(November 26, 1934)

The Rehabilitation of the Drought Area

By Hon. John Bracken.

President James:—This is the most largely attended meeting of the Canadian Club this season. In presenting your guest today I present an old Ontario boy in the Hon. John Bracken, Premier of Manitoba. The Hon. Mr. Bracken, after going through Parkdale Collegiate, went to the Ontario Agricultural College at Guelph; after graduating there with the degree of Bachelor of Agriculture, he went to Manitoba and made a name for himself as Manitoba representative on the Dominion Seed Board. The following year Saskatchewan claimed him, where he was superintendent of Fairs and Farmers' Institutes. His next position was in the University of Saskatchewan as Professor of Field Husbandry. In 1920 he became President of Manitoba Agricultural College. That, many would have thought, was probably his life's aim and where he might stay. However he remained only two years and in 1922 became Premier of Manitoba. With his work in those various branches, both academic and practical, I think we have a speaker today especially qualified for the subject of "The Rehabilitation of the Drought Areas." Mr. Bracken.

Hon. Mr. Bracken:—Mr. Chairman, members of the Canadian Club, and Radio friends, at the outset of my remarks might I express the pleasure it gives me to have the opportunity of addressing the members of the Canadian Club of Toronto and the many radio friends of my native province. As the chairman has said, I am to speak to you today on "The Rehabilitation of the Drought Area."

THE DROUGHT—A MAJOR CATASTROPHE

The subject was not of my choosing; nevertheless, I make no apology for discussing it before the Canadian Club. I regard it not only as a very great privilege but as a great responsibility as well, — the responsibility of presenting to you, who are far removed from the prairies, the outlines of a situation that in recent years in some parts of the West has assumed the proportions of a major catastrophe.

My remarks will, necessarily, be brief; at best I can hope to touch only the main features of the subject. My purpose will be to try to help the public generally in this part of Canada to understand it, so that any constructive policies that may later be formulated may have the encouragement and support of an informed public opinion.

AN ECONOMIC PROBLEM

The subject is one which in its long time aspects must be looked upon as purely an economic one. At the moment it has a humanitarian side, which I am sure you will be glad to know is not being overlooked; but the justification, if any, for a long time programme of reconstruction must be found in its economic value.

The justification for taking up your time now with the matter lies in the fact that a danger signal has arisen on the horizon of Western agriculture; in an area where since the war ten thousand million dollars in new wealth has been created; in an area where in the average year since 1918 more new wealth has been created than has been produced by the gold mines of Ontario, rich and important as they are, in all of the years since that time. In that area we find that owing to two causes, we have in the last four years contributed eighteen hundred million dollars less to the wealth of Canada than we did in the four years ending with 1928. In that area, as a result of low prices combined with low yields, we have in each of the last four years produced but little more than one-third, in new wealth, of what we produced in each of the preceding years since the war. Whatever combination of

circumstances may have been the cause of low prices, the low yields in Western Canada have been largely due to drought, the subject about which I am to speak.

CONDITIONS IN THE DROUGHT AREA

In approaching this subject the first question you will naturally ask is, "What do you mean by the Drought Area?" and the second, "What are the conditions there?"

Satisfactorily to answer these, one should have in mind two things—the normal rainfall of the Great Plains area of the continent, more particularly the Northern Great Plains, that part which lies in the Prairie Provinces; and one should have in mind also the immediate drought situation of the past two to five years in these Provinces.

As to the normal rainfall conditions of this area, they may be summarized in half a dozen brief statements.

The Western Part of the Great Plains Area is Semi-Arid.

The great plains area, lying East of the Rocky Mountains and West of the Mississippi and Red River Valleys, extends from Mexico in the south to the North Saskatchewan River in the north. It comprises a large part of the Spring and Winter wheat belt of America. In earlier days the westerly part of it was sometimes spoken of as the great American desert. In recent decades man has sought out its potential wealth and has transformed parts of it into producing farms. More recently in some parts of it, crops have failed. While much of it lies within the United States boundaries, we shall confine our discussion to that part which is in Canada, the Northern end of the Great Plains region.

Western Canada is, on the Whole, a Dry Country.

The average rainfall varies from as low as twelve or fourteen inches in some parts, to as much as twenty-one inches per year in others. The climate, is semi-arid, as it is on about one-quarter of the earth's land surface. It is not like another quarter of the earth's surface which has less than 10 inches of precipitation and is, therefore, arid; and it is not like a full half of the earth's land surface,

which enjoys from twenty to one hundred inches or more per year, and is spoken of as humid or sub-humid.

In the Drier Parts of the West the Rainfall is Not Adequate For a Crop Every Year.

The device of Summer-fallowing in occasional years, that is tilling the land but planting no crop, has been developed in order to help conserve a portion of one year's moisture for the use of the next year's crop.

Some Parts of Western Canada Are Drier Than Others.

Southeastern Manitoba enjoys twenty-one inches of precipitation annually, or more than any other part of the prairies. West of this one hundred miles it drops to eighteen inches; west another one hundred miles it drops to sixteen inches, and so on down to twelve or fifteen inches in Western Saskatchewan and Eastern Alberta. Then as the rising land, approaching the foothills of the Rockies, is reached, the precipitation increases slightly. The region of lowest precipitation is along the Alberta-Saskatchewan border, and, generally speaking, the annual rainfall increases both easterly and westerly from that line.

Some Years Are Drier Than the Average.

There are wide departures from the normal rainfall. As an illustration of this, the average precipitation at Calgary is 16½ inches. In one year it was only eight, and in another it is reported as being over thirty.

In Some Years the Seasonal Distribution of Rainfall is Unfavorable.

Normally the heavy rainfall is in the so-called growing months, May, June, July and August. If there be a serious shortage in these months, as there sometimes is, even though it be made up in other months of the year, partial failures may occur.

A Cycle of Dry Years May Occur.

Not only are there occasional dry years, but occasionally a cycle of dry years occurs. To illustrate: At Pier-

son, in Southwestern Manitoba, the average precipitation for a seven months' period in the year 1925 to 1928 was seventeen inches. The average for the past four years was but eight and one half inches and up to a month ago was but eight decimal four inches this year.

The Loss by Evaporation is Greatest in the South.

In the southern parts of the West the loss of moisture by evaporation is greater than in other parts. This is due to somewhat higher temperatures and greater frequency of dry winds. It is the chief reason why crop production on the northern plains of Canada has been more successful than in the zones of equal precipitation on the more southerly plains of the United States.

The "Dry Belt."

In Canada, generally speaking, the precipitation is lowest in Western Saskatchewan and Eastern Alberta, and increases both easterly and westerly from there. Evaporation being greater in the South than in the North, the net result is that drought conditions are generally more severe in Southwestern Saskatchewan and Southeastern Alberta. Sometimes they become severe in adjoining areas as far east as Southwestern Manitoba, as far north as Central Saskatchewan, and as far west as the foothills of Alberta. Directly south of this area and extending to the Texas boundary is the dry belt of the United States.

Nature's Map of the Prairies.

If you could lift yourselves up over Western Canada and look down on Nature's Map of the Prairie Provinces, you would see a base line over eight hundred miles long, north of which are our Canadian prairies, and south of which are the United States prairies. Above that base, the northern boundary of the Canadian prairies extends from near the southeast corner of Manitoba in a northwesterly direction to the North Saskatchewan River in Saskatchewan, then west to Central Alberta, then south to the American boundary. South of the 49th parallel the prairies extend all the way to Mexico,

North of the prairie area in Canada lies the partially wooded or park belt, 50 to 100 miles in width, and north of this again, the forest area, some 300 miles in width, interspersed in places in Northern Alberta with patches of open or partly open land. Beyond this forest belt lie the treeless plains and hills of the Arctic Region. The western portion of the mid-continent prairie area may be regarded as the dry belt of the Great Plains of America. It touches Canada in the south and west-central parts of the Canadian prairies.

So much for our general rainfall or moisture conditions.

With the immediate drought situation in the West you are more or less familiar. It, too, may be reviewed briefly:

The rainfall in many places in the past two to five years has dropped to but little more than half the normal.

Crops have failed in large areas in Saskatchewan, and in parts of Southeastern Alberta and Southwestern Manitoba. Soil drifting, resulting from high winds, dry weather and continuous cultivation of land for annual crops, has increased to an extent never before known.

In six Municipalities in Southwestern Manitoba the value of the wheat, oats and barley produced dropped from thirty-seven and a half million dollars in the four years ending 1928 to less than two and a half millions in the past four years. It dropped from over ten millions in 1928 to less than one-tenth of a million this year. The production of wheat dropped from slightly more than twenty-two million bushels in the four year period 1925 to 1928 to about four and one third millions in the past four years. It dropped from over six million six hundred thousand bushels in 1928 to less than one per cent. of that amount this year.

Multiply that situation by perhaps twenty and you will have a picture of what has happened in the Canadian prairies in recent years.

The volume of wheat produced in the West has decreased from five hundred and forty-five million bushels six years ago, to two hundred and sixty-five millions this year. The production of oats has decreased from two

hundred and ninety-seven millions, to one hundred and ninety-six millions, and the production of barley from one hundred and twelve millions to forty-nine millions. The shipment of grain from one point in Southern Saskatchewan was six hundred and thirty-three thousand bushels in 1928 and but thirty thousand this year.

The value of the grain and other agricultural products, as a result of low prices as well as low yields, dropped from 840 millions in 1928, our best year, to 288 millions this year. In the four years ending 1933 it dropped to a sum eighteen hundred million dollars less than in the four years ending 1928. That is a large sum. It is said to be greater than the sum of all the debts, both Government and private, of the whole prairie area. We ourselves can do something to help restore the original position. You in the East can help us in two main ways, the first of which I should not discuss because it is a political question. You can help us reestablish our markets and you can help us condition climatic limitations and reestablish our agriculture on a better production.

I shall not relate the harassing details of the situation in which scores of thousands of the pioneers, half of whom are your brothers and cousins, and the descendants of these pioneers of the prairies, find themselves. It is sufficient to say that many millions of dollars of public funds have been poured into these areas, chiefly into Southern Sasketchewan but also into Southeastern Alberta, and in some degree into Southwestern Manitoba. Had this not been done, on a scale hitherto unknown and never expected, it is estimated that a quarter or more of the southern part of the Canadian plains would have been, of necessity, temporarily abandoned.

Add to the thirteen municipalities affected in Southwestern Manitoba nearly half the plains of Southern Saskatchewan and millions of acres in Southeastern Alberta, all areas where farmers are either partially or in some cases completely without crops and feed for animals, and require some assistance from outside—add these together and one gets some idea of the magnitude of the immediate problem in Canada. Multiply this picture by three or

perhaps more and one gets some comprehension of the situation in the United States portion of the Great Plains.

The spectacle of shortage of food in large farming areas, and the necessity of shipping livestock away from hitherto prosperous and productive communities, and of shipping in thousands of carloads of feed for animals and scores of carloads of food for human consumption in order to prevent widespread distress and abandonment of land on a wholesale scale,—this spectacle is not a pleasant one to contemplate, and one that you and I and two million others on the Canadian prairies must try as far as possible to prevent in future.

It is cold comfort to know that this year, on the great open plains of the United States, extending for a thousand miles south of the 49th parallel, crop conditions in many parts are even worse than they are north of that line. I went through a part of it last week. In the drought states they are spending one hundred million dollars to reduce the cattle population in order to cope with the feed shortage. It is some satisfaction to know, however, that steps are already being taken to meet the situation there with a major programme of readjustment to better conditions.

WHAT IS THE REMEDY?

I have related to you some unpleasant facts, omitting only the distressing details of the economic condition of the people directly affected. It is, however, of little avail to point out misfortunes unless we, at the same time, indicate a remedy.

What is the remedy? What are we to do about it, if anything?

These questions have been asked in a thousand places in recent days, and he would be a wise man, and a courageous one, who could answer them with confidence and with faith in the outcome of his plans. Nevertheless, they are questions which must be answered, and the answers must carry the conviction born of knowledge and experience.

Plan Now or Suffer Again.—If we are not to witness

similar distress at recurring periods in the future, we must pool our brains and our experience, and in the light of recent as well as earlier history formulate such policies and execute such plans as will adequately meet similar contingencies, which are sure to arise occasionally in the future, just as they have in the past.

We must make intelligent plans to meet recurring periods of drought, or the agriculture, as we know it, of the drier parts of our western plains will eventually pass out of existence altogether.

A Challenge to This Generation.—Is it better, as some have said, to let time and economic conditions determine the future of these areas, at whatever price in abandoned farms, and forced bankruptcy, and disappointed human lives? Or can we rehabilitate the vast areas now temporarily in a state of partial desert? Can we prevent a recurrence of these conditions? Can we avoid the still further encroachment of the drought area upon adjoining lands?

These are vital questions which challenge the practical wisdom of this generation. They are a challenge to our scientific skill, to our statescraft and to our administrative ability. They are a challenge to you and me, as citizens of Canada, as well as to the half million others directly affected in these areas.

Basic Facts.—In approaching any such problem, the first essential is to discover the basic facts. Unless this is done, faulty conclusions are sure to be drawn from wrong premises. Opinions and hopes are a poor foundation upon which to build a structure expected to stand the storms and vicissitudes of a dry and somewhat variable climate.

What are the basic facts relating to the drought situation? There are four sets of them. The first relates to the amount at stake in the area in question; the second has to do with the importance of water to agriculture; the third with the supply of water; and the fourth with man's contribution to the drought.

In thirteen municipalities in Southwestern Manitoba, the value of the land and improvements amounts to fifty-six millions of dollars, not including the investment in railways and in highways. Multiply that by perhaps fifteen and you will have some conception of the material investment at stake in the drier portions of these prairie plains. In four crop districts in Southern Saskatchewan between 1916 and 1933 they produced thirteen hundred million bushels of wheat, valued at twelve hundred and eighty million dollars.

A decision to let the matter take care of itself ought not to be made without taking into account not only the investment at stake but the record of wealth production in past years. Obviously, judged in the light of investment and potential value, there can be but one decision, namely, to face the problem as intelligently and as sanely and as courageously as we can.

THE IMPORTANCE OF WATER TO AGRICULTURE

With respect to the importance of water to agriculture, three things stand out prominently.

First, the prosperity of the West is dependent almost wholly upon crops. Your gold production in Ontario has very greatly accelerated the prosperity of your cities. Your gold mines have produced five hundred million dollars in new wealth since the war. Who will say that your prosperity, as well as that of the West, has not been similarly affected, but in a vastly greater degree, by the ten thousand million dollars in new wealth produced from the soil of the West in the same period of time?

The control of crop yields and the maintenance of soil productiveness are problems that directly affect the prosperity of both the individual and the State. I am well aware that this is not an audience of farmers and it is not an audience of Westerners, yet there is not a man among you that is not vitally interested in the success of agriculture of our Western plains. The restoration of security and a measure of prosperity to the farmers of Western Canada means security against vacant offices and stores not only on Portage Ave. in Winnipeg but on Yonge St. in Toronto and on St. James St. in Montreal.

Secondly, not only does our prosperity out there depend chiefly, and yours here depend largely, upon crops,

but, what must be impressed upon all, water is an absolutely essential requirement for crop growth. It may surprise you to know that it requires more than half a ton of water falling upon the land in the form of rain, conserved in the soil by the tillage of the farmer, taken up by the roots of growing plants and passing out through their leaves, in order to carry into the plant tissues enough soil nourishment to produce one pound of wheat.

Obviously, the less water that falls upon the land and the less that is stored in the soil, the less wheat or other crop will be produced.

The third relative and basic fact is that in a dry area shortage of water is generally the chief limiting factor in the yield of crops. It is therefore of fundamental importance, that where it is likely to be scarce, every ounce of water should be saved that can be saved, and none should be wasted that can be stored in the soil.

The Water Supply.—As to the water supply of the West, I have already pointed out that the whole prairie area has a low average rainfall; with some exceptions it is lower in Western Saskatchewan and Eastern Alberta than in other parts, and the loss from evaporation is highest in the southern section.

It has not been pointed out, but it should be recognized, that owing to the greater evaporation in the southern part of the prairies, the same rainfall there does not produce as much wheat as it does in the more northerly areas in the same precipitation zone.

It has also been pointed out that wide variations from the average precipitation, both as to amount and time it falls, occur from time to time, some years having but little more than half the normal and some departing widely from the normal monthly distribution; and what is of vastly more significance, it has been shown that a cycle of a number of dry years following one another may occur.

These are known facts which man cannot alter. He can plan to lessen their ill effects, but he cannot change in more than a minor way the inexorable laws of nature.

In this connection, it is perhaps well that we should remind ourselves that wet years will come again, that the prairies that are parched today will again blossom and that many will forget the times through which we are now passing. But, just as wet years will come again, so dry years and dry cycles will follow; and with each recurrence of them the bad effects they bring will be rendered worse if we do nothing now, and they will be made better if we act wisely now. They will be made better only by the degree to which effective plans to offset and minimize them are now made and carried out.

MAN'S CONTRIBUTION TO THE DROUGHT

The fourth set of basic facts relates to man's contribution, favorable or otherwise, to the present situation.

It is well that none should lose faith in the course of future events, but let us not fail to recognize that man cannot change the cosmic forces of the solar system. Nothing that man can ever do will double the rainfall in a dry year. Nothing that he can do, aside from artificial irrigation, which is not practicable for more than a small acreage in the West, will ensure a crop when rain fails to come in reasonable quantities for any considerable period.

But what man may do, is to modify the immediate environment of his soil in such a way as to either intensify the bad effects of dry years or, on the contrary, to lessen and to some extent avoid them. Man can influence the amount of rain that may be stored in the soil, and the amount that may be retained there, and he can influence its efficiency in producing crops. He can save more of the "run-off." He can lessen the loss from evaporation. He can, to some degree, protect his soil from wind erosion. He can grow suitable crops. He can modify his tillage and cropping practices. He can avoid inferior land. He can abandon obviously submarginal land. Where the acreage can be made sufficient, he can "ranch" where he should not have plowed. These things he can do. That much it is our duty to help him to do.

It is unfortunate, but it is true, that in the past two generations, man, in some areas, has worked to his own present disadvantage as far as the water supply in his soil is concerned. In seeking how to get his crops in early

in order to avoid frost and rust, and in building roads and ditches for transportation and drainage purposes, he served well his immediate needs, but it is now shown that in some instances these practices have not utilized to the best advantage the moisture provided in the form of rain and snow. It is his privilege now, by redirecting his activities, to modify this effect where necessary. It is within his power in certain areas to lessen the severity of the dry cycles, instead of intensifying them.

SOLVING ONE PROBLEM INTENSIFIES OTHERS

In the past forty years, we have done much to meet a variety of problems. Too much credit cannot be paid the pioneers of every community. They met their problems as they arose. They did their work well. Within the life time of men in this room the pioneers of Western Canada transformed nearly 100,000,000 acres of prairie and wood land into productive farms. They made themselves the greatest *per capita* producers of grain in the world. They made Canada the producer of one-tenth of the world's wheat, four times the needs of our own nation. They made her the exporter of nearly half the wheat that entered into world's trade. As I have already said, they made possible the production of ten billion dollars in new wealth since the war. Unfortunately, however, some of our activities have to a degree made the present drought conditions worse. Let us note what we have done. We have cultivated upwards of forty million acres of land and have removed from it its natural grass covering, thus facilitating the blowing off of snow in Winter and the drifting of the soil in Summer. We have all too often over-grazed our pasture lands, reducing their absorptive power for rain and lessening their ability to hold snow.

We have built roads by the tens of thousands of miles and on each side have dug ditches to hurry away the surplus water, often intensifying flood conditions in Spring on the lower lands adjoining and sometimes leaving the adjacent territory drier than otherwise in later months. We have even killed our beaver, which once dammed back our streams and helped save the Spring "run-off."

We have created drainage areas. In Manitoba, we have 24 of these with 3,600 miles of ditches and over two million acres drained at a cost to the settlers of more than six million dollars. These were necessary. They served the purpose for which they were intended, but they, too, hurry away to the sea the surplus moisture of their own and other lands.

We have cut some of our forests and made it possible for the melting snows and heavy rains to find their way more quickly to the sea.

Most of these things were necessary to meet the circumstances of the time in which they were done. They no doubt accomplished much good; but whatever else they may have done, they have aided in bringing other problems in their trails.

As a result of these and other practices, we have increased the dangers of floods in early Spring and the probability of dried up streams in Mid-summer. In other words, in solving the drainage problem of early Spring on our high lands, we increased the danger of Spring floods on the low lands, made necessary the spending of considerable sums to prevent flood damage at that time, and intensified the drought problem of the late Summer months. We have created a situation where some of our larger streams do not in the late Summer carry sufficient water to adequately care for the sewage from our cities.

In addition to these things, we have worked some of the organic matter out of our land, rendering it less able to hold moisture and less likely to resist drifting by the wind. We have also made our soils poorer by taking from them in crops all they would yield of their wealth with little or no return of plant food. Having drawn thus heavily upon the capital in our soils, we have lessened the efficiency of moisture in producing big yields, since the poorer a soil is, the less crop a given unit of water will produce.

These are some of the ways in which, unintentionally, man has contributed to making the situation worse. But let us not criticize him too much for that. What

he did, you and I have done or would have done had we been in his position. He solved his immediate problem which was necessary. Surely he is not to be censured because his solutions have intensified other problems.

Unfortunately, we cannot wholly reverse some past policies in order to lessen our present difficulties. If we are wise we shall weigh the situation in each given area, recognize that we have intensified one problem while solving others, and work out a balanced programme to best meet the requirements of each set of conditions.

Our skill in this respect will be measured not by our agility in jumping from one programme to another, but by our ability to properly evaluate the conditions before us in any particular agricultural zone, and by the development and application of sane, well-considered, long-time policies that will gradually rehabilitate the areas now temporarily in distress, prevent the extension of these conditions to other areas, and lessen the dire results of the subsequent drought cycles that are sure to come.

RECONSIDERATION AND REDIRECTION

In my judgment some of our forestry policies, some of our drainage practices, some of our soil management and cropping methods and some of our ideas concerning savings and insurance need reconsideration and redirection in the light of the apparently increased danger of drought.

We have been cutting trees and burning forests; we must plant trees and protect the forests.

We have over-drained some of our lands; we must commence to regulate and maintain the water table rather than to lower it further.

We have tilled some of our virgin soils until we have injured their texture; we must modify our tillage methods now, having their altered condition in mind.

We have plowed some soils that should never have been broken; we must restore these to the rancher or the forester and prevent the repetition of like mistakes.

We have drawn heavily upon the bank account in our soil without making any deposit there; we must now on many soils find some satisfactory modification of that

policy. We must counteract the twin fallacies that "soils will not wear out" and that "fertilizers are no good in a dry climate or in a cold climate."

We have accepted nature's bounty in the "fat" years and made inadequate provision for the lean years ahead; we must find a practical way, either by actual physical reserves or by insurance, for the creation of reserves of seed and feed and even money in the good years if we are to wisely meet the distressing contingencies of the bad years.

FUTURE PROGRAMME. — What, then, in the light of present knowledge, is to be our programme from now on?

Some say, let the greater part of the drought area revert to the wild state and not waste any more money on it. This has already been done in some parts of South-eastern Alberta, from which in recent years three thousand families and their six thousand cars of effects, have been transferred to northern parts; and it has been in progress for some years in Southern Saskatchewan. More recently the U.S. Federal Government has determined upon a vigorous programme of purchasing and removing from cultivation some million acres of submarginal lands not only in the dry belt but in the humid belt as well.

No doubt large additional areas of submarginal land should be treated in this way in Western Canada but that attitude to the whole region affected would be a most fatal one. If we admit that the problem is not worth tackling, if we give it up as a hopeless task, many more Municipalities might as well default at once and certain Provincial Governments would be wise to seek lower interest rates on their debts.

Some say plant wind breaks.

This is being undertaken in the United States. There, the Federal Government has set aside $75,000,000.00 to plant 100 strips, each a mile apart and 1,000 miles long in an area stretching from near the southwestern part of Manitoba southward through North Dakota, South Dakota, Nebraska, Kansas, Oklahoma and into Texas. It is a plan that will require the purchase of nearly 1½ million acres of land from nearly 200,000 different persons. It

will necessitate the construction of 200,000 miles of fencing and the production and transplanting of more than 3,000,000,000 trees, a task requiring eight or ten years to complete and ten or fifteen years more before much protection will be afforded.

While this plan is not suitable everywhere, yet we have areas in Western Canada that should be treated somewhat similarly. Some modification in matters of detail will probably be advisable. But in some areas the provision of shelter belts about farmsteads is practicable and would lessen evaporation, would help hold snow in Winter, would protect contiguous lands, would eventually yield wood and perhaps some timber; and it would give employment, and tend to prevent the waste of land by wind and flood.

Some say dam up our streams and hold the water back. This is being done in many of the humid, as well as in the drier, countries of the world. More recently it is being done on this continent, and even in our own province. Damming streams wherever practicable and necessary should be a prominent part of any rehabilitation or conservation programme. The drainage of surplus water is, of course, necessary, but unnecessary waste of water is a crime. Some day in the West we shall look upon water as a sacred element, and guard it as we would a sacred possession. Damming streams is a deliberate policy of the United States on much of the land in the dry areas. It is also their determined policy to remove from cultivation and put under grass (or trees where practicable) much of the submarginal land now under cultivation. There are places bordering the ranching areas of the West where the repossession of the land by the Crown would be in the public interest.

A score of other proposals, each having more or less merit, have been advanced, but time will not permit reference to more than one of them; the removal of farms and the reestablishment of ranches.

This proposal is not new. I heard it personally a quarter of a century ago and more frequently since that time. The ranchers always prophesied failure for the farmers in the ranching area. In a region that includes precipitation zones ranging from twelve inches to eighteen inches per

year, obviously no one type of agriculture is best in all parts. There is no doubt farming was pushed too far into some of the ranching districts. There is equally no doubt it should retire from the least desirable lands,—but how far? Price and yields and time alone will answer definitely,—probably not far. In the meantime the poorest of the land in the driest parts should be recovered by the state and put to the best use possible, whether it be ranching, or community pasture, or other purposes.

The border land areas between what is obviously ranching land and what is obviously suitable for general farming purposes will constitute the major problem of the future. Where will they fit in? Experience and good judgment, as well as the record of yields and trend of prices, must be the guide in such a decision.

We have mentioned several proposals to cope with drought.

While each of these has its place in any reconstruction programme, yet no one of them will fit into all conditons to advantage and no one alone will solve the problem.

There Is No Single Road to the Best Solution.

Some small areas of land should go back to the ranchers; some can be restored by modification of soil and croping practices; some, but not all, can be helped by tree planting, and some areas can be helped by water storage.

The drought problem will be made subservient to man's will when with the practical means at hand, some of which have been referred to, man proceeds methodically and scientifically to fit each into its proper place in a sane programme, aimed not at any impossible accomplishment but aimed at making the best of our soil resources in the varying climatic zones in which Providence has placed them.

WHAT IS BEING DONE TO MEET IMMEDIATE NEEDS

Before deciding what, if anything, we should do to try to cure the situation, let us consider for a moment what has already been done and what is being done to meet the immediate needs. In the past four years the Municipal,

Provincial and Dominion Governments have assisted people in the drought areas in the same manner that they have assisted the unemployed in our cities.

In Southwestern Manitoba, Southern Saskatchewan and Southeastern Alberta, by means of loans, guarantees and direct grants during the last four years nearly fifty million dollars will have been provided for relief in purely agricultural areas.

In the three states adjoining the Prairie Provinces the United States Federal Government has in the last two years provided $25,000,000 under several emergency relief projects to meet the requirements for general relief and the needs of the drought area.

AGRICULTURAL RELIEF IN THE DROUGHT AREA

Some details of the plans for immediate relief in the drought area of Manitoba may be mentioned as an example of the plans followed by all provinces. Aside from the relief for human beings, which is uniform wherever needed, agricultural relief aims, first of all, to move as much livestock as possible to sections of the province where feed is plentiful. In the movement of livestock out of the district, half the freight has been paid by the governments; the railways granting a reduced rate of one-half the regular amount. In addition to this, feed and fodder for a minimum of livestock to be wintered in the district is being supplied, the freight being met by the railways and the governments and the cost of feed being borne two-thirds by the recipient and one-third by the Provincial Government. To date some 28,000 head have been shipped out of the district and 38,000 remain. Much larger numbers have been shipped out of Saskatchewan and Alberta; and the United States authorities have undertaken to reduce their cattle population in the drought area by seven million head.

Since October 1st, one year ago, eight hundred and fifty cars of fodder have been shipped in. It is estimated that the requirements for this year will be 35,000 tons of fodder and two-thirds of a million bushels of seed and feed. Vastly larger quantities are needed for Saskatchewan.

INDIVIDUAL CONTRIBUTIONS TO THE DROUGHT AREA

A year ago the Provincial Public Works Department in Manitoba organized a drive for the collection of vegetables, canned foodstuffs, clothing and other articles badly needed in the drought area. The response was splendid and a total of 63 box cars, containing vegetables of all kinds and other foods, was moved into the dry districts, the railways moving the cars without freight charges. This year the same policy was followed. The response up to date has been more than generous. All told, up to date this year a total of seventy-one cars, including 53 cars of vegetables and 18 cars of apples, have been arranged for. To these gifts the citizens of Ontario and the other provinces have contributed.

It is occasional evidences such as this, of the spirit of goodwill and human kindness, that makes life worth living for those in public places in times like these. Too much cannot be said in commendation of this attitude on the part of scores of thousands of people. It is a spirit which is excelled only by the gratitude of those who are the recipients of the voluntary contributions, men and women whose courage and fortitude have been sorely tried over a long period, but whose spirit still refuses to admit defeat. The donors may forget the gifts they gave, but the folks in temporary distress will never forget the spirit which prompted their generosity.

The provision of relief to those in need is necessary and, of course, will be continued; but it neither cures any economic ill nor does it do anything to prevent its recurrence.

Upon whom rests the responsibility to initiate and carry out constructive policies? Does it rest upon the unfortunate individuals who find themselves surrounded by the discouraging conditions of drought? Does it rest upon the local communities and municipalities which find themselves in the same difficult plight? Neither of these

has either money or credit. Their hands are tied. They cannot solve these problems unaided.

Does the responsibility rest upon the Provincial or State Governments? Shall we, the Government of Manitoba, after our experience in trying to get revenue to meet our present essential services, impose still heavier burdens upon our people in order to help restore the southwest? Who is there among you who will say yes to that?

Does any responsibility rest upon the Federal Government? If so, how much?

It must be very clear to anyone who has given thought to the matter that no one of these is wholly responsible for a recovery programme. The individuals affected cannot save themselves; the municipalities involved have little revenue and no credit; the provinces affected can do something but are hampered by reduced revenues and increased expenditures for relief; and the Federal Government, while it should be expected to co-operate, ought not to be expected to carry the whole load.

A JOINT EFFORT NEEDED

It must be very clear to all that the problem has now assumed proportions of national scope. It is surely self-evident that it can be adequately met only by the generous co-operation not only of individuals and local communities and provinces, but of the Dominion as well. What is needed is:

1. The offer by the provinces of the services of such technical men and departments, without charge, as can be utilized in the prosecution of such a major project as an attack upon drought;
2. The appointment of a co-ordinating body to correlate the thousand and one efforts being made in a variety of directions by many individuals, both in and out of public service, and by many departments both of governments and of universities;
3. Provision by the Dominion for the necessary additional finances to ensure the successful carrying out of a sane, well-balanced programme over the next ten years;
4. The active and sympathetic and generous co-operation of individuals, communities, railways and governments in a joint effort to solve a major problem.

A joint effort on the part of the provinces and the Dominion is important, but a co-ordinating body to correlate and direct the programme is essential. This would seem to offer the greatest hope of success with the least outlay of money.

In my judgment, there should be a four-fold programme; a programme of reclamation of the drought area; a programme of rehabilitation of the farms on all suitable land within the drought area; a programme of conservation for the whole West, and a programme of sound development of all our land resources.

RECLAMATION.—The Reclamation Programme should provide for a thorough survey of the area affected or likely to be affected. Such a survey should include a soil survey, a topographical survey, a survey of a native vegetation, a survey of the precipitation, temperature and other climatic records, and a review of the record of the history of agricultural production in each agricultural zone. The report should be accompanied by specific recommendations regarding agricultural production plans for each separate soil zone.

The Reclamation Programme should also provide for the restoration of ranching areas where a more intensive agriculture is unwise, and the creation of forest or grass land reserves on any obviously inferior land areas or climatic zones; it should provide for tree planting for protective purposes on suitable open land; it should provide for the construction of dams in streams, wherever economically feasible and necessary; and it should provide for the construction of dugouts for water storage purposes on lands where stream water is not available and where well water is not obtainable or is for any reason unsuitable. It should provide for an intensive programme of education on the best methods of soil management and crop production in areas of low precipitation, and where the soil is likely to drift. It should emphasize the necessity of saving the "run-off" water, and of lessening evaporation and wind velocity.

REHABILITATION.—The Programme of Rehabilitation should provide for the rehabilitation of the farmers' finances, his buildings, his fences and his machinery. Following two to five years of partial or complete crop failures their rehabilitation is impossible without outside co-operation. In connection with the rehabilitation of the farmers' finances, the creditor institutions should be called into conference, and I would like to hope a definite policy of generous debt reduction agreed upon. In connection with rehabilitation of his buildings, fences and equipment, some provision for loans for the restoration of these to a normal state of repair should be found, otherwise we shall all profit less because a number are, by inefficient equipment, hampered in their wealth-producing efforts.

CONSERVATION. — The Programme of Conservation should provide for the conservation of water, the conservation of forests, and the conservation of soil fertility, not alone in the dry belt but in the whole area. In connection with water conservation, a thorough survey of all our streams and underground waters as well should be entered upon; and, as suggested for the rehabilitation of the drought area, dams should be constructed wherever practicable, wind breaks established on all suitable open areas, suitable tillage and soil management practices encouraged, and "run-off" and evaporation losses minimized. In connection with the conservation of our forests, our present forest reserves should be more carefully guarded; the boundaries, wherever practicable, should be extended; new reserves should be established on all lands not suitable for agriculture or ranching but suitable for trees, and tree planting on a generous scale around farmsteads for protective purposes, and eventually for wood, should be provided on every farm where trees will grow. In connection with the conservation of the soil, the truth about the necessity of the maintenance of its productive power should be made more widely known, the necessity for guarding its texture and organic content and the most practicable and profitable means of doing so, should be the object of a thorough and continuous educational campaign.

The Programme of Sound Development of our Land

Resources should commence with the Government Land Departments and apply to every owner of land. It should require the withholding from sale for farming purpose of all Government land likely to be found submarginal; it should set aside certain areas as unsuitable for ordinary agriculture to be used for ranching or other extensive rather than intensive farming; it should provide for a thorough survey of all new agricultural areas before putting them on the market; it should provide for the development of suitable farm management practices for each type of tillable soil under each different set of climatic and economic conditions; it should encourage the adjustment of our tillage methods to new conditions, and it should provide for the modification of our notions of soil fertility, by demonstrating that soils can be maintained and improved and the crops produced thereon increased by the intelligent use of fertilizers.

Nor should this be all. It is not sufficient to dam streams, and plant trees, sow poor land back to grass and follow the best soil and crop practices in the world. It is not enough to abandon the poorest and the dryest land, to save the "run-off" water and to lessen evaporation losses. It is necessary, as well, that we all take a lesson from the pages of past history, from Joseph's experience which corn in Egypt. Some provision for a reserve of seed and feed and money in the fat years must be encouraged as an insurance crop failure on the part of individuals and corporations and governments alike, because dry conditions and grasshoppers and soil drifting and lean years are inevitable, and will come again in some degree in spite of our best plans.

My final thought may be briefly stated. In regions of less than twenty inches of rainfall, dry years are sure to come once in a while, and a cycle of dry years following one another will sometimes occur. We must come to look upon these not as unusual, but as expected conditions. Our plans should, therefore, be developed not in anticipation of favorable years always, but in expectation of unfavorable ones coming along occasionally without much warning. Our own experience and the experience of other lands are

in agreement, that we can meet these emergencies better than we have done. The responsibility is, therefore, upon us to plan to meet such unwelcome, but nevertheless expected, times with a constructive programme. We need a central co-ordinating body to bring unity and direction to our plans. The Dominion Government is the authority that should set it up. We need the generous co-operation of all the Prairie Provinces; I would like to think that these provinces would come forward with the offer of their technical services and those of their universities, as their contribution to the task. We need the advice of the best qualified technical men of the nation. This should be made available, wherever it may be found, as a voluntary contribution to the state. We need the co-operation of adjoining states and the United States Federal Government; fortunately, we have visible evidence that they may be in the lead rather than trailing us in making these plans.

The programme, if it is to be worth while, will require large expenditures for tree planting, construction work, purchase of submarginal land to be put to more practicable use and for informal and educational activities. The Dominion Government is the only government which can provide the necessary additional funds for any adequate programme.

Is it too much to expect that a problem which before the present emergency is past, will have cost the state in cash outlay and in guarantees for relief in agricultural areas over fifty million dollars, a problem that has cut our wealth production in each of the last four years by a sum more than twice this figure,—is it too much to expect that such a problem shall not be approached in any but an adequate way?

Let the suggestion for financial assistance by the Dominion scare no one. Even larger expenditures than have been made will from time to time be made in direct relief in future if nothing of a constructive character is entered upon; and greater total losses will be taken by the community as a whole if something of a substantial character is not done.

Would it not be the part of wisdom to spend money

in this way as a partial insurance against the necessity of having to spend much larger sums on drought relief every few years. It would be better, too, to spend it in wages for constructive work of this nature than as a dole to those who desire work, but for whom there is no job.

In the present unemployment period Governments have excused themselves for the "dole" instead of jobs because suitable jobs have not been available. We shall not have as good an excuse in the future. Money spent for jobs in the rehabilitation of the drought area would pay vastly greater material as well as human dividends than money given away in doles for no service rendered.

Gentlemen, this job is worth doing. I feel sure that there is no one here who holds an opposing view. Then let us have your sympathetic co-operation as we face the task of organizing to see it through.

We have asked that this be a subject for discussion at the Dominion-Provincial Conference; whether this will not be held I do not know. But I do know that public opinion in the West is ripe for a sane programme of conservation and redirection of activities; technical men everywhere and the public as well are studying the question; the press is unitedly behind it as never before. At this moment half a million hard working and courageous but drought-harassed farmers are out there on the border land between hope and despair, clinging to their sun-parched acres, with a spirit that will not be downed, waiting for the return of better days or a reclamation programme that they hope will not be too long in coming. The time was never more ripe for united action.

My hope is, and I am sure your hope is, that we, as a people, shall not fail to measure up to the responsibility that faces us in the challenge of the drought problem.

I thank you.

PRESIDENT JAMES:—Mr. Bracken, may I on behalf of this extremely large audience express our thanks for this most interesting address. Our thanks are all the more sincere when it is remembered that this is your first address since your recent operation. It is only eight days ago, gentlemen, when Mr. Bracken underwent a very serious throat operation.