



# THE ROYAL BANK OF CANADA

## MONTHLY LETTER

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### THE WORLD'S FOOD

**W**HILE we on this continent complain of the high cost of living, hundreds of millions of people elsewhere cannot get enough to eat.

There has never been enough food everywhere in the world. Even before the war 1,000 million people were constantly undernourished. Philosophies have been based on that fact: philosophies that encouraged fortitude, that promised to reward privation, that praised and exalted those who did without. Now, according to both scientists and philosophers, the world is up against a crisis.

William Vogt, Chief of the Conservation Section of the Pan American Union, has just published a book called *Road to Survival* in which he declares: "By excessive breeding, and abuse of the land, mankind has backed itself into an ecological trap. By a lopsided use of applied science it has been living on promissory notes. Now, all over the world, the notes are falling due."

This article is being printed at a time when there is a world shortage of food amounting to a famine in some lands, while in others there is a ration scale more skimpy than during the war. It is necessary that this situation should be known to all people in all countries. It is essential, too, that the reasons should be known, so that we shall not be deluded into laying the blame on climate, bad luck or the economic system.

Insofar as today's shortage is the result of mankind's flouting of nature's laws, nature has the whip hand. Nature can wait and re-establish her equilibrium if need be after man has disappeared, through his own folly, from the scene. We shall see, in this article, that nature does not overlook mistakes, nor does she make allowances for ignorance.

We in Canada are likely to think of hunger as a "gnawing" sensation that sends us with all speed to the nearest restaurant, or to the ice-box. We are surprised when we hear from a "displaced person" that chronic hunger does not make itself felt in the stomach, but in the head. After a few months of inadequate diet your mind is robbed of all thought except that of finding

something to eat. With that as your main desire you can't concentrate on producing goods for export, or on the moral issues in life. How different that is from the "shortages" which plagued Canada in recent years: scarcity of steaks, salad oils, lettuce and sugar.

#### *We Live On the Soil*

The world food situation is none too bright. Solution of the problem emphasizes not only Ruskin's memorable dictum: "If you want food you must toil for it," but the need, too, for understanding and education and co-operation.

This means that we must realize how utterly dependent we are upon the earth and its fruits. Canadians have a country which by virtue of the gifts of Providence is one of the largest suppliers of food to the world market. While many other countries have skidded far down the road toward national suicide by destroying the soil which alone makes possible their survival, we have still time to save our soil and expand its usefulness.

Only a few inches of topsoil stand between the human race and oblivion. It is the one natural resource besides air and water without which human life cannot exist. The land is not only the source of life-sustaining food, but the base of our economy. It stores up energy and releases it when we need it. Knowing its capabilities, treating it according to its needs, using the proper methods of cultivating it, conserving its goodness: these form the basis of the farmer's responsibility to the land. But the city man is equally concerned, because no matter what his business may be he depends absolutely upon the soil for what he eats.

As to co-operation, we need to recognize that loss of productive land anywhere on the face of the globe affects the people of every other part of the world. This is so because, as R. H. Musser pointed out in the *Canadian Agriculture Institute Review*: "Every acre which goes out of production means that the pressure is increased on the remaining good acres." Unless we understand this, and do something effective about it,

the people in barren countries will be driven to poverty and hunger and discord, and this, says Dr. Musser, "is the condition of which strife is born."

### *Get Down to Earth*

Is man really wise? He is building rocket-ships in which to fly from this planet to some others. Unless he improves his food supply he may need his space ships, but he has no guarantee that he will find a better source of food supply on any other world. Perhaps, as was suggested in a recent *Montreal Gazette* article one may ask whether man needs to escape the earth or get down to it.

Erosion is the serpent in our food production garden. Over immense areas of the world, precious topsoil has been wholly or partially lost, or is threatened with removal. It took ages to build up its balance between climate, microbes, plants and trees.

Photographs in our periodicals usually show the eroded lands of far-away countries, but even North America presents a dismal and foreboding soil-erosion picture. An estimate published last Spring said that every 24 hours erosion carried away the equivalent of 200 of the best 40-acre farms in the United States. In one month in 1947, more than 115 million tons of topsoil in Iowa were swept away by wind and rain.

Vogt declares that American civilization, founded on nine inches of topsoil, has now lost one-third of this soil. Dr. Hugh Bennett of the U.S. Soil Conservation Service dramatizes the figures by saying that if the soil lost annually by erosion in the United States were shovelled into ordinary railway gondola cars it would fill a train reaching four times around the earth at the equator. It may be going to build another Atlantis for some future geologic upheaval to raise from the bottom of the sea, but that is of little consolation to this generation or its children's children.

Even Canada, as was pointed out in our Monthly Letter of August, 1946, has a serious erosion problem affecting many places. Heavy drifting started in Saskatchewan soon after the prairie was ploughed. Control has been successful but so sporadic, says Vogt, that the total effect has been slight. On experimental farm land at Ottawa, with a rainfall of 15 inches in 4 months, eight tons of soil per acre were washed off a corn plot planted up and down a 5 per cent slope, while 22 tons were lost off an 11 per cent slope. In one hour on a June day in 1946, a rainfall of 3 inches removed soil to the extent of 72 tons per acre from a summer-fallowed area on an 11 per cent slope. These records show the extent of the menace.

In addition to removal of soil, there is depletion of soil by washing out needed chemicals. In certain parts of Florida and Louisiana, says Louis Bromfield in his popular *Malabar Farm* chronicle of conservation efforts, one can see cattle walking kneedeep in grass, with their ribs and hipbones showing, while on the ranges of New Mexico and Arizona and western Texas, where a superficial glance reveals scarcely any vegetation at all, cattle look sleek, healthy and well fed. The difference is in the mineral content of the vegetation.

The growth, health and intelligence of people in whole regions are affected by the extent to which vital elements are retained in the soil. In one southern state, says Bromfield, where the soil has been badly leached by generations of poor agriculture, the United States Selective Service examinations showed a rejection record of nearly 75 per cent.

### *Extractive Farming Fatal*

When we look at what has happened on other continents we see that the extractive farming pursued by man has milked the soil and exhausted his environment. Soil erosion follows soil exhaustion. The early home of Chinese civilization, it is said in *Vanishing Lands*, a book by Jacks and Whyte which did much to awaken interest in conservation, now resembles a battlefield scarred by forces far more destructive than any modern engines of war, through which the Yellow River transports an annual load of 2,500 million tons of soil.

Those who have read Pearl Buck's books know intimately the struggle for existence of China's farmers, each on his tiny lot. China needs more of everything: 60 per cent more fats and oils, 327 per cent more fruits, fifty times the milk she now has, just to reach a minimum standard of diets. During the past century, says Vogt, it is estimated that 100 million people have starved to death in China.

Or take India. A report to the United Nations says that in normal times 30 per cent of the population, representing 100 million people, do not get enough food of any kind. Contrasted with the Canadian 1947 level of daily calories, which was 3219, the average daily caloric intake of a group of villagers in South India was only 1700, and that of poor families in a Madras suburb 1800.

So much for the Far East. Turn to Europe. Before the war most countries imported food — the United Kingdom to the extent of 50 per cent, Germany 25 per cent, Greece 40 per cent. In the Balkans, children now dig soil from rock crevices with teaspoons and add it to the fields; in the Vosges region soil washed into the valleys is carried back in baskets and replaced on farms. The average farm in Greece has 9 acres.

Africa cannot support a large population. It offers, says Vogt, the lowest carrying capacity per square mile of any continent. With only 20 million more acres of cultivable land than South America, it already has 70 per cent more population.

The Soviet Union, according to a calculation made in 1941, had 388 million acres under cultivation, giving an average of 2.3 acres per person, compared with Canada's 5 acres per person.

In southwestern Asia is being demonstrated, though amid scenes of regrettable upheaval, what can be done in restoration of unproductive land. Palestine is, as reported in *Road to Survival*, showing that "arable land" is as much a function of the farmer as of the farm.

## There's No More Land

So there is the story of the world's present situation in regard to food, and of some of the factors causing it. The causes include lack of attention to land usage and lack of expenditure on land care; erosion; depletion of needed chemicals; faulty cropping; pests and waste. And there is one inescapable fact: there is no more land on earth than is known to us today.

There are other frontiers, of course. Science can, perhaps, come to our rescue, if it turns out to be as successful with plant and animal diseases as with human diseases. It may develop cold-resistant grains with which we may push our grain fields nearer the poles; and drought-resistant grains which will open up farming in dry regions. It has even been suggested that food plants of some kind may be grown on the ocean floor. But suppose by all this we increase production 20 per cent, we still are faced with a predicted 100 per cent growth in population in the next century.

And even 20 per cent increase in production would fall short. Assuming a rise in population of only 25 per cent by 1960, the Food and Agriculture Organization of the United Nations estimates that the following increases over pre-war production would be the minimum needed to meet its target:

Commodity	Per cent Increase	Commodity	Per cent Increase
Cereals . . . . .	21	Pulses . . . . .	80
Roots and tubers . . . . .	27	Fruits and vegetables . . . . .	163
Sugar . . . . .	12	Meat . . . . .	46
Fats . . . . .	34	Milk . . . . .	100

## What About Population?

What is the truth about population? Is it growing faster than the earth's ability to sustain it? All the layman can do is to take the best opinions of the best-experienced students.

It is significant that at the recent centenary meeting of the American Association for the Advancement of Science views were expressed very much in line with those of Malthus. Thomas Malthus was an English curate who published *An Essay on the Principle of Population* in 1798. It raised a storm of argument, and in addition it suggested to Charles Darwin the principle of natural selection in the struggle for existence. Upon reading Malthus, says Darwin in his autobiography, "it at once struck me that under these circumstances favourable variations would tend to be preserved and unfavourable ones to be destroyed."

People living in the expansive days of the 19th Century found it fashionable to laugh at the prophesies of Malthus: today no one is so sure. He is, of course, widely misquoted, so let's go right to his own writings for what he did say:

Of the other great scourge of mankind, famine, it may be observed that it is not in the nature of things that the increase of population should absolutely produce one. This increase though rapid, is necessarily gradual; and as the human frame cannot be supported, even for a very short time, with-

out food, it is evident that no more human beings can grow up than there is provision to maintain. But though the principle of population cannot absolutely produce a famine, it prepares the way for one; and by frequently obliging the lower classes of people to subsist nearly on the smallest quantity of food that will support life, turns even a slight deficiency from the failure of the seasons into a severe dearth; and may be fairly said, therefore, to be one of the principal causes of famine.

Seasonal crop failures continue today, as in Malthus' day, and in addition there are worn-out lands which we must rehabilitate if they are to produce crops as luxuriantly and as readily as in Malthus' time.

Sir Henry Tizard, president of the British Association for the Advancement of Science, commented two months ago on the other side of the picture: increasing population. Science has lengthened man's life, he said, to the extent that hunger is apparently about to shorten it again; population curbs are no longer effective; war is less deadly than it was, and disease is being brought under control; there is no dramatic new discovery in sight by which the world can suddenly increase production as it did with chemical fertilizers; in fact, the world already has too many people for the food supply, and population continues to increase.

So far as the statistical evidence goes there were 445 million people on earth 300 years ago: today there are 2,251 million. With continuance of the rate of increase that prevailed from 1936 to 1946, says an article in the *New York Times*, there will be over 21,000 million people by 2240. Even if we cut this estimate in half, as the more cautious experts do, the world's food situation still calls for attention.

Such vast figures are hard to grasp, so let's take just two examples. Java, which today is bursting at the seams with 47 million people, had only 4½ million in 1815; India's population has doubled since 1872, from 206 million up to an estimated 420 million. If health conditions were further improved in India to the point where they equalled those in Canada, and population increase kept on at the same rate, within a century there would be enough Indians to populate five earths.

## Canada is Affected

Canada is vitally interested in this problem, because she is one of the world's main surplus food producers. With a few others, like the United States, Australia, New Zealand, Argentina and Brazil, her people have nothing to worry about so far as they themselves are concerned. In fact, medical men tell us that many of us eat too much for our own good. But in the "want" countries, Sir Henry Tizard points out, about three-quarters of the people went to bed hungry last night, and for years of nights before that.

Events at the farthest part of the earth, it is being demonstrated every day, have their impact on Ome-gee, Ontario, and Glace Bay, Nova Scotia, and Prince Rupert, B.C., and on every city and grain-elevator station in Canada. The higher standard of living that would be possible with contentment and plenty enjoy-

ing a world-wide reign are denied in Canadian communities by derangement of commerce, raised prices, shortage of supplies, and a sense of impending trouble.

The situation has its effect on prospects of world peace, too. A hungry man does not look at life in the same way as if he were well fed. There is an apathy, a sort of somnambulism, in his outlook. Interest in public, political, social and cultural matters dies within him. He becomes centred on thoughts of self-preservation and preservation of his family at all costs. When storms blow over such people, they are apt to prove dangerous to all in the neighbourhood. Their critical faculty is dulled, and, as was remarked in a *New York Times* article a year ago, "Such men will sell themselves for promises."

#### *What's to be Done About It?*

The key to maintaining supplies of food and extending them is a programme of soil conservation. Every grain of wheat, every egg, every pound of butter and every piece of beef depends upon an irreducible minimum of earth to produce it. This kind of conservation must start at the hill-top, and follow nature's laws.

Then there is the problem of keeping soils at a sustained level of productivity. In most places this means mixed rotational farming with fertilization. It is worth noting the results which followed adoption of complete soil conservation by farmers in Texas, as reported in the *Agricultural News Letter* of the Federal Reserve Bank of Dallas in 1946. On 12 per cent fewer acres 1,400 farmers produced 49 per cent more wheat. They increased the production of grain sorghum 62 per cent, corn 30 per cent, legume hay 86 per cent, and peanuts 112 per cent.

That is the practical part of feeding the hungry world. There is, in addition, a moral obligation on these plentifully endowed. Ruskin said in his *Sesame and Lilies* "The order to us is not to feed the deserving hungry, nor the industrious hungry, nor the amiable and well-intentioned hungry, but simply to feed the hungry."

For the time being, it is said in the FAO report on *World Food Supply*, the problem is still one of stretching every resource in the food-exporting countries to prevent famine and alleviate hunger abroad. And Vogt adds: "Hungry people are not likely to be willing to suffer the slow processes of democracy. Freedom seems far less important when one's belly is rubbing one's backbone — and the Man on Horseback, or the man on the red-starred tank, takes on plausibility as a leader out of the wilderness."

This brings us to the question of distribution of such food supplies as we have. Lack of foreign exchange may make it difficult for many countries to import the food they need, and it is imperative that the supplying nations make it possible for the needy nations to buy. "The poorer countries cannot master the problem or meet the challenge alone," says the FAO report. "All nations will gain by world advances in human health and well-being, and in production and trade, and all must participate in bringing them to pass."

As far back as January, 1944, the President of this Bank said in an address:

"I personally believe that large outright gifts of food, raw material, finished goods and machinery to backward and devastated countries will in the long run, and even from the most selfish point of view, not only contribute most to human welfare, but both in the short and long run be in the best interests of those nations which can afford to make the gifts. If this is too much to expect of human beings in their present stage of development, the alternative must be loans on a very large scale on long and easy terms, or probably a combination of both loans and gifts."

#### *Mankind's Biggest Job*

The next few years will be critical in world history. The co-ordinated effort to ward off world hunger is in the hands of the United Nations Food and Agriculture Organization. It was set up to help member nations in raising levels of nutrition and standards of living, securing improvements in the efficiency of the production and distribution of all food and agricultural products, bettering the condition of rural populations, and thus contributing toward an expanding world economy.

The FAO has laid down certain broad objectives. It has set 1960 as a target date on which the world is to achieve a basic ration of 2600 calories a day per person; this means an over-all increase of 90 per cent in world food production. It is a job staggering in scope, the biggest job mankind has ever undertaken. Yet the experts think it can be done, and reports to FAO give good grounds on which to base this assumption.

The thought of organizing the food supply of the world with the basic needs of all humanity in view has a powerful emotional appeal. No decent person anywhere will disagree with its noble daring. In addition, it has momentous political significance to those who love freedom.

#### *Start at Community Level*

How to do it is a good subject for discussion in community meetings and forums, not only in country districts but in towns and cities. We are all in the same world boat, with limited supplies of food. Businessmen, housewives, farmers, transportation workers and miners — all are on one level when it comes to need of food and preservation of world order.

The most critical danger is that we may forget how short we are of time. Today's crisis calls for an immediate uprising of the idea of conservation and development. Productivity of individuals needs to be increased by provision of modern scientific knowledge and modern tools, and by inspiring them to so work as to become a new source of wealth.

Science may have, as suggested earlier, some algebraic "X" it is about to solve, but its discoveries are unpredictable. Meantime there is stirring need for laymen and women to work with the ABC's of the problem: Advance education and industry; Balance deficiencies with surpluses; Conserve soil and resources.