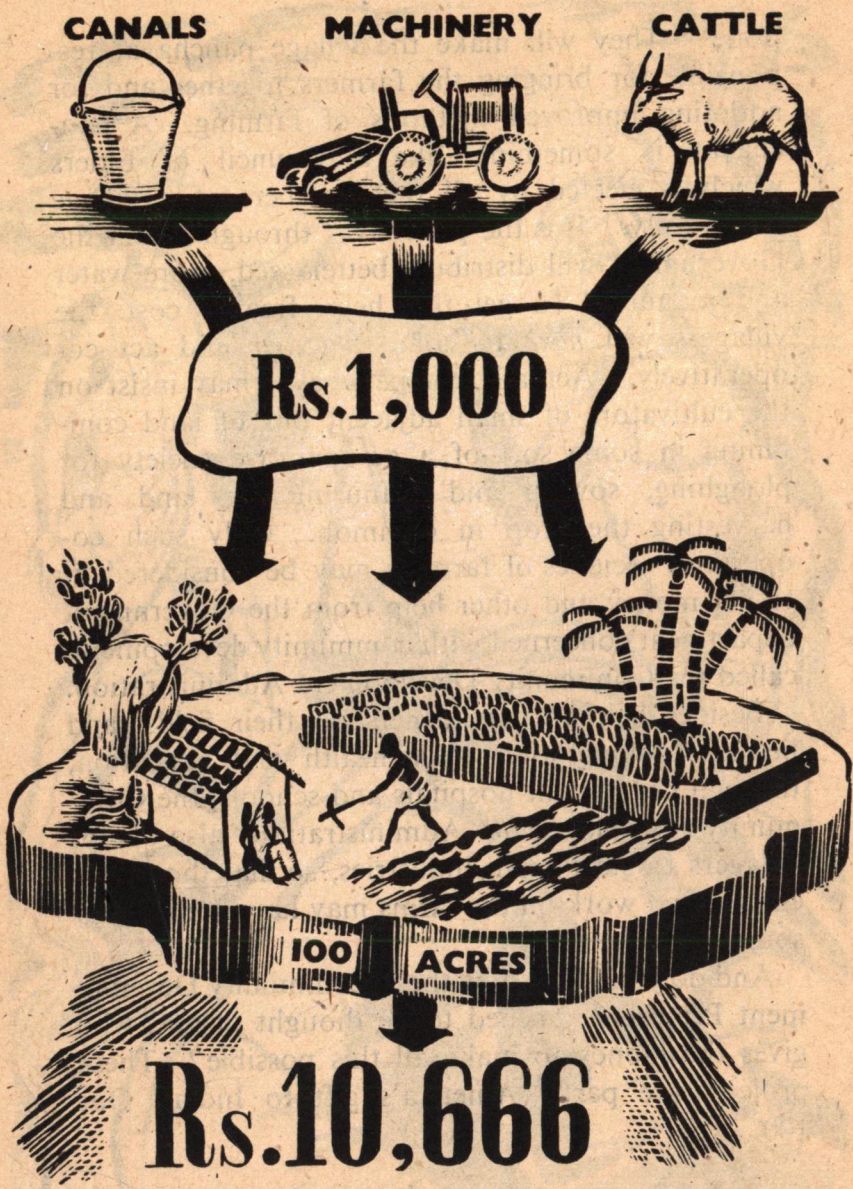
It is naturally rather poor land—or it would not be lying unused. Even so, if it was divided into farms of 100 acres each, and four cultivators and their families were settled on it and Rs 1,000 spent on each such farm in reclaiming the land, providing it with canals to bring water, and roads to go to market, and buying machinery and cattle, it is said that each farm would produce food and raw materials worth Rs 10,666 every year after the first ten years, which

all together would amount to a quarter of today's production from all the land in India.

That would be grand. All the same, we can't leave the better part of our land—and the best of it—to be cultivated as it is at present, can we? The trouble is that though co-operative farming is sensible, most of our farmers will not take to it unless its advantages are *proved* to them. Which is why the Government has decided to introduce reforms in small areas which will be object-lessons to farmers in neighbouring villages. These Community Development Projects, as the schemes are called, will be a practical demonstration of what can be achieved through co-operative effort.

There are fifty-five of these Community Development Projects scattered over all parts of the country. They cover in all about 16,500 villages and 15 million people. Each project covers a compact area in which there are about 300 villages. The Government will attempt all-round improvement in these areas. It will build roads, open schools and start dispensaries. It will provide engineers, teachers and doctors—not as many as the people in the project-area can pay for, but as many as they really *need*. But the most important part of the Government's work will be to help the villagers to be better farmers. For this purpose the National Extension Organization has been set up, as you know already.

How will the Government officers get the work


CANALS
MACHINERY
CATTLE
Rs.1,000
100
ACRES
Rs.10,666



done? They will make the village panchayat responsible for bringing the farmers together and for adopting improved methods of farming. A panchayat is something like a Council of Elders which is elected by all the members of a village community. It is the panchayat through which the Government will distribute better seed, more water and manure. To get this help, free of cost, the villagers will *have* to come together and act co-operatively. Actually, the panchayat may insist on the cultivators of small adjacent bits of land combining in some sort of a co-operative society for ploughing, sowing and manuring the land and harvesting the crop in common. Only such co-operative societies of farmers may be considered fit to get money and other help from the Government department concerned with community development, called the Community Development Administration.

Besides helping the farmers on their fields, and besides looking after their health and education, through newly-built hospitals and schools, the Community Development Administration also helps villagers to start small industries, so that those who cannot find work on the farms may have some other source of income.

And do you know how these Community Development Projects happened to be thought of and who gives the money to make all this possible? These projects are partly America's gift to India. Our

Government and the Government of the U.S.A. put their heads together and considered how best the expert knowledge and the machinery that is available in the Western world could be made useful to poorer people in the East. Out of this scheme arose a wonderful new idea called the Point Four Programme, which is an American programme of sending its experts out to help where they are needed. It was the fourth item in a much bigger programme of assistance to underdeveloped countries—hence the name Point Four.

The U.S. Government and the Ford Foundation, which is a big charity trust in America, like the Tata Trusts in India, together pay one half of all the expense which our Government is put to for this community development work. In addition, America is giving us the services of the experts who are needed, besides our own experts, for community development. Some Rs 900 million will, in all, be spent on these schemes in five years.

I have no doubt we can take a great step forward in India if we do some of the things we have talked about here. Just five big jobs to do—and we can get as much out of our land as the English do from theirs and build, not a house of cards, but one that will endure.

What are those five big jobs?

(1) Divide the land over again into big enough farms—not smaller than 20 acres each, and en-

courage those cultivating land in use today to co-operate with their neighbours in farming. Set up big co-operative farms of 100 acres on land which is today lying waste.

CO-OPERATIVE FARMING



(2) Build more canals and wells, so that not one sixth but *all* our land is irrigated.

CANALS



(3) Look after our forests, and get wood out of them to use as fuel, so that cowdung can be used as manure along with other fertilizers.

AFFORESTATION AND MANURING



(4) Teach our peasants to use improved varieties of seeds and modern implements.

SEED AND MACHINERY



(5) Reduce the number of our starved and useless cattle and feed well those that we keep.

CATTLE



Do this, and we transform the face of India and make it smile. But one job must be done first to make all this possible. We must find some work to do for the extra peasants whom we shall have to turn off the farms.

VIII

WOOL ON A TREE

'A plant which, instead of fruit, produces wool of a finer and better quality than that of sheep, of which the Indians make their cloth.' That is how the Greek historian Herodotus described two thousand years ago that magic growth, COTTON. A foreigner visiting India in those times described cotton in his surprise as a lamb, growing out of a plant and eating the plants round about it.

Recently when the ruins of an ancient town were discovered at Mohenjo-Daro in Sind and were dug up to find out how people lived in those days, cotton cloth was found. That, we are told by those who know, was five thousand years ago! Which shows us that we were the first people to make use of cotton and gives us an idea how ancient is the Indian industry of making cloth out of cotton. Even today, it remains our biggest industry, which is why we shall deal with it in this chapter.

Indeed, right down the ages to the time of the East India Company, cloth made in India supplied the markets of Asia and Europe. Unequalled for beauty of surface and variety of texture, the work of India's weavers was prized the world over. The muslin of Dacca was compared to a spider's web for

its fineness. It is said the Mogul Emperor Aurangzeb once rebuked his daughter for having so little clothing on her. The princess protested that she had wrapped the sari seven times round herself!

In 1701, the use of calicos (a name derived from Calicut) was prohibited by law in England because they were driving English cloth out of the market there. As late as 1815 India exported to England alone cloth worth £1,300,000 a year.

Then came the age of machine production, and the tide turned. Britain was the first country in the world to use machinery for making things, and it was used first in the textile industry of Lancashire. There they learnt how to turn out cloth cheaply and in large quantities, although inferior in quality to the handwoven fabrics which were imported from India. Being cheap, the machine-made goods soon drove India's cloth from the markets. We, who had been exporting cloth to Britain, began importing large quantities from her. Exports from India were worth 16·5 million rupees in 1816-17 and imports into India practically nil. In 1901-2 we imported 2,200 million yards of cloth and exported only 150 million yards.

Gradually, however, India started building cloth mills of her own. The first mill was erected in Bombay in 1854. It was soon found that Bombay, with its proximity to the cotton-growing tracts, port facilities and moist climate, was ideal for the deve-

lopment of this industry. Mills multiplied at a rapid pace in the island of Bombay and later spread to other cotton-growing districts, particularly in Ahmedabad, Nagpur and Hyderabad.

This marked another turn in the wheel. India showed to the world that she could make, in her mills, cloth as good and as cheap as Lancashire, from where she took her first lessons. Today, the cotton textile industry of India is the second largest of its kind in the world. In all we have now 440 mills (of which 65 are in Bombay City), which give employment to 800,000 workers. All the machinery and the buildings in which the machinery is housed have cost us Rs 600 million to establish. The annual production of the mills is 4,500 million yards, enough to wrap around the world a hundred times.

In 1950 we exported more cloth than any other country in the world—1,000 million yards—for which our foreign customers paid us 1,400 million rupees. We did better than Lancashire, Japan and the rest of them.

Of course we do not now need to *import* any cloth. Besides the cloth from our mills, some more is made on small machines which weave cloth and which are worked by hand, called hand-looms. There are about 2 million such hand-looms which are worked by about 4 million men and women who produce 1,500 million yards of cloth every year. If you want to see the difference between the efficiency

of a hand-loom and that of a power-loom installed in a mill, just remember that a man with a power-loom makes as much cloth in a day as a hand-loom worker would make in five long months.

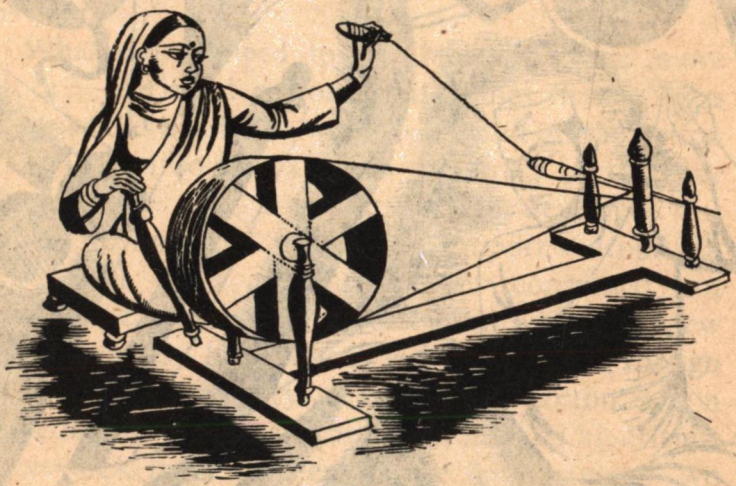
Together, the mills and the hand-looms leave us 5,000 million yards of cloth if we keep 1,000 million yards for export. That works out to about 14 yards for each one of us every year. Not a very long piece, you say. No, it certainly is not, and there is no reason why we should not try to produce more cloth. Against our 14 yards for the average Indian, a person in Brazil or Egypt has 19 yards, a Japanese 21 yards, a Briton 35 yards and an American 64 yards.

What do we need to be able to produce more cloth? We need cotton—that comes first. Years ago, we did not know what to do with all the cotton we had and so we exported the larger part of our cotton crop. But now that we have developed our mills, we find that we need to import cotton. In 1951, our mills and hand-looms consumed not merely the 3 million bales of cotton which we grew in the country but another million bales of foreign cotton. So let us try to grow more cotton within the country. That is a job for Rama and his friends —we took leave of them in the last chapter. We do hope they succeed in growing more cotton, as well as more grain and pulses and sugarcane, with all the help that they have been promised.

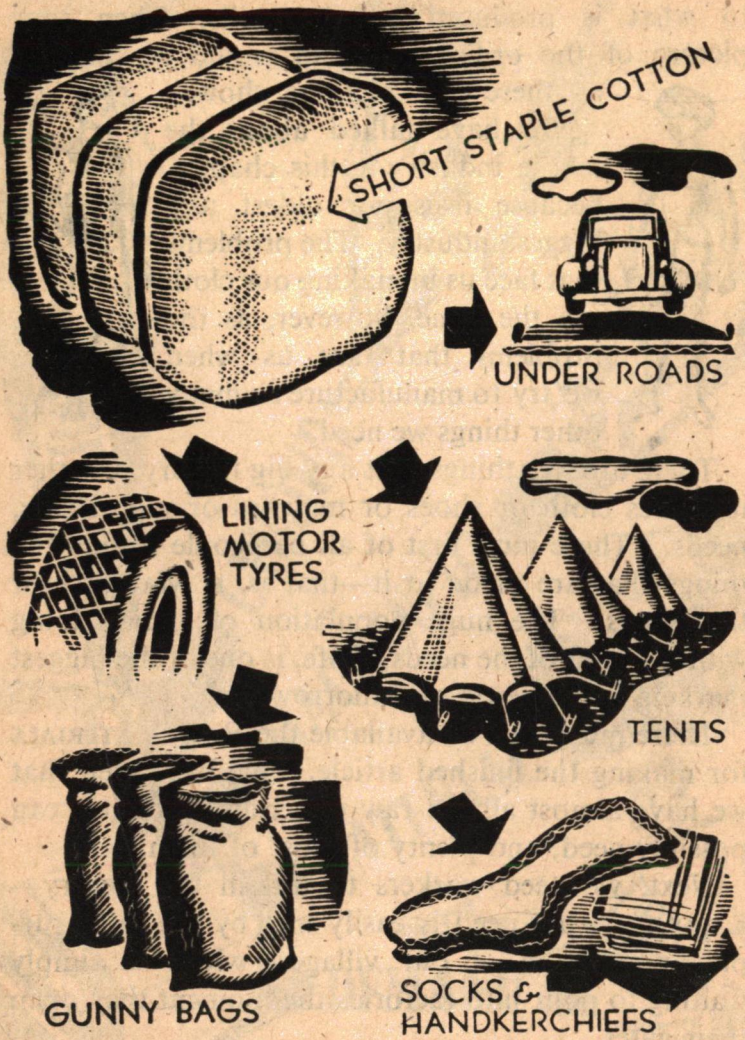


Next, the cotton has to be spun into yarn and then woven into cloth. Let us have more mills, by all means, and let our hand-looms be busier too. But here is another idea. Before we have had time to set up our mills, why not teach more of our villagers to spin yarn in their homes? Our peasants are almost unemployed for about four months in the year. Hand-spinning and hand-weaving are occupations as good as any we can give them to keep them profitably occupied for those periods in the year when the land does not call them.

If in the bulk of the homes of our cultivators there were a spinning-wheel (*charkha*) or a hand-loom on



which they and their wives and their grown-up children could work in their leisure hours, they could


SHORT STAPLE COTTON
UNDER ROADS
LINING
MOTOR
TYRES
TENTS
GUNNY BAGS
SOCKS &
HANDKERCHIEFS

produce an enormous quantity of cloth, in addition to what is produced by the mills. Then, our picture of the ordinary Indian would be changed as these two pictures show.



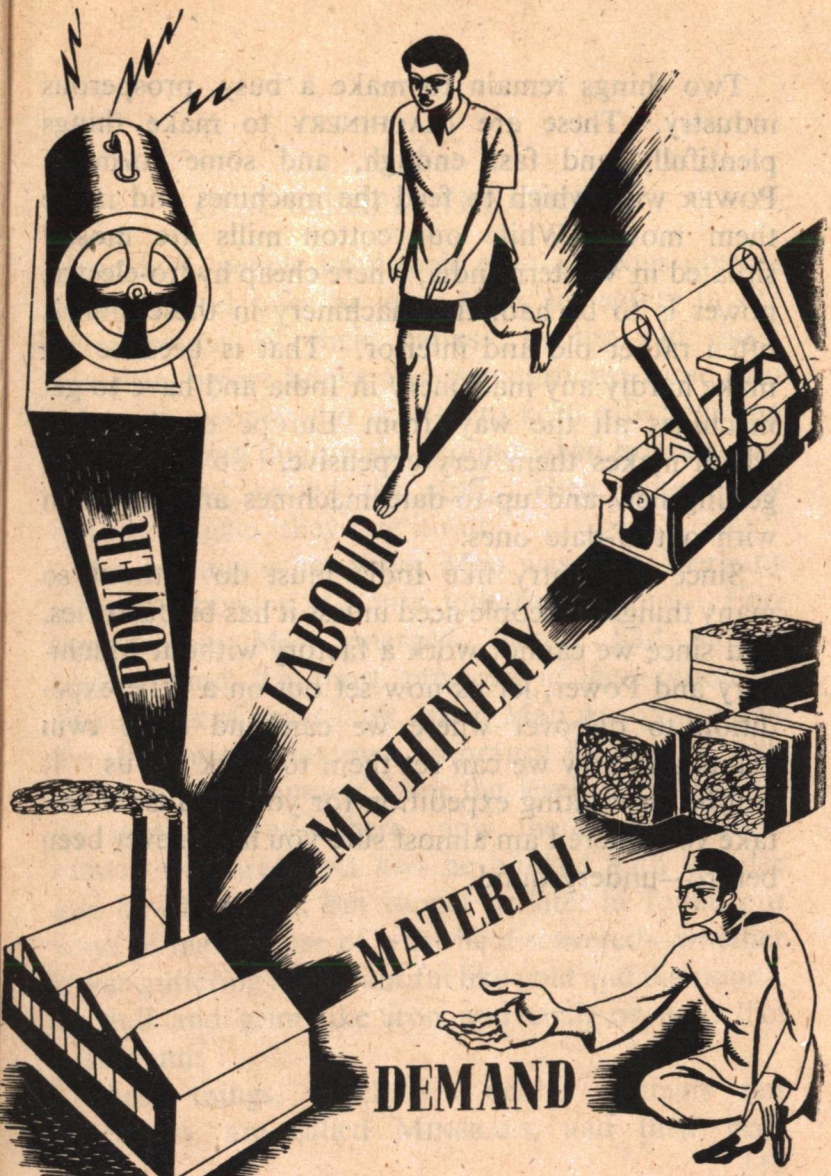


We have talked about the textile industry in this chapter, because it is our oldest and biggest industry. The problems that face us in making our cloth are the same, however, as the problems that face us when we try to manufacture so many other things we need.

There are five things that any big factory, whether it makes cloth or shoes or matches or motor-cars, needs. There must first of all be people to buy the things that are made in it—that is, a MARKET for the goods. The huge population of India, doing without most of the needs of life, is one of the biggest markets in the world of tomorrow.

There must then be available the RAW MATERIALS for making the finished article. We have seen that we have almost all the raw materials a country can possibly need, and plenty of most of them.

Next, we need workers to toil in the factory—LABOUR. That need is easily met by the huge surplus population of our villages, which is simply waiting to pour into factories the moment they open their gates.


POWER
LABOUR
MACHINERY
MATERIAL
DEMAND

Two things remain to make a busy, prosperous industry. These are MACHINERY to make things plentifully and fast enough, and some form of POWER with which to feed the machines and make them move. While our cotton mills are mostly situated in Western India, where cheap hydro-electric power is to be had, the machinery in these mills is often rather old and inferior. That is because we make hardly any machinery in India and have to get machines all the way from Europe or America, which makes them very expensive. So we put off getting new and up-to-date machines and carry on with out-of-date ones.

Since a country like India must do without so many things its people need unless it has big factories, and since we cannot work a factory without Machinery and Power, let us now set out on a little expedition to discover where we can find these twin giants and how we can set them to work for us. It will be an exciting expedition for you because it will take you where I am almost sure you have never been before—underground.

IX

OUR BURIED TREASURES

Nowadays, people keep their most precious possessions in steel safes or leave them for safety in the strong-rooms of their banks. In the old days, however, before banks and strong-rooms came into existence, people who wanted to keep safe anything they treasured dug up the ground when nobody was looking and buried the stuff. Then, when they needed it again, they dug it out.

As in many other ways, Man was here—perhaps without knowing it—only imitating Nature. For, long before Man emerged, Nature had hidden underground the most precious of her products. Thousands of years later, when Man was groping in the darkness of his own ignorance for means with which to raise himself from the level of the beasts, he stumbled—now here, now there—upon those hidden treasures. At first he blinked with wonder and bewilderment, but sooner or later he found out ways of making use of what he discovered—whether it was glittering and beautiful like gold and diamonds, or dull and grim like iron and coal, or fluid like petroleum.

These things, which are neither animals nor vegetables, are called MINERALS, and their beds

below the surface of the earth are called MINES. For us their special importance is that it is out of some of these minerals that machinery can be made and power generated.

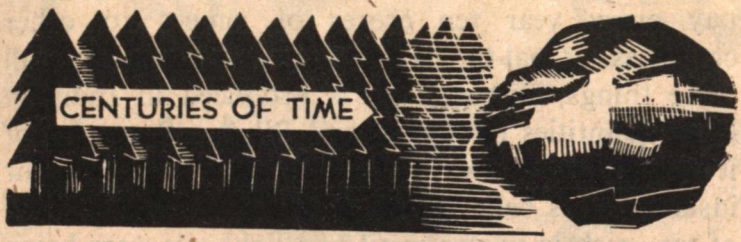
Now Nature has not distributed her favours at all evenly. The result is that the people occupying certain parts of the Earth's surface find themselves presented with wonderful buried treasures while others dig and dig in vain.

On what sort of plot of land have we Indians managed to build our homes? I should say we have not done at all badly. Out of our coal, iron and other minerals we already make Rs 60 crores every year, and 550,000 Indians are kept busy at the job. But that is nothing to what we could do, for our underground stocks put us in as strong a position as the leading industrial countries of the world. We have managed to step on to a rich inheritance of buried treasure, which we shall now proceed to explore.



Perhaps we had better start with our friend Old King Coal. A coal mine is sometimes called a cemetery, which is the name for a place where people are buried when they die. But what is buried in a mine?

No, not coal, though that is what you find there today. Thousands of years ago what got buried there was swamp grass, and plants of all kinds—sometimes whole forests. And there they lay, rotting below layers of sand and clay and rock, becoming harder and harder and blacker and blacker every century, till we started coming across them and called what we found there coal.



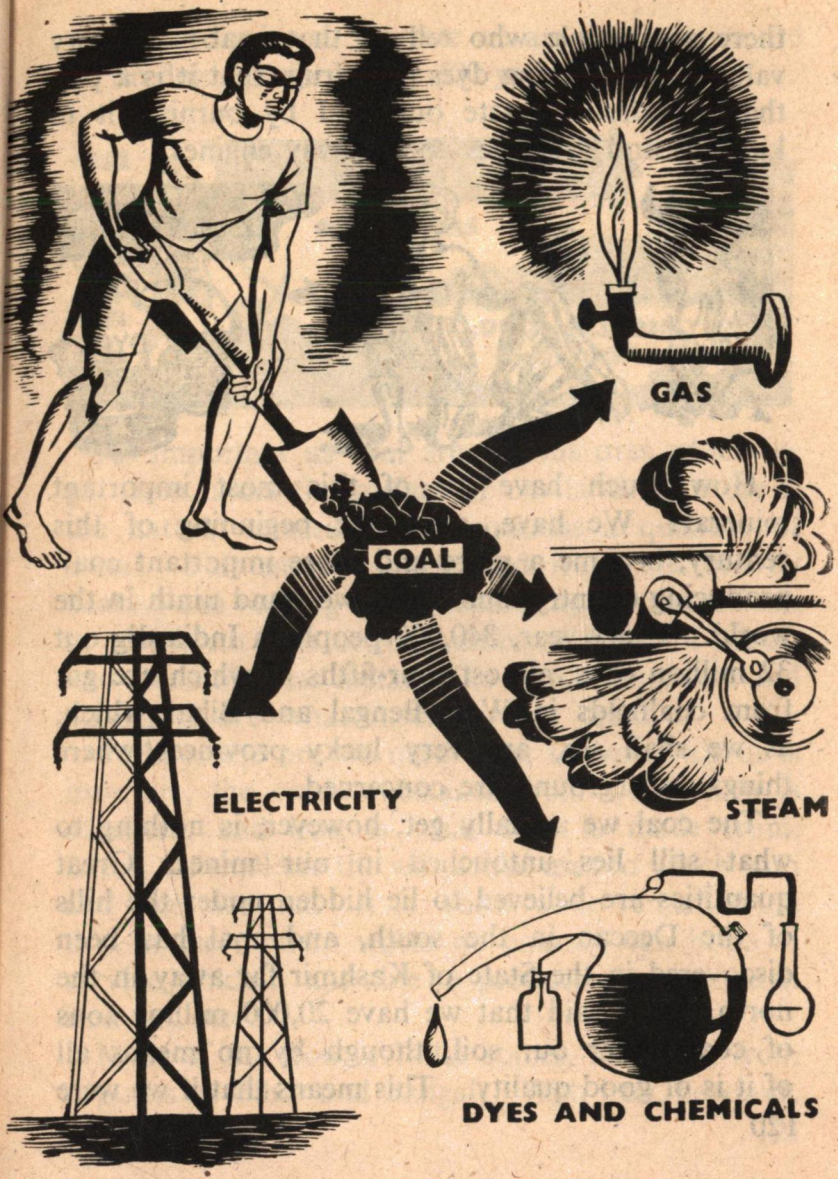
Coal has been described sometimes as the Black Diamond. Why this comparison with such a rare and precious stone? Because both, though so unlike to look at, consist of carbon. Also, to give an idea of the value of coal. Actually, it is much more valuable than diamonds, for it can be put to so many wonderful uses.

Coal started its career by being one kind of fuel, which is the name for things one burns in order to get fire and heat. It was a fuel superior to wood. Then gas and electricity came along and, both for heating and cooking, elbowed coal out of its position as a fuel. By that time, however, two more important jobs had been found for coal—making steam

and electrical energy. As we shall see later, that is its chief work today. It looks, however, as if, before many more years pass, coal will only be used for something quite different.

In the last few years it has been found that out of coal can be got things, like coal-tar, which are very important in making colour dyes, medicines and other chemicals. For such dyes and drugs we pay every year ten crores of rupees to other countries. Coal-tar is the basic material for all these things, and coal-tar is produced in India in large quantities in Bengal and Bihar. But a lot of it is just thrown away. In the Jharia coalfields, for instance, it is believed that some 30 million gallons of tar—rich in motor spirit and light oils—are being wasted every year!

Chemicals and dye-stuffs are as important for war as for peace-time use. When the war of 1914 broke out, England used dyes which were 90 per cent German. During that war, the British people learnt how silly it was to rely on another country for something so important. The result was that when the war of 1939 started England was getting only 10 per cent of its chemicals from other countries and producing 90 per cent itself. If the British could do that in a few years, so can we. And we should hurry up and do so, considering how much illness there is in India for which we need drugs, and how much cloth we make in India for which we require dyes. In fact,


GAS
COAL
ELECTRICITY
STEAM
DYES AND CHEMICALS

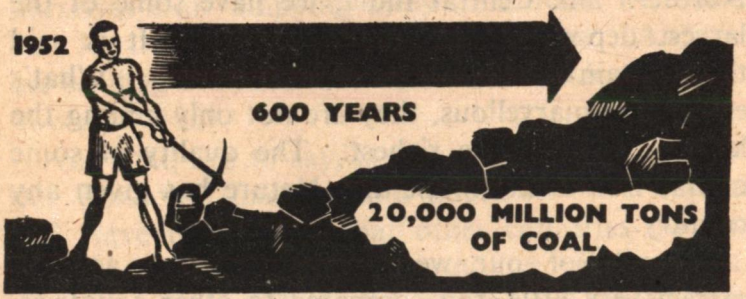
there are people who tell us that coal is so very valuable for making dyes and drugs that it is a pity that we should waste our coal by burning it in kitchens and fireplaces and railway engines.



How much have we of this most important mineral? We have, since the beginning of this century, become a more and more important coal-producing country, and today we stand ninth in the world. Every year, 340,000 people in India dig out 32 million tons, almost four-fifths of which are got from coalfields in West Bengal and Bihar which, as we shall see, are very lucky provinces where things underground are concerned.

The coal we actually get, however, is nothing to what still lies untouched in our mines. Great quantities are believed to lie hidden under the hills of the Deccan in the south, and coal has been discovered in the State of Kashmir far away in the north. It is said that we have 20,000 million tons of coal under our soil, though by no means all of it is of good quality. This means that if we were

to go on digging at the rate we are doing, we could go on doing so for nearly 600 years!



As important as coal are various ores which we get from under the surface of our land. An ore is the natural mineral which contains a quantity of metal. This metal is extracted from the ore by heating and melting it and separating the metal from it. Different ores contain different kinds of metal, and some of these metals, like iron, manganese and chromite, are what machines are made of.

Perhaps the ore we need most to worry about is iron ore, the crude substance from which iron is obtained, and iron is what steel is made from. Later, we shall see the wonderful uses to which iron and steel are put. It is worth while remembering that in the modern world no country can hope to survive which is not able to produce or get enough iron and steel.

Most of the iron in India comes, like coal, from deposits in Bihar and Bengal. With iron, however,

as with coal, we are using only a very small part of that which lies buried under our land. In Northern and Central India, we have some of the largest deposits of iron in the world. It is said they contain over 6,000 million tons of iron. What's even more marvellous, they are not only among the largest, but also the richest. The quality of some of our iron is the finest that Nature has given any country.

In spite of our wealth, however, we actually extract very little iron compared to other countries, as you can see from the picture on page 27. And we stand seventh in the world, though we could be first.

Another very important metal, as we shall see a little later, is manganese. Of manganese ore we are, next to Soviet Russia, the world's biggest producers. Our reserves are *the* biggest in the world. In 1951 we produced 1,300,000 tons of manganese ore, more than half of it in the State of Madhya Pradesh. If you look at the other picture on page 27 you will get an idea how big a share it is of the world's supply.

What do we do with it all? Do we extract the manganese from the ore, and make fine steel out of it by mixing it with iron? Or do we powder it and use it for bleaching things, that is, making them white? Or do we make strong disinfectants out of it? Or do we use it as a colouring material for

glass? No. We *could* do these things, but we don't. We leave all that to others! We content ourselves with shipping away to Europe, America and Japan almost all the ore we dig out. And we are sending out more and more of it—twice as much now as in 1939.

And that, sad to say, is what we do with most of our wonderful underground treasures. We neglect and leave untouched what other countries do not want. And what they do want, we sell to them. What's most stupid of all is that we sell these things at half the real price!



For instance, if we extracted manganese from ore and then sent it abroad, we should get a good price for it in London or New York. What we do instead is to send the ore as we find it. So we have to pay for the cost of carrying all the way to Europe or America the useless stuff as well as the manganese! That is because we are too poor or lazy to set up works in India where we can get at least the metal out of the ore. And as with manganese, so it is with other ores also.

Mica is another mineral with which we are splendidly supplied. Once again, we have the world's finest deposits of a substance which is very important for use in a war, which insulates electric current and stops us from getting shocks, and which can sometimes take the place of glass. Even though we still don't touch most of our mica, we produce four-fifths of the world's supply, mostly again in Bihar. But as with everything else, we ship almost all of it overseas.

Other metals we have—though we are not so well stocked in them—are copper, of which are made the wires which carry electricity through the country; tin, which carries to us biscuits and fruits and other nice things to eat; aluminium, which because of its lightness and strength we use for making kitchen utensils, electric fittings and aeroplanes; chromite, bricks of which are used for lining the furnaces in steel works; gold and silver. In the sands round

Cape Comorin, our southern extremity, are to be found ilmenite, for the manufacture of paints, and monazite for making lamp mantles.

But don't think that all minerals are metals, will you? There are also, as we saw earlier, various salts in the earth. There is, for instance, saltpetre, also called nitre, to be found mostly in Bihar. It contains nitrates and was used in the old days for making gunpowder and explosives. Now, artificial nitrates are used for that purpose, so saltpetre can be used for putting nitrate back in the soil as a fertilizer. Don't forget that the land needs nitrogen. We have underground stocks of phosphates too, though not enough. I wish we had more, for they make a fine manure.

Common salt, of which we can get any amount from the sea, is very important in the manufacture of chemicals called alkalis, which have been called 'the germ-cells of industry'. They are used in the production of all kinds of things we use, like paper, leather, glass, soap and many others. In 1937-8, we had to pay other countries a crore of rupees to get them.

But we have since taken a big step forward here. At Mithapur (Salt City) in Bombay State, where any amount of salt and limestone is to be had, soda ash, caustic soda, bleaching powder and other heavy chemicals are being produced by Tatas in large quantities.

And then, we have a little of that wonderful liquid mineral, petroleum, which is such an important source of power that countries go to war in order to get hold of oilfields. We had quite a lot of it in Burma—until, alas! Burma was separated from India. The oilfields in Attock were also lost to us when Pakistan followed suit and formed itself into an independent State. Now we have just a little oil left in Assam. It meets only 7 per cent of our requirements. But even if we do not have rich oilfields like the countries in North and Central America and the Middle East, we are setting up refineries of our own in which crude oil imported from foreign countries can be converted into petroleum and other oil products, like the vaseline which you all know. Already two big refineries are being built near Bombay. These will be capable of producing $3\frac{1}{2}$ million tons of oil every year, which is what we need at present.

I almost forgot to mention a mineral which is like a key to the metal and chemical industries—sulphur. To tell you only a few of its uses—sulphur is a great disinfectant and is used for skin troubles; it is essential to make rubber strong; farmers use it for killing insects; paper products and wood are soaked in liquid sulphur to give them strength and endurance; mixed in oil, sulphur is used for cutting metals. It is mixed in cement to fix metal in stone when building houses. It can bleach—that is, make

white—straw and cane furniture, and is used for tanning leather. Apart from all this, it is very important in the making of chemical substances.

Sulphur in its natural condition is contained in pyrites, which we find here and there all over India, though not in big enough quantities for preparing sulphuric acid for ourselves. This is rather sad, because in England the supply of cheap sulphuric acid—the price of which was brought down from £30 to £2 a ton in a generation—was the foundation on which the whole chemical industry was built. British chemicals and drugs then invaded India and destroyed what little we were doing in the way of producing alum and nitrates. So now we have to pay Rs 360 million every year as the price of things we buy from abroad *made from minerals most of which are available in India but lying idle.*

Do you know that the sand of which you make castles when playing on a sea-beach *might* contain particles of valuable mineral substances? If it does, it will get the glorious name Rare Earth. The children of Travancore-Cochin in the south-west corner of India can play with Rare Earths when they go to *their* beach. These Rare Earths have a wonderful story behind them. Once upon a time they were rocks in the range of mountains running parallel to the sea. But there was the rain. Bit by bit, every year, the rain-water carried the Rare Rocks, as they should have been called then, into

the sea. But it was not an ordinary sea; it was a sea with a generous heart! It took pity on the mountains which allowed the rain to do this mischief to them and decided to *give back* the valuable substances it had got! And more than that. The good sea ground the rocks into small particles, sorted out the different types of minerals it had received and deposited each type in a bed on the beach!

This little story took several thousands of years to finish, but today, if you go to the beaches in Travancore-Cochin, you will almost feel like shaking hands with the sea, for there you will see, spread out on the beach, beds of different grains of mineral sands. Take, for instance, monazite sand. This is a radio-active substance. That means you can see it in the dark, like the radium-coated hands of a watch. It gives us atomic energy, which is most important, for even if we do not make atom bombs, we can use this sand to provide power for our industries. There are also other Rare Earths found in Travancore-Cochin. These earths, after they have been treated in a factory which has been set up nearby, are useful in the manufacture of flints for cigarette lighters, the special glass required for camera lenses and in many other ways. They are used in medicines and they are mixed with other metals to give us alloys of special qualities.

Our trip down the mines and along the beaches

has shown us that while all in all we are rich in minerals and can be the richest in the world in iron, manganese and mica, our weak spots are petrol and sulphur. But one can't have *everything*, can one? It only means we have to find ways of adding to our present supplies. For instance, pyrites have been discovered at Simla, at Shahabad in Bihar, and at Ratnagiri in Bombay. Or here's another idea. In extracting copper in Bihar, it is said 20 tons of sulphur dioxide gas escape into the air every day during the process of roasting the copper ore. In other countries, this gas is not allowed to escape. In Canada and in Finland they convert it into sulphur. So could we.

Besides, *do* we really know what lies beneath our land? The fact is we have been so awfully lazy that we have not even bothered to find out what lies in our buried treasure chests. There are some officials of the Government whose job it is to burrow under the soil and find out what it contains. Every year they go on an expedition to a particular district. But there are so few of them that, till now, they have examined only a fraction of our land. What do we know about what is in the rest?

And so, if you read the newspapers, you will find one morning that suddenly 80 million tons of coal and 610 million tons of iron ore have been discovered in the Assam region. Another day, your paper tells you that a large quantity of magnetite—

magnetic iron ore, which is very important—has been located near Daltonganj in Bihar. These Biharis do seem to have all the luck, don't they?





X

POWER

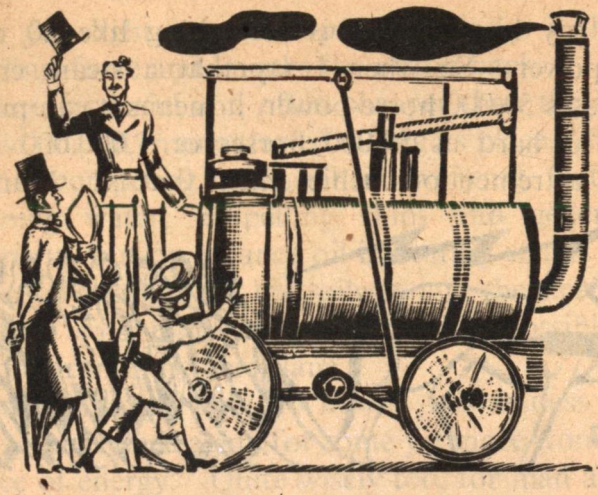
In the old, old days when Man was still a young animal, he used to do everything with his own hands as other animals still do. But soon—that is, after a few hundreds of centuries!—he began to make crude instruments out of wood and stone and metal to help him in cutting or breaking or lifting things. Always, these instruments were moved by the strength of his own arms and legs. A little later, he found out that he could make use of other animals to do these things for him. So he tamed and harnessed the bull, the horse, the elephant and the dog and made them do the heaviest part of his work. Man also discovered that he could use the force of the wind and the current of the stream and of the tides of the sea for propelling his boat or ship. But for the rest, all the unpleasant work of breaking stones, cutting trees and carrying things, was done by animals or by men who were

slaves of other men. And this remained so for many thousands of years.

Only a hundred years ago in India houses were built, boats were propelled and people were carried in the same way as they were thousands and thousands of years back when our wild ancestors came and settled in India. It took a man as long to get from Patna to Delhi in A.D. 1800 as it did in the days of Chandragupta or Asoka.

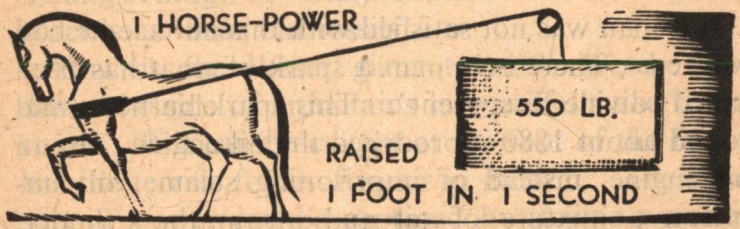
For quite a long time philosophers in various countries kept on trying to discover some power which could act as Prime Mover for all instruments. Man groped for something with which to feed the instruments of work, of conveyance and of war, something that should do what bread did for men. For what is bread but an amount of energy—so much power for man's brain, his back, his hands and his feet? Such a force would save men from much of their toil. Leonardo da Vinci, the great Italian painter of the fifteenth century, is one of the most famous of these searchers. In the sixteenth and seventeenth centuries clever men kept on trying and, as in a game of hide-and-seek, they got 'hotter and hotter' on the trail.

At last, in 1768, came the discovery of the steam engine. It was found that if water was boiled and the steam collected and imprisoned in a cylinder, its force would be strong enough to move things. So there came the 'Puffing Billy', one of the earliest



railway engines, where the steam drove the piston, making the wheels turn. There followed steamships, and engines in factories for making various articles. Steam engines became more and more powerful, and today there are some which can produce as much as 150,000 to 200,000 horse-power.

What a funny term that is! What on earth does horse-power mean? Really, it's quite simple. Horse-power is the power of an ordinary horse.



They say horse-power is something like 20 times man-power. So when I say that a steam engine possesses 50,000 horse-power, it means it can pull or push as hard as 50,000 horses or 1,000,000 men. What a tremendous achievement that is! Man has



found one million new servants, all in one steam engine! Fancy having to feed a million men! But you don't have to. All you need to feed a steam boiler on is some water and some coal. Horse-power is the power that a horse, or an engine as strong as a horse, possesses. This must be utilized to produce work, and one hour of such work is called a horse-power hour. In measuring production in a factory or a country, we count in horse-power hours.

But man was not satisfied with this miracle he had worked. There is in man a spark of what has been called 'divine discontent'. This spark burned—and round about 1880 it produced the oil engine. In an oil engine, instead of imprisoning steam, you imprison a mixture of oil and air in the cylinder.

Then you light it, and pop! it explodes with tremendous force and knocks the piston back.

More powerful and often cheaper than the steam engine, the oil engine started taking its place. Steam is still competing with oil in working factories, pumping water, propelling ships and generating electricity, but on balance oil is beating steam.

Just as steam made the railway and the steamship possible, so the oil engine has made possible the motor-car and the aeroplane.

But what does man do now? His restless mind looks round once again for some yet more wonderful source of energy. Quite wisely too, for man always seems to be able to use more power, but there are only limited stocks of the fuels which can give power.

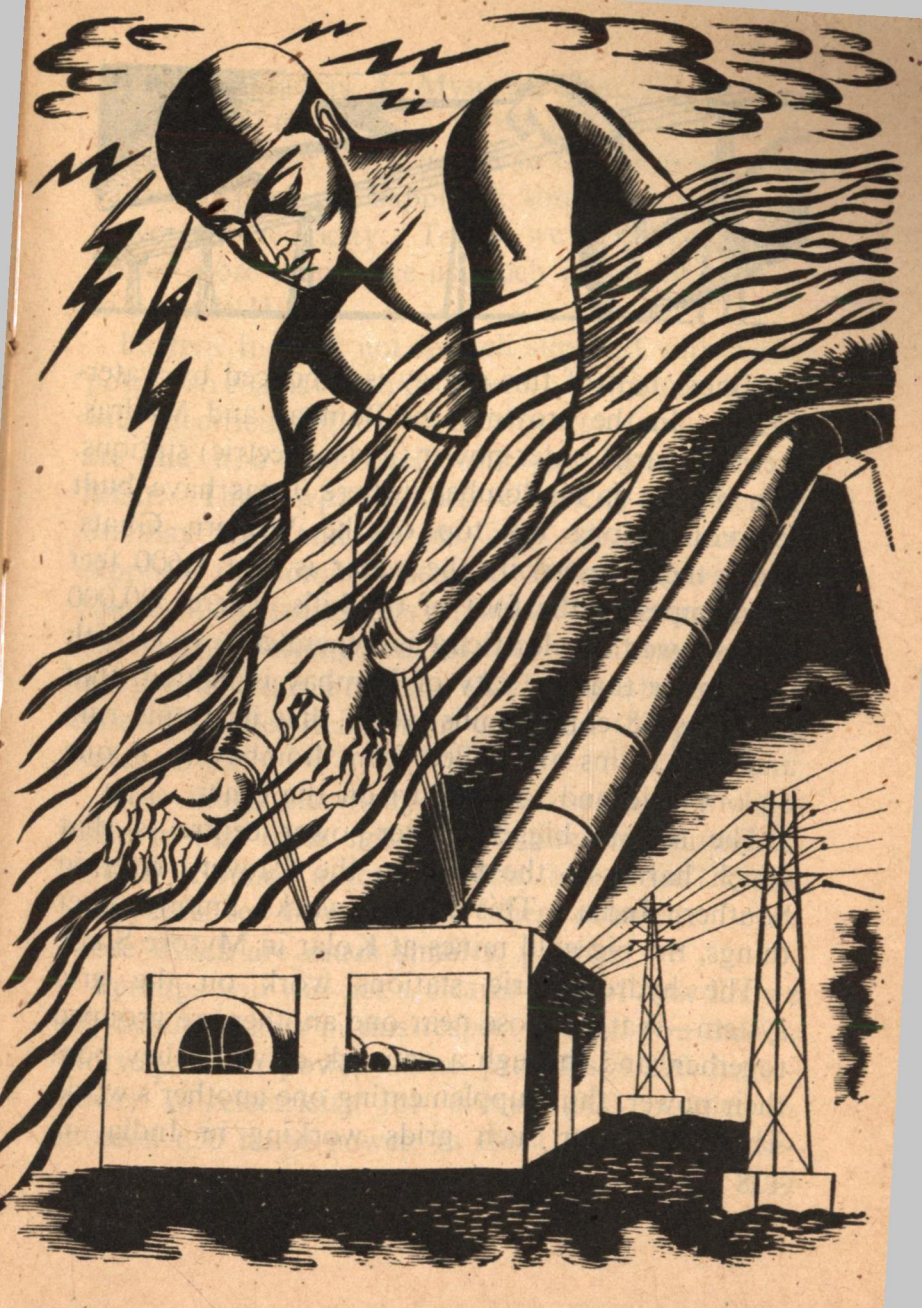
So man turns back again to that old friend of his infancy, Water. Now that he has conquered the metals and made big wheels and long wires, he finds it to be a real giant. So we come to our own times and approach the end of 'the age of fossil power'. A fossil is something very ancient preserved underground like coal or oil. Which is why the Bright Young Things of today sometimes refer to their parents as 'dear old fossils'!

How is the Water giant tamed? Water flows down the side of mountains in waterfalls and forms rivers. If it can be caught at the foot of the fall, it has the terrific force of water in motion. The same sort of power can be captured by storing water in

a reservoir at the top of a hill and then sending it gushing down big iron pipes to the bottom of the hill. There it can be made to turn huge water-wheels called turbines. The turbines turn dynamos, and the dynamos produce electric power. This power (or current) can be carried along wires to set other smaller motors turning, and they can in turn lift and move things and do all that coal and oil engines have done. Not only water-power, but coal and oil too can generate electricity. But coal and oil can get exhausted, while 'so long as the world spins and the sun shines and the rain falls', there is no end to the supply of water-power.

Apart from being inexhaustible and at some places cheaper than coal or oil, electricity has another advantage: it can be carried by wires for great distances. Today, it can be conveyed two or three hundred miles. Current from the Niagara Falls in America goes 450 miles to New York. So now it is only unattached things like ships, motor-cars and aeroplanes that need to rely on coal or oil.

India has, like the rest of the world, passed through the various stages of the conquest of Power, though later than most other countries. We are just entering the age of electricity. As you travel through the country by train or car, you see steel masts, with four legs and many arms, dotting our countryside. Each of those arms grasps copper wires which carry electric energy.





Almost half of this energy is produced by water-power. In the provinces of Bombay and Madras, there are large water-power (hydro-electric) stations. The biggest is in Bombay, where Tatas have built reservoirs along the top of the Western Ghats. From those reservoirs the water is sent 1,600 feet down pipes to the foot of the hills, where 300,000 horse-power of electricity is generated. It is with this power that the city of Bombay is lighted, that 53 of its 65 cotton mills work, that its trams run, and that trains are pulled from Bombay to Poona on one side and to Igatpuri on the other.

The second biggest water-power centre is that which harnesses the falls on the Cauvery river in Southern India. This current works, among other things, the big gold mines at Kolar in Mysore State.

The hydro-electric stations work on the grid system—that is, those near one another are grouped together, and through a network of wires they pool their power, thus supplementing one another's work. There are four such grids working in India—in

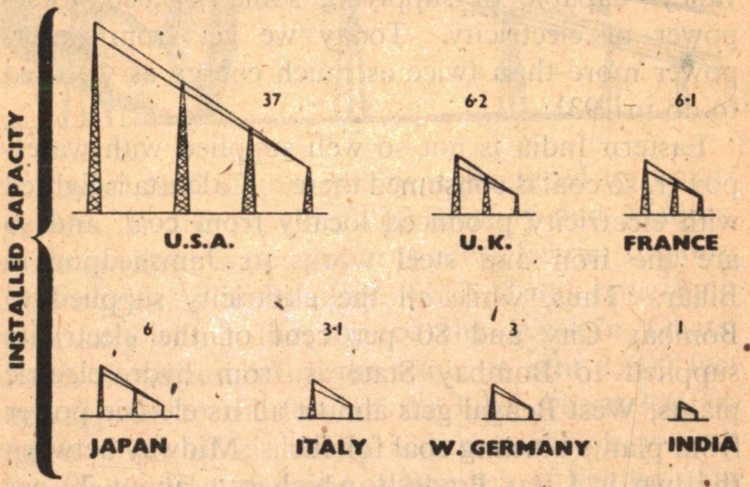
Bombay, Madras & Mysore, Uttar Pradesh and the Punjab, and a fifth, which will be one of the largest, is under construction in the Damodar river valley—capable of supplying some 750,000 horse-power of electricity. Today we get from water-power more than twice as much energy as we used to do in 1931.

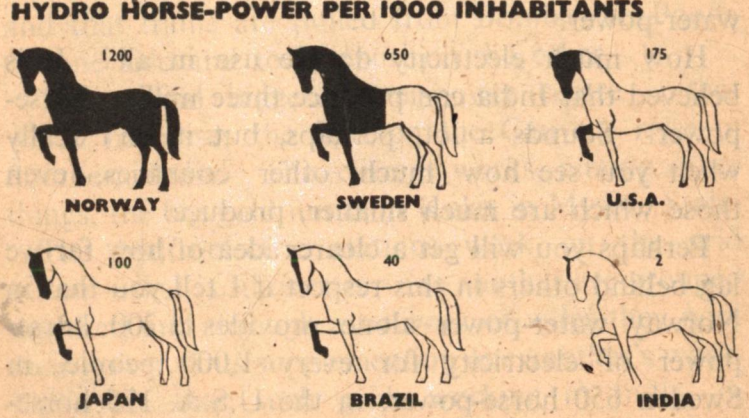
Eastern India is not so well supplied with water-power, so coal is consumed there. Calcutta is lighted with electricity produced locally from coal, and so are the iron and steel works at Jamshedpur in Bihar. Thus, while all the electricity supplied to Bombay City and 80 per cent of the electricity supplied to Bombay State is from hydro-electric plants, West Bengal gets almost all its electric power from plants burning coal for fuel. Midway between the two is Uttar Pradesh, which gets about 70 per cent of its electricity from coal and the rest from water-power.

How much electricity do we use in all? It is believed that India can produce three million horse-power. Sounds a lot, perhaps, but it isn't really when you see how much other countries, even those which are much smaller, produce.

Perhaps you will get a clearer idea of how far we lag behind others in this respect if I tell you that in Norway water-power alone provides 1,200 horse-power of electricity for every 1,000 people, in Sweden 650 horse-power, in the U.S.A. 175 horse-

power, in Japan 100 horse-power, in Brazil 40 horse-power—and in India? A little over 2 horse-power for every 1,000 people!





Makes us feel very small, doesn't it? But then, it's hardly surprising when you remember that we have so few factories, that almost all our trains, and there are not so many of them, are pulled by steam locomotives, that electric light is not known outside the big towns and that even in towns only a few people use telephones and radio sets. It is because we don't know how to make electricity serve us that we consume so little of it. Could we then get more power if we wanted? We certainly could! Not only more, but hundreds of times more power!

India has, next to Canada and the U.S.A., the finest resources of water-power in the whole world —something like 27 million horse-power as against Canada's 43 million horse-power and the United States' 35 million horse-power. And how much of it do you think we use at present? About a fiftieth! But while we use only a fiftieth of what we could, the United States use a third of what they could, and so do France and Japan. Germany utilizes over half. and Switzerland—these small peoples seem to have all the brains!—nearly three-fourths.

An English engineer, who wrote many years ago a book called *Happy India*, gave an even more rosy picture of our resources. He calculated our water-power like this. The length of the Himalayas and our other mountain ranges he put at 3,000 miles. One cubic foot of water falling 1,000 feet in one

minute can generate, he said, 2 horse-power. From which he counted a total of 150 million horse-power from natural waterfalls and rivers alone. This of course is a very liberal estimate because all this flowing water cannot be stored and converted into electricity economically; but it goes to show the tremendous possibilities of our mountain ranges.

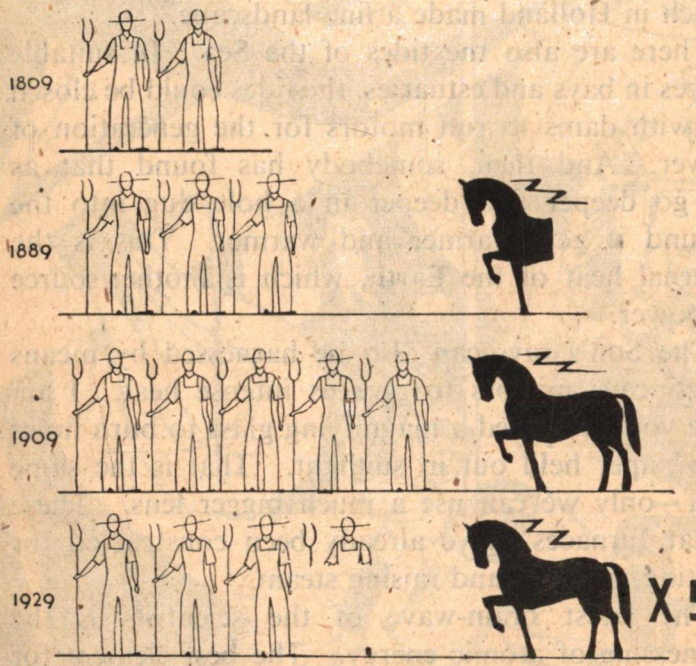
With such a wonderful ally in Nature, what can't we do? We can set up big factories to make the things we want for ourselves. We can carry electricity to the villages and not only light up the huts of the peasants but teach them to use electric pumps for getting water and electric machines for grinding and crushing and threshing. The picture opposite gives you an idea of how much electricity has come to be used for agriculture in the United States of America. Each man in the picture stands for one million people working on the land. Each horse means five million horse-power of electrical energy used by them.

To brighten the lives of our people, we can introduce to them the radio, the gramophone, the telephone and the cinema. And on the radio there would be many more school broadcasts. And if after doing all this we still had some electricity left over, we could use it for extracting nitrogen from the air for manufacturing 'nitrolin', which is a fine chemical for fertilizing the soil.

To do all this, however, we shall need lots of

electrical machinery. At present, we get it from Europe and America. In 1951-2, we paid Rs 162 million for such machinery. But we had better try to make some of it ourselves since we need such a lot of it. Making machinery, particularly electrical machinery, is a highly skilled job, but isn't it time we started learning some of these things from other countries?

And when we have done all this and used up all our water-power and our coal reserves there will open up before us other possibilities. Can you



imagine all the wonderful ways in which the scientists of the world are trying to capture power from the elements? Our old friend Wind-power, whom we discarded in favour of other sources of power, can come back again in a new form. There are some regions which are constantly windy. Here one can generate tremendous quantities of electric power with the use of wind and then carry the current to distant places. These power stations will, therefore, be very different from the windmills of yore which were scattered in almost all parts of a country and which in Holland made a fine landscape.

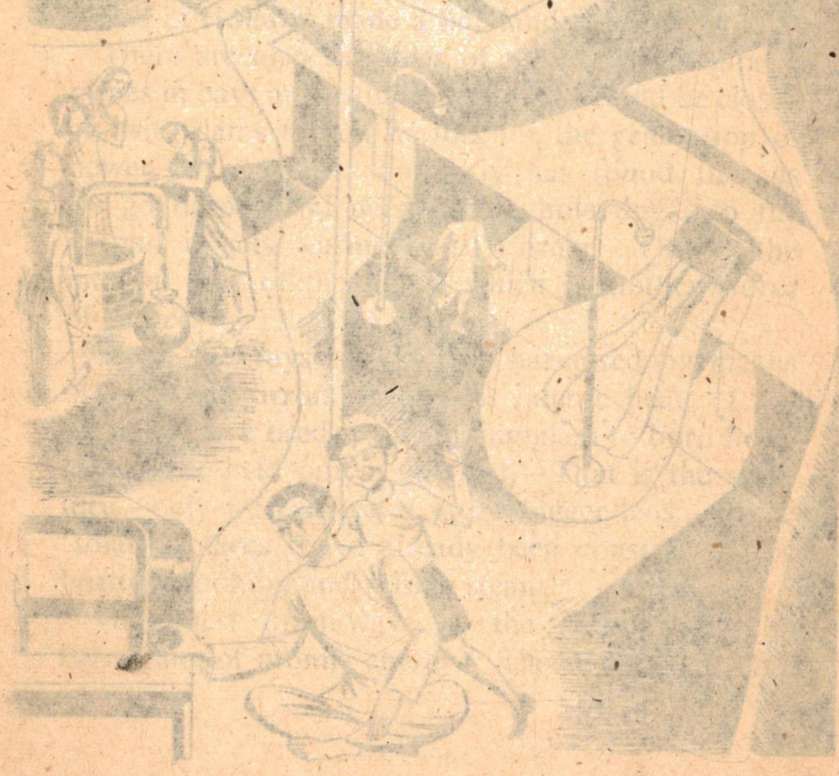
There are also the tides of the Sea. In suitable places in bays and estuaries, the tides could be closed off with dams to run motors for the generation of power. And then, somebody has found that as we go deeper and deeper in a hole dug into the ground it gets warmer and warmer. This is the internal heat of the Earth, which is another source of power.

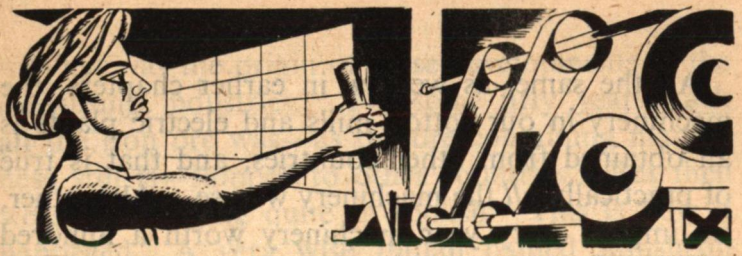
The Sun's rays can also be harnessed by means of concave mirrors to give us intense heat. I am sure you have used a magnifying glass to burn holes into paper held out in sunlight. That is the same idea—only we can use a much bigger lens. These 'solar furnaces' have already been constructed for heating, cooking and raising steam.

The latest brain-wave of the scientists is the harnessing of atomic energy. The best element for



releasing atomic energy is uranium. It is not as plentiful as the other minerals which man has used so far. But the little of it that there is can give us so much power that we can dispense with all other sources of power and still have more power than we are ever likely to need. One Nobel Prize-winner has calculated that 'in one shovelful of earth, scooped up anywhere, there is enough uranium to produce energy ten times greater than the energy yielded by an equal shovelful of coal'. And so—what can we *not* do?





XI
MEN OF STEEL

Do you know why the dictator of Soviet Russia was called Stalin? It wasn't his own name, which was Josef Djugashvili. He was given the name Stalin, which in Russian means Man of Steel, because he was said to be as hard as steel.

But there are other men of steel in Russia also, just as there are in other countries, thousands of them, and they are just as useful as dictators, and not such a nuisance! These are what we call Machines. They are made of steel, and they do the work that men do—only much better and quicker.

When a country has under its land a lot of mineral ores which contain iron and other metals, and when it is rich in things like water and coal, it can provide itself easily with lots of machines. For machines are made of metal and are moved or driven by electric power.

India, unfortunately, is an exception. As we have seen, we are quite rich in metal resources, and in fact we have the world's best store of iron underground. We are fairly well provided with coal, and have any amount of water-power at our disposal.

All the same, as we saw in earlier chapters, the machinery in our cotton mills and electric plants is all obtained from other countries, and that is true of practically *all* the machinery we use. Altogether, we import every year machinery worth a hundred crores of rupees. Why, we even have to get such simple little things as pins and screws and needles from other countries! Recently, however, we have started manufacturing some kinds of machinery within the country. We now produce substantial quantities of machine tools of simple types. Machine tools are 'machines that make machines'. The new factory which the Government is putting up for the manufacture of machine tools worth 90 million rupees every year will be very helpful in bringing about a really big expansion of the industries which produce all kinds of machinery. Already we produce some of the diesel engines, ring frames and looms used in cotton mills, and other simple types of machinery like sewing machines and radios. There are two big factories, one run by the Government and the other run by Tatas, which can manufacture 170 railway engines a year. We have recently produced at the Hindustan Aircraft factory in Bangalore the first wholly Indian-made aircraft, although it is too small to carry passengers. We have also started at Visakhapattanam the building of ocean-going ships, and elsewhere the manufacture in a small way of bicycles and automobiles.

What was the origin of these developments in the steel-using industries? Till some fifty years back all the iron ore was—as the ore containing manganese still is—shipped to other countries. But then we stopped being quite so foolish. This is how it happened. A very wise Indian named Jamshedji Tata saw that we should never be able to make any of the things we need for ourselves unless first we learned to make the machines which can make those articles. And we could never make the machines, he said, until first we produced our own iron and steel.

Looking round at the beginning of this century for a place to start this new industry, Tata hit upon a little village in the most jungly part of Bihar. The name of the village was Sakchi. It was, but it isn't now. Its name now is Jamshedpur. And it is no longer a village. Almost overnight, that little jungle village has become a big city with a population of 220,000. However did this happen?

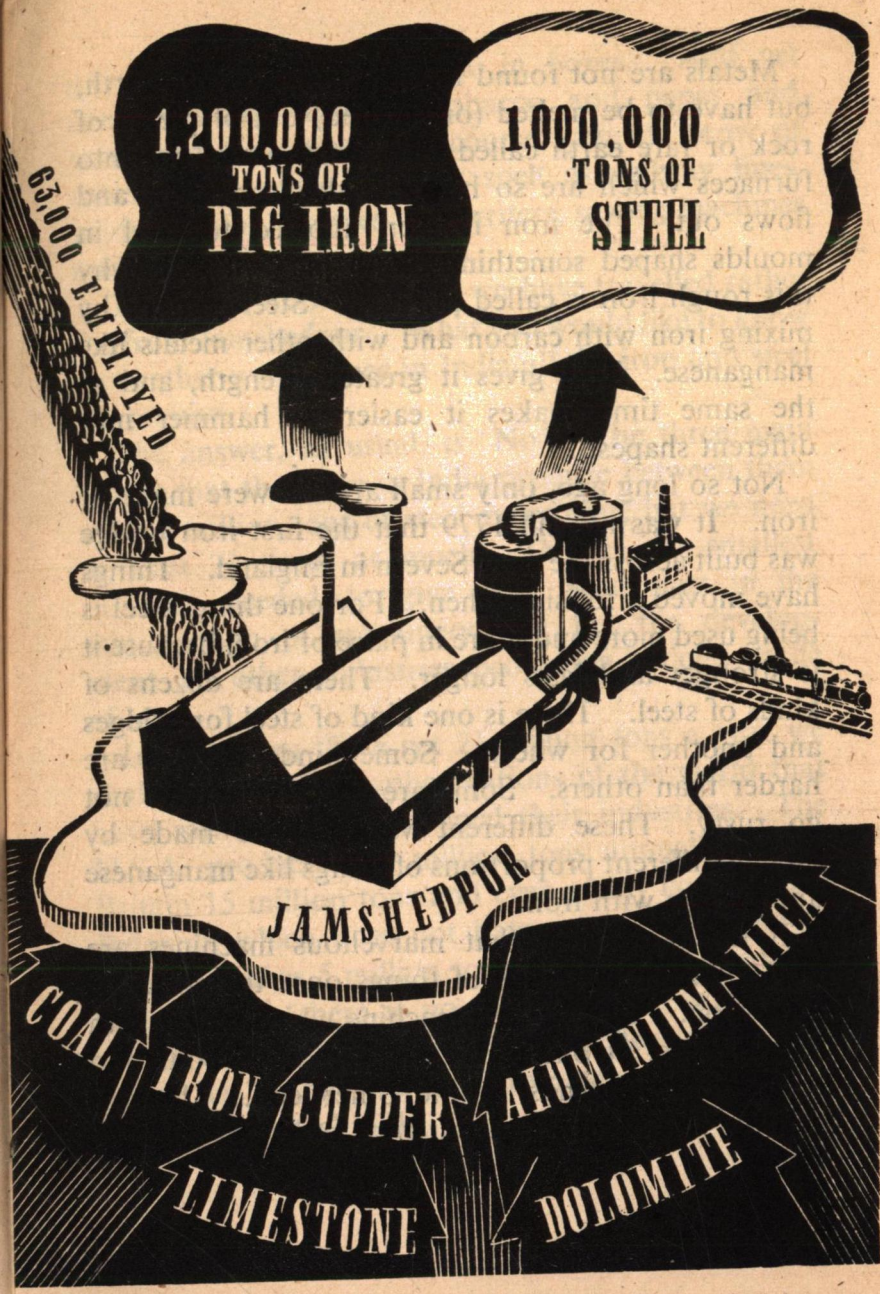


'Long days ago', as a very sweet little girl friend of mine put it, when savage tribes used to move from one place to another in search of land and food, they left the job of deciding just where to camp and start building their homes to the priest or the medicine man. This person claimed he was guided in his choice by spirits or gods.

Jamshedji Tata was something of that sort of wizard. He hit on a spot that had very near it, underground, all the things a metal workshop could possibly need—coal, iron, copper, aluminium, mica, limestone and dolomite. It had also the advantage of being placed on the railway line from Calcutta to Nagpur and to Bombay and of being near the waterways that go to Calcutta. To do the work there were the hardy tribes of Chhota Nagpur who could work so well and who needed so little to eat and wear.

That is how, under clouds of dust and the deafening crash of iron, the village of Sakchi became the Town of Steel, the Pittsburgh of India. Pittsburgh, in case you don't know it, is the biggest centre in America for making steel.

Today, the Tata works is the biggest steel factory in the Commonwealth and is among the twelve biggest in the world. The company has on its payroll 63,000 men and produces about 1,200,000 tons of pig iron and nearly 1,000,000 tons of steel a year. First let me tell you what these things are.


1,200,000
TONS OF
PIG IRON
1,000,000
TONS OF
STEEL
63,000 EMPLOYED
JAMSHEDPUR
COAL
IRON
COPPER
ALUMINIUM
MICA
LIMESTONE
DOLOMITE

Metals are not found in solid lumps in the earth, but have to be melted (or smelted) out of pieces of rock or rare earth called ore. Iron ore is put into furnaces which are so hot that the iron melts and flows out. The iron is then allowed to cool in moulds shaped something like a pig, which is why this rough iron is called pig iron. Steel is made by mixing iron with carbon and with other metals like manganese. This gives it greater strength, and at the same time makes it easier to hammer into different shapes.

Not so long ago, only small articles were made of iron. It was not till 1779 that the first iron bridge was built across the river Severn in England. Things have moved a lot since then. For one thing, steel is being used more and more in place of iron, because it is stronger and lasts longer. There are dozens of kinds of steel. There is one kind of steel for bridges and another for wheels. Some kinds of steel are harder than others. Some are stainless and do not go rusty. These different varieties are made by mixing different proportions of things like manganese and carbon with iron.

It is out of steel that marvellous machines are made that do all kinds of things once the switch is turned on. There is one machine which, if fed with bars of steel at one end, turns out nuts, bolts and screws in thousands at the other end. There is another into which you put rods of wood and get

out matches neatly packed in boxes. And yet another which takes in tobacco and paper and turns out cigarettes. Of course, you all know of other things made of steel such as railway lines, bridges, ships, bicycles, typewriters, sewing machines and shovels.

Talking of iron and steel, we have travelled rather far from Jamshedpur. What you would like to know is whether we produce in India all the iron and steel we require.

The answer, as usual, is 'No'. The three main works that there are in India produce between them over a million tons of steel every year, but we need at least 2½ times as much. That is the smallest quantity needed to give us a good start in the manufacture of machinery and for the development of other industries producing articles made of steel.

In fact, even if we get 2½ million tons a year we shall be far behind other nations of the world that have satisfactorily developed their industries. The U.S.A. produces 100 million tons annually, Great Britain 15 million tons and even a tiny country like Belgium, which does not have enough iron ore of its own, makes 5 million tons. With our wonderful iron deposits there is no reason in the world why we should not at least make as much steel as Belgium, which has to buy pig iron from other countries to feed its own steel mills.



It is not as if we Indians did not know how to handle metals. At Delhi there is an Iron Pillar which is 1500 years old, and at Sultanganj there is a huge statue of Buddha in bronze, which shows that centuries back people in India knew something about handling large masses of metal. At that time, Europeans knew no better use for steel than swords and knives!

It seems that we are now slowly waking up to the heritage of our ancient metal culture. We are taking steps to extend our steel works in Jamshedpur and other places. A scheme of spending Rs 240 million on modernizing and extending the Jamshedpur works has been drawn up. It will give us in six years an additional 180,000 tons of steel. A new product, strips and tubes, will be manufactured for the first time at Jamshedpur. Which is but natural, since Tatas were the first steel-makers in India. Another big works at Burnpur in West Bengal, run by the

Indian Iron & Steel Company, which today makes 270,000 tons of steel, has taken a loan of Rs 150 million from the World Bank for increasing its capacity to 700,000 tons. The Government too is thinking of setting up a factory of its own. It will take five years to build and will cost Rs 800 million. When completed, it will make 350,000 tons of steel and an equal quantity of pig iron in its furnaces.

Are these plans over-ambitious? They certainly are not. Doing all this, it is estimated that in another five years or so our steel-making capacity will go up from a little over 1 million to 2 million tons. Is that enough? Don't forget that Belgium produces 5 million tons every year.

Supposing we do get, after a few years, lots more steel than we have today, what shall we do with it? We shall make machines—machines that generate electric power for us, machines that work factories and make things like cloth and shoes, machines that move (like railway engines, motor-cars, ships, aeroplanes, bicycles and tractors), and smaller things like axes, screws, hammers, bolts and pins. The factories that make such machines, and other things made of iron and steel, are called engineering workshops.

Such engineering workshops are terribly necessary, aren't they? They make all the metal articles like bicycles and kitchen utensils that we use in everyday

life. What is more, they make machines, big and small, which put power into the hands of our factory-workers, the village artisans and even our farmers. They enable these people to produce faster and better the things we need.

We have something of an engineering industry, but it is still very small. We import machinery and other metal articles worth about Rs 1,500 million every year. And still, as we have seen, we have not enough machines on our farms or in our factories. We need many times as much machinery as we have today; and if we are to make much of it, if not all of it, ourselves in our country, we must have hundreds more engineering workshops too!

These engineering workshops would have to be of different kinds and different sizes—some big and some small. Some would just cut fountain-pen nibs and press them into shape. Sometimes, there may be a cluster of engineering workshops in one town, where little else is done. There would be other workshops scattered in almost all cities and towns in the country. The engineering industry of Great Britain, for instance, provides infinite variety. British-made cutlery and motor-cycles, which are famous the world over, are manufactured in a large number of independent workshops. In each of these workshops, the workers have acquired mastery in the manufacture of only one particular part of the article, say, just the blade of a knife, or a cycle



chain, or ball-bearings, or motor engines. These parts are then fitted into each other at a different—and a bigger—place. And from there rolls out the completely assembled motor-cycle.

This is really a wonderful arrangement, and in England it came into being because everybody found it so convenient. If we were to copy it, we would have many more engineers and they would be in every town. They would be able to concentrate on a particular job and learn to do it really well. And they would be independent, working on their own, rather than to the orders of the manager of a very large factory. They would use their heads, and change their methods to try out ways of making better products. In the engineering industry, this is an important thing, for usually it is only an engineer who can make practical use of the discoveries made by a scientist. If we are going to benefit from the advance of science we need all the engineers we can get.



XII

HINDOSTAN HAMARA

'Nice sort of castles to build in the air,' I think I have overheard some of you say as you have been reading this book. Don't burn cowdung! Form co-operative farms! Don't import cloth! Turn more iron ore into steel! Electrify the country! Make all the machines that are needed! Do this, do that—and India will be a paradise of plenty. Which is all very well, but who is going to get all this done, you wonder. Yes, *who*? You certainly have caught the bull by the horns there.

My answer, in case you'd like to know, is 'YOU'. Yes, you, Young Sir, and you, Little Lady, you alone can fit together the odd pieces of the puzzle with which this book started. You alone can make a lovely picture out of them. After all, this is *your* country, and if *you* don't, who d'you think will?

'But how?' you ask. Well, how do people all over the world manage their affairs? There are things which they do through their governments, and the others they do for and by themselves. People cannot afford to wait for the government to start everything; they too have to do things for themselves.

Unfortunately, governments are almost always

slow and lazy and do only as much work as the people force them to do. If the people are slack or indifferent, so is the government. As someone has said, 'every nation gets the government it deserves'. So you see how much depends on what sort of citizens you are going to become, what you know about your country and what you understand of its problems.

This little book has tried to get you started towards such an understanding. I wonder what you have learnt from it. I'll tell you something *I've* learnt from it—that we Indians are allowing what we possess to run to waste in a very foolish way. That is because we do not try to plan our country's life. We live higgledy-piggledy, from day to day and from hand to mouth, and you've seen into what a mess we've got ourselves.

Soon after we got a government of our own, in 1947, it set about preparing a Plan to stop waste and to get the most out of our country and our people. It established a Planning Commission, which was a group of some eight men who went about asking experts of all kinds for their advice. Now this Commission has prepared the First Five-Year Plan for the Central and State governments to follow.

One of the many difficulties those who make a plan have to face is that not all the things that need to be done can be done together. Each of the big

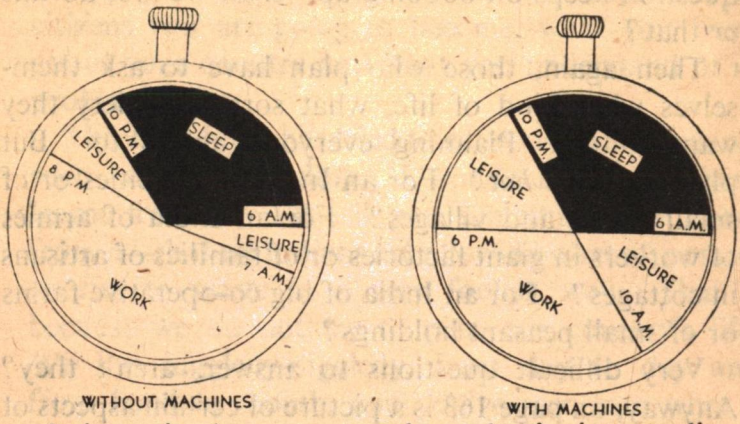
changes that are necessary costs money and energy, and there isn't enough of either in India to make all of them possible at the same time. You can't do this *and* that *and* the other all in the same year. The question keeps on bobbing up—shall we first do this *or* that?

Then again, those who plan have to ask themselves what kind of life, what sort of society they want to see. Planning everyone agrees to. But planning for *what*? For an India of big cities or of small towns and villages? For an India of armies of workers in giant factories or of families of artisans in cottages? For an India of big co-operative farms or of small peasant holdings?

Very difficult questions to answer, aren't they? Anyway, on page 163 is a picture of certain aspects of life in India compared with those in some highly industrialized countries. Perhaps it will help you to give your own answer.

Most young people, admiring the wonderful machines produced by America and Germany and England, would like to see huge factories and workshops set up in India also. So would big businessmen who hope to make big profits by making workers toil at such machines. On the other hand, there are people—and Mahatma Gandhi was one of them—who are horrified at such a prospect and want people to make what they want in their own homes.

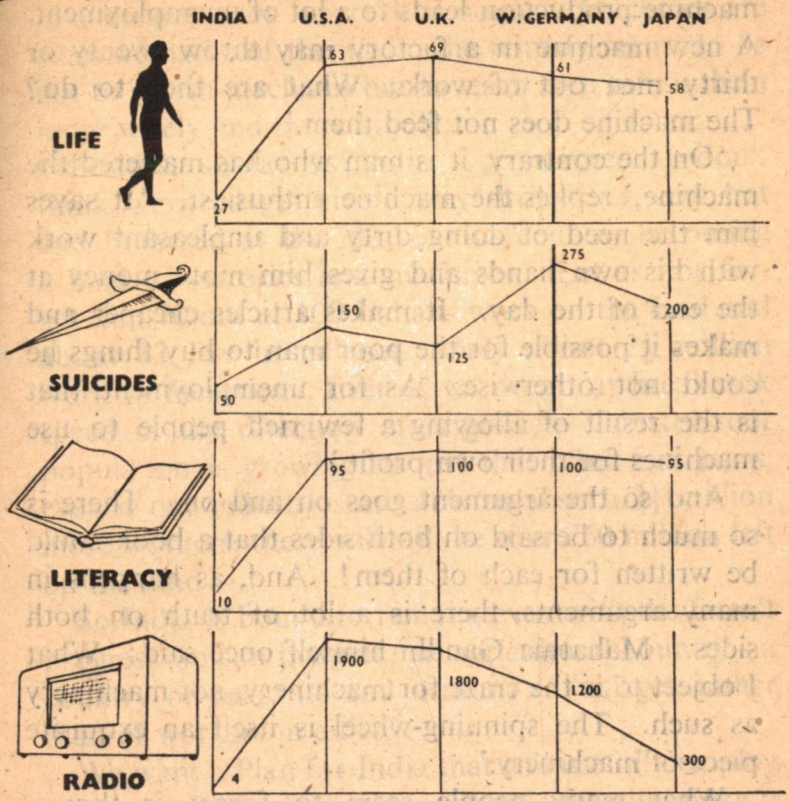
'If we have machines to help us, we do not have to work such long hours, and so we have more leisure to rest and enjoy the good things of life,' argues the Modernist.



'Leisure is dangerous and results in immorality. Don't forget that "Satan finds some mischief still for idle hands to do",' grimly parries the Back-to-the-Village Man.

'Then why not do away with the *charkha* and the plough also, so that we have to work with our bare hands twenty-four hours a day to keep alive?' laughs the Modernist.

'You see, men are not grown-up enough to handle big machines,' argues the Back-to-the-Village Man, 'and they become slaves of machines and are in danger of themselves becoming robots, men without souls, living a sort of press-button life. Besides,



LIFE. The figures give the average length of life in years.
SUICIDES. Out of every million people, this number kill themselves.
LITERACY. Per hundred grown-ups.
RADIO. The number of sets for every 10,000 people.

machine production leads to a lot of unemployment. A new machine in a factory may throw twenty or thirty men out of work. What are they to do? The machine does not feed them.'

'On the contrary, it is man who has mastered the machine,' replies the machine enthusiast. 'It saves him the need of doing dirty and unpleasant work with his own hands and gives him more money at the end of the day. It makes articles cheaper and makes it possible for the poor man to buy things he could not otherwise. As for unemployment, that is the result of allowing a few rich people to use machines for their own profit.'

And so the argument goes on and on. There is so much to be said on both sides that a book could be written for each of them! And, as happens in many arguments, there is a lot of truth on both sides. Mahatma Gandhi himself once said: 'What I object to is the craze for machinery, not machinery as such. The spinning-wheel is itself an exquisite piece of machinery.'

What many people seem to forget is that a machine, like any other invention of science, is neither good nor wicked. It is neutral. An aeroplane can take lives by dropping bombs.



It can also save lives by rushing a doctor or medicine to a distant spot where it is needed. Machines are what we make of them. So the remedy seems to be not to smash machines but to teach men to use them more wisely and more kindly.

Besides, so far as India is concerned, I don't think we need get either very thrilled or very hot and bothered at the idea of this country becoming a land of factories and machines. Let us not forget that 70 out of 100 Indians work on the land and about 83 live in villages. Only about 2½ million work in factories. Even if we do go at breakneck speed in the direction of large-scale industry, our population is growing so fast that after five years, even if our industries are able to absorb 3½ million more workers, there will still be over 260 million left on the land!

So India is bound to remain, even with the fastest progress we can imagine, an agricultural country—a country of peasants and artisans in villages rather than of workers in cities.

We want a Plan for India that will usefully employ as much of its man-power as is possible and make it produce as much as is possible. Maximum Employment+Maximum Production+Equitable Distribution should, I think, be the formula.

Does that mean that problems of industry need not worry us? On the contrary, it means that in order to reduce the terrible pressure of population

on the land, we must hurry up with the job of industrializing India. But it also means that since not even three per cent of the people can be absorbed in large-scale industries in cities even after five years, our small industries must be scattered all over the countryside and have their homes in villages and small towns. In this way, those whom the land cannot support can turn their hands to other jobs without being removed from their natural surroundings. Peasants who have nothing to do in the slack season will have some handicraft to fill up their spare time, and those who are not needed on the land at all can spend all their time at cottage industries of various kinds.

There is such a great variety of village industries available. The most popular handicrafts today are the spinning of yarn on the *charkha* and the weaving of cloth—cotton, silk and woollen—on the handloom. Lakhs of people are already at these jobs.

There are all sorts of other crafts which have been practised in India for centuries and which have managed to keep alive in spite of competition from machine-made goods. There is, for instance, work done on various metals. There is the village blacksmith, of course. There are wonderfully skilful craftsmen who make things of brass, copper, silver and gold—from kitchen utensils to the finest ornaments.

Others work on ivory and marble. Yet others



make carpets. There is woodwork of all kinds, from boats and furniture to little toys for children. Baskets are made from cane. Clay gives the potter work to do. The hides of animals keep the tanner and the shoemaker busy.

Seeds are pressed into oil, and from oil is made soap. Sugarcane juice is made into *gur*. Rice is pounded by hand—and is more nutritious than that which goes through the mill. Fruit can be preserved. Ink can be made by hand and so can paper. Paper made by hand in Nepal has been known to last a thousand years.

Cows and buffaloes, goats and hens are there for those who want to do dairy-farming. Bee-keeping too can be a profitable occupation.

If there are all these village industries, why don't our peasants turn to them in large numbers and why are the artisans in such a bad way now?

The answer is that they lack three things—capital, skill, and a market. Most people in an Indian village are too poor to be able to buy raw materials or even simple hand tools. The level of their skill is very low and their taste, though naturally good, is very out-of-date. And what they do make they do not know how or where to sell.

If these small industries are to be made prosperous and popular, a lot of help will have to be given to them to set them properly on their feet. The Government will have, either directly or through

co-operative societies, to give loans to the cottage industries or, better still, supply them with raw materials to get them out of the clutches of the money-lenders.

The next thing to do is to open technical institutes and schools where new instruments and tools, new labour-saving appliances and new designs can be invented and training given to selected craftsmen. These could then go round the villages teaching people how to use these tools and make better articles.

The marketing of these articles should be organized by a staff of marketing officers or by co-operative societies, so that the craftsmen may get a fair price for their wares.

It is in these ways that small industries have spread fast and become so popular in Japan, Switzerland and similar countries.

At the same time, village industries will want the big plants in the cities to supply them with certain necessary things. They will need good tools and small machines from big engineering workshops, dyes and chemicals from big chemical works. They will also want cheap and plentiful electric current from giant hydro-electric plants to make their tools move much faster than their own hands can ever make them do. So we see how the village and the city are tied up together, and how one cannot live without the other.

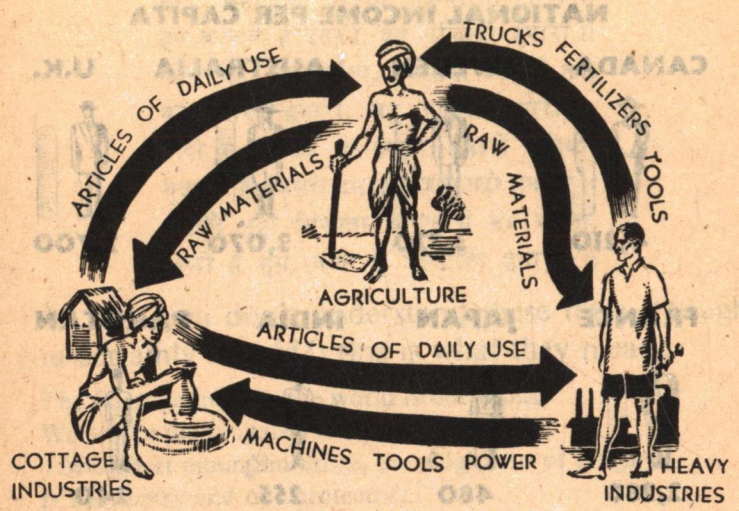
This means that we must be very careful how our big workshops and factories are run. They must provide good tools, and cheaply, and in ever-increasing numbers, to the villagers.

When there are several factories producing any particular thing, say, ploughs, we can expect the owners of these factories to want to do good work and supply good ploughs as cheaply as possible to the farmers. You see, any owner who did not do so would find that the ploughs made in his factory were not being sold. Ploughs made in other factories would be bought instead. The Government will, of course, have to see that the different owners of these factories do not meet and among themselves fix too high a price for all the ploughs, as that would be cheating the farmers.

In fact, the Government could set up one or two factories of its own for the manufacture of ploughs. This would prevent the factory-owners from coming together with the object of raising the price of the plough or supplying poorer stuff. The Government factories, if they were efficiently run, would make the other factory-owners pay more attention to their own efficiency. There might, of course, be one or two business men who could run their factories even more efficiently than the Government, and make better ploughs at a cheaper price.

So, in our picture of India Tomorrow, we see a combination of Government and Free Enterprise;

factories run by the Government alongside of factories run by private people or companies for profit. This is an arrangement which would make everyone more efficient and prosperous. We see in our picture the small industries run by artisans in villages and towns, preferably organized in co-operative societies. By the side of the factories and workshops, big and small, there is, of course, India's Biggest Industry—the cultivation of the land.

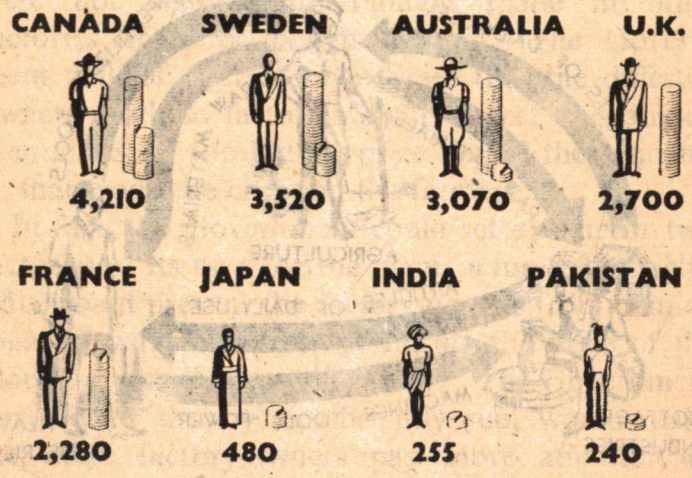


Here you see how each of these three partners in the economic life of the country would help one another and be fed by one another.

What we shall have to do is to try and strike a balance between a mainly agricultural country such

as India is today—'hewers of wood and drawers of water' for more advanced countries—and the sort of top-heavy industrial country that England has become. We must have many more industries, but they must be spread out in cottages and in little workshops scattered all over the country. That way, we can avoid the horrors of machinery without throwing away its advantages.

NATIONAL INCOME PER CAPITA



Like people in other countries we dc want more of the good things to eat, to wear and to use. We want them, however, not because they are the finest things in life, but because they help men and women and children to get the best out of life and to give the

best that is in them. Round about us is the great expanse of India and within each one of us too there is a little bit of Our India. We want to cultivate what is *round* us so that we can cultivate all that is *in* us. We are proud of our country and we want it to be just a little proud of us.

And so let's all sing together a song one of our great poets, Mohammad Iqbal, has given us:

सारे जहाँ से अच्छा हिन्दोस्ताँ हमारा,
हम बुलबुलें हैं इसकी, यह गुलिस्ताँ हमारा ॥
पर्वत वह सबसे ऊँचा, हमसाया आसमाँ का,
वह संतरी हमारा, वह पासबाँ हमारा ॥
गोदी में खेलती हैं इसकी हज़ारों नदियाँ,
गुलशन है जिसके दम से, रश्के जहाँ हमारा ॥
मज़हब नहीं सिखाता आपस में वैर रखना,
हिन्दी हैं हम, वतन है हिन्दोस्ताँ हमारा ॥

In case you don't understand these lines (though you certainly should!) this is what they mean:

The finest country in the world is our India,
We are its nightingales, it is our rose-garden;
The highest mountain-range, the neighbour of the sky,
Is our sentry and our protector;
In its lap play thousands of rivers
Which make of it a garden that is the envy of the world;
Religion does not teach us to bear enmity towards one another,
We are Indians and our country is India.



SBN 19 560540 3

OUP
INDIA
Rs 8.50