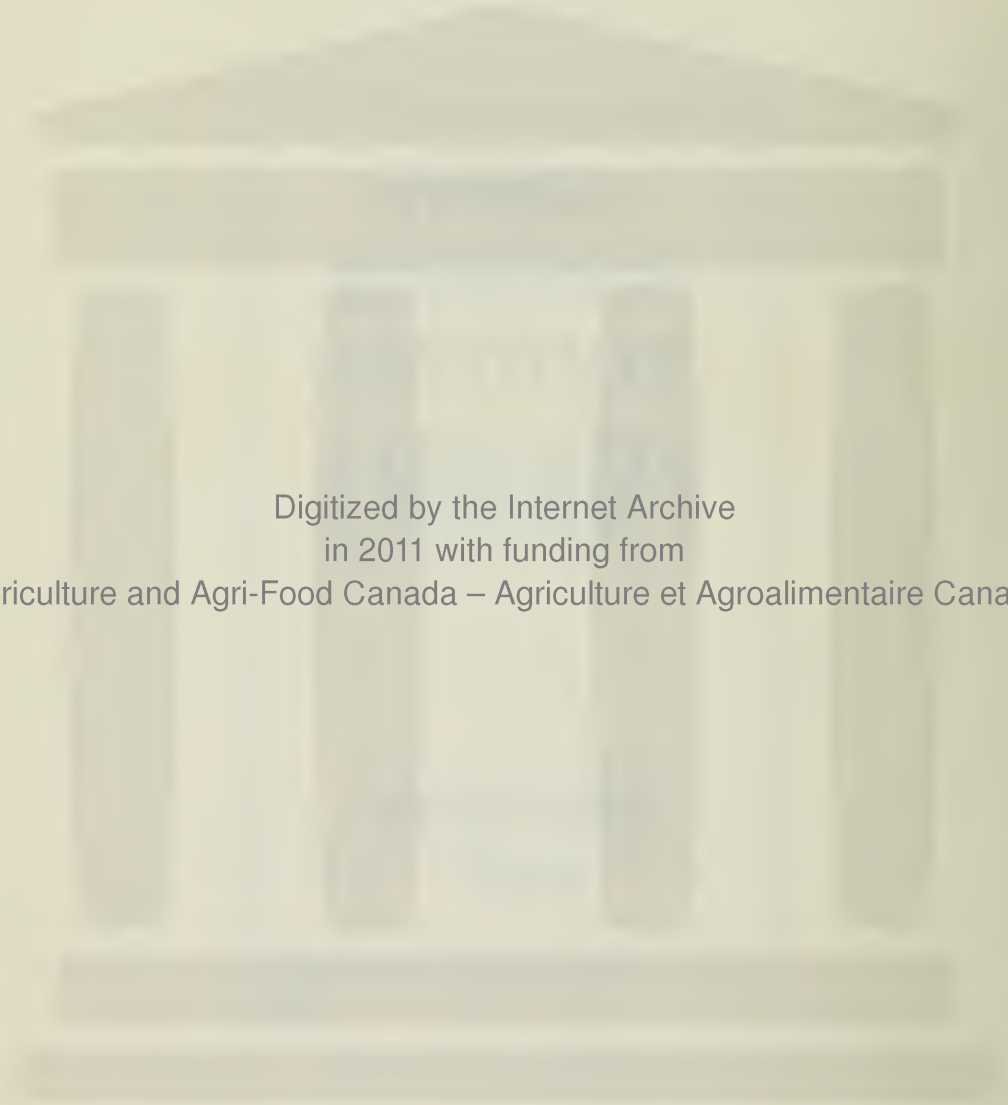
PFRA

The Story of Conservation on the Prairies



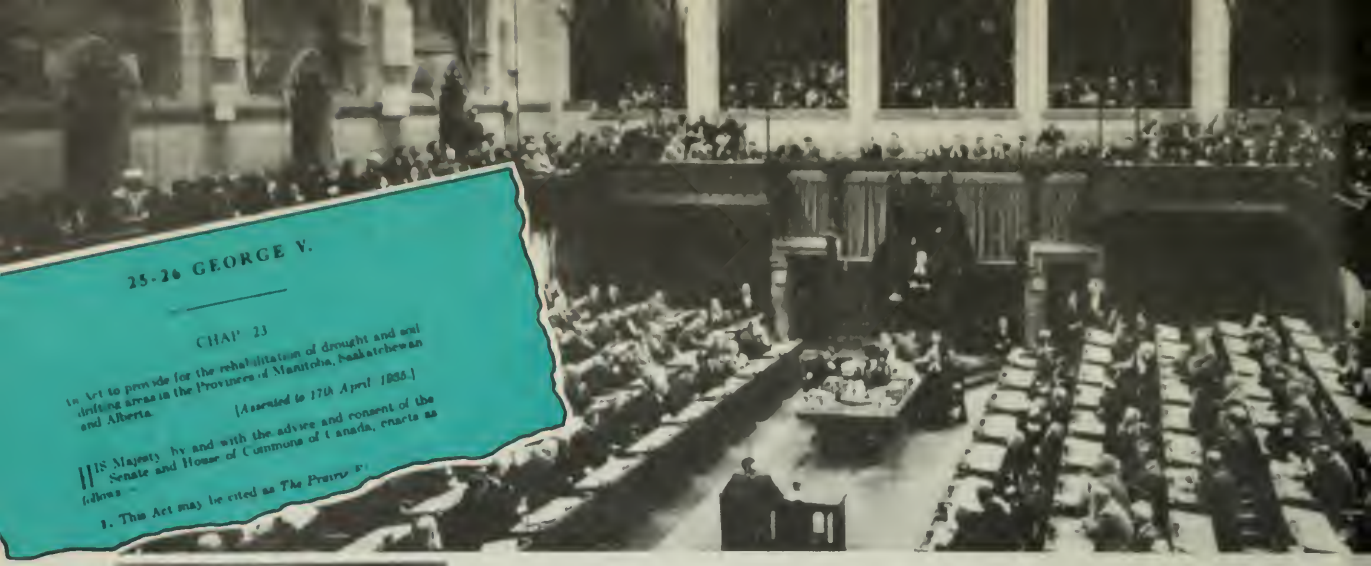
PFRA

PRAIRIE FARM REHABILITATION ACT

What it means to the Prairie Provinces

CANADA DEPARTMENT OF AGRICULTURE

Publication No. 1138 October 1961



Hon. Robert Weir
1931 - 35

Hon. J. G. Gardiner
1935 - 57

Hon. D. S. Harkness
1957 - 60

Hon. Alvin Hamilton
1960 -

. . . "Throughout the whole program it is our purpose to assist the farmers, and to demonstrate whether or not the people in these areas can continue to live there with only very little moisture than they are now receiving.
Our first aim is to do everything possible to make these people self-sustaining.
Secondly we must decide which areas are best suited for grain growing, which are best suited for ranching, and the best way to handle those areas which are intermediate."

HON. ROBERT WEIR, Minister of Agriculture,
Hansard, page 2604, April 10, 1935.

CHAPTER 1 INTRODUCTION

MORE than twenty-five years have now elapsed since the Prairie Farm Rehabilitation Act was passed by the Parliament of Canada in April 1935, to deal with the immediate problems of drought and depression then blighting agriculture on the Canadian Prairies. Under the program that has resulted, many policies and projects have been undertaken, varying widely in their nature and scope. These have all had as their main objectives, the more complete and wise use of available water resources, and making more efficient use of land in relation to prevailing soil and climatic conditions. To this end, much progress has been made, and much valuable knowledge and experience has been gained on which to base future long-range land and water conservation planning for the ultimate complete rehabilitation of prairie agriculture.

To better understand the purpose and objectives of the program, a brief consideration of the conditions and circumstances that led to the passing of the Act is necessary.

CLIMATE AND VEGETATION

Scanty precipitation is the principal factor controlling the distribution of native vegetation as well as of crops in the Prairie Provinces. Average annual precipitation ranges downward in a westerly direction from 19.8 inches at Winnipeg to 12.8 inches at Medicine Hat, Alberta. Precipitation also decreases northwards, the average annual amount received at Fort Vermilion, Alberta being only 11.8 inches. Compared with Eastern Canada, where the annual precipitation ranges from about 25 to over 40 inches, the Prairie Provinces are at best sub-humid and in some regions semi-arid. An important feature of the prairie climate is that most of the precipitation is received during the summer season.

In the south-central section, where high summer temperatures reduce by evaporation the effectiveness of the relatively light rainfall, the native vegetation is largely confined to short grasses and small, drought-resistant plants, and agriculture to a rather hazardous production of cereals or to cattle ranching. Outside the "short grass" area a more favorable balance between rainfall and evaporation results in a "tall grass" vegetation, with scattered clumps of woodland. Crop production is less hazardous than in the "short grass" area, but is still largely limited to cereals.

SETTLEMENT AND AGRICULTURAL DEVELOPMENT

As a result of climatic conditions, it was inevitable that new settlers moving to the prairies should make some mistakes and experience difficulties in becoming established, particularly at the outset when there were no precedents to follow in developing suitable methods in farming. With rapid settlement which took place shortly after the turn of the present century, many farmers homesteaded on land that should never have been farmed. During the first few years, with favorable moisture conditions, all went well. But with a return to drier weather, drought and attendant soil drifting problems arose, crops withered and the farming population dwindled or became dependent on the local, provincial and federal governments for support.

On the better lands, other problems developed. Although they produced

Early harvest scene on the prairies. Moisture, when adequate, assured good crops.

bountiful harvests during years of plentiful rainfall, creating large sums of new wealth for Canada, such lands experienced crop failures and serious water shortage problems when rainfall was below normal. Such a dry period occurred around the turn of the century. Then 1910 was a very dry year and 1914 another. Drought struck again in 1917, 1918 and 1919. In these years, the Federal Government had to supply seed grain and come to the relief of the needy settlers in other ways.

In good years crops flourished and the spectre of drought was forgotten. The late 1920's were very favorable to the farmer. Large quantities of high quality wheat were produced on even the poorer lands and ever increasing acreages were sown. Wheat was King.

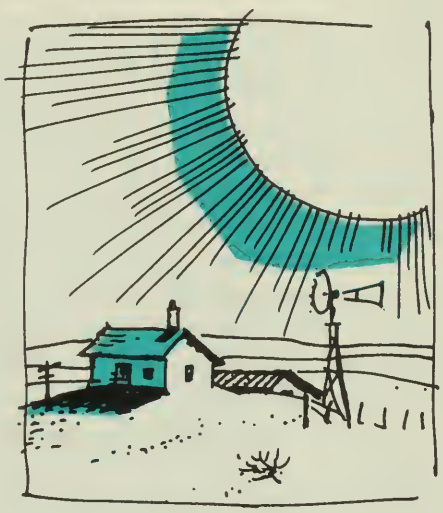
From a national standpoint these were years of progress and prosperity. Prairie wheat assumed increasing importance, becoming Canada's largest single export commodity and creating a large market for farm equipment and supplies for the industries of Eastern Canada. As for the farmers, those fortunate enough to have settled in the more favorable locations were able to establish farm homes and provide a reasonable standard of living for their families. Those who settled in the less productive areas, although contributing to the overall production of the prairies, found themselves able to remain on their farms only by curtailing expenses and accepting a reduced standard of living.

Even when the land was good, periodic dry spells caused crop failures.

DROUGHT OF THE 30's

The precarious situation of the farmer was generally recognized by governments and farm organizations for many years, but it was not until the 1930's when the prairies experienced the most severe and prolonged drought since the beginning of settlement, that the seriousness of the situation became fully apparent. Drought combined with a world-wide economic depression, caused grain farmers throughout much of the prairies to become dependent upon the rest of Canada for even the barest necessities of life. Alternate sources of income that had existed during previous periods of adversity were eliminated by the depression. Unemployment became a critical national problem. To sustain homes and families, the people of Western Canada were forced to accept relief from all levels of government and other organizations. Public funds were necessary to supply seed, feed and fodder to the farmers, as well as food, fuel and clothing to help the farming population, and the demoralizing effect of destitution left its mark on many.

It was obvious that drastic and far-reaching steps would have to be taken immediately if prairie agriculture was to regain its position in the Canadian economy, and go forward on a sound and permanent basis. Late in 1934, the Government set up a committee to investigate the situation and submit proposals for rehabilitation. The outcome was the passing by Parliament of the Prairie Farm Rehabilitation Act which was assented to on April 17, 1935.



PFRA reservoir. During drought periods water often had to be hauled many miles.

PRAIRIE FARM REHABILITATION ACT

The Act provided for the rehabilitation of drought and soil drifting areas in the provinces of Manitoba, Saskatchewan and Alberta. An initial appropriation of $4,750,000 was made to cover the cost of rehabilitation activities for a period of five years, and an Advisory Committee was established by the Act to give leadership to the program. The Experimental Farms of the Federal Department of Agriculture played a major role. As the PFRA program developed, however, a separate administration was set up in Regina in 1936 to direct water development, while the cultural improvement program continued under the direction of the Experimental Farms. Then by amendment to the Act in 1937, the PFRA was extended to include land utilization and resettlement.

It was realized, however, that for the development of a sound agricultural economy on the prairies, more long-term measures for rehabilitation would be necessary. In 1939, additional financial allocations were made and the five-year limitation to the PFRA was removed.

The essential feature of the Act was to give encouragement to farmers in solving their own problems and development has been along the following three lines:

1. *Cultural*—to secure the adoption by farmers of such tillage and cropping practices as would enable them to farm successfully under a wide and fluctuating range of physical and economic hazards.

2. *Land Utilization*—to divert crop production from poor land and to use such land for grazing by returning it to permanent grass.

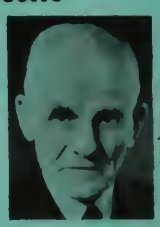
3. *Water Development*—to make better use of the limited water resources of the prairies for agriculture, than was formerly the case.

PFRA Headquarters, Regina, Sask.

Senior PFRA personnel - past and present

E. S. ARCHIBALD
Director,
Experimental
Farms Service
1935-51

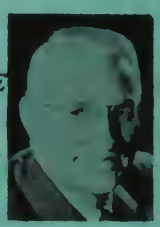
J. A. VALLANCE
PFRA
Rehabilitation
Officer
1936-38



G. SPENCE
Director,
PFRA
1938-47

L. B. THOMSON
Director,
PFRA
1948-56

G. L. MACKENZIE
Director,
PFRA
1957-



G. J. MATTE
Associate
Director,
PFRA
1948-

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1 *Winter feeding of livestock in Maple Creek district. Feed produced on nearby irrigation project.*

2 *Severe soil drifting in 1935 after 5-year drought, Cadillac district, southwestern Saskatchewan.*

3 *Same area, 10 years later, seeded down to permanent grass cover.*

4 *Small dams and dugouts advocated by PFRA, help overcome water shortages.*

5 *By seeding coarse grains further deterioration of drifted areas was halted.*

6 *Strip farming became a byword as an effective control against soil drifting.*

4

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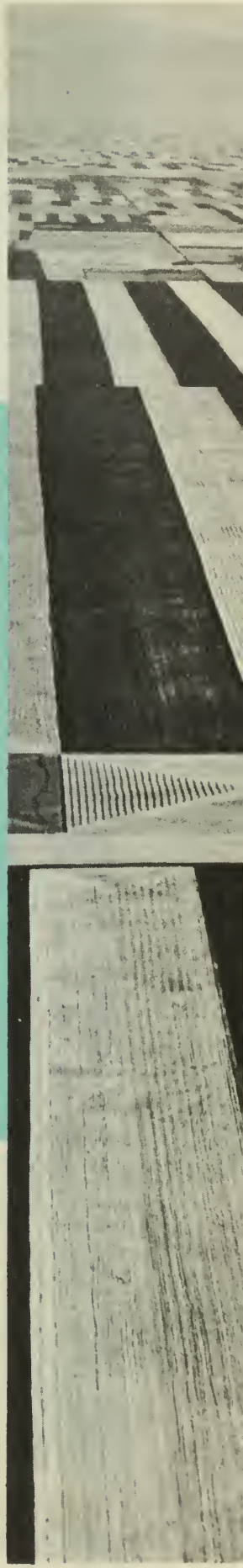

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THE PFRA CULTURAL PROGRAM

Insofar as the PFRA program affected the technique of crop and livestock production on the prairies, it constituted a special phase of the work of the Dominion Experimental Farms located at Brandon and Indian Head, Lethbridge, Lacombe, Rosthern, Scott, Morden, Swift Current and Melfort, along with a Range Experimental Station at Manyberries.

Trash cover on summerfallow to control soil drifting became prerequisite to successful dryland farming.

Since the majority of the Experimental Farms on the prairies had operated from the beginning of agricultural settlement in their respective districts, and could draw on extensive scientific resources, they were in a position to provide valuable advisory services to farmers.

ROLE OF EXPERIMENTAL FARMS IN PFRA PROGRAM

With the initiation of the PFRA program in 1935 the investigational and demonstrational work of the Experimental Farms was expanded throughout the drought area, special attention being given to the problems of soil drifting control, land reclamation and farm home improvement. In this, the existing Experimental Farms served as centers of rehabilitation. For the demonstration and trial of farm practices specially applicable to drought and soil drifting conditions, there were created some 52 District Experimental Substations, each covering about 640 acres, and operated by practical farmers under the supervision of one of the Experimental Farms. Reclamation projects, designed to determine the best methods of handling severely drifted land, were conducted in 17 areas. The problem of securing satisfactory stands of grass, either for reclamation, range improvement or as a part of a farm rotation, was studied experimentally in nearly 600 Regrassing Projects. On four large tree planting experiments and in thousands of smaller tree planting projects, the value of trees for shelter was demonstrated and their potential value in controlling soil drifting was studied. The production of crops under irrigation was demonstrated under practical conditions, both on private and community projects. In all, nearly 100,000 acres of land were used in experimental or demonstrational work under the PFRA program.

Specialized lines of work were also undertaken by the Experimental Farms, some in co-operation with other

Experimental Farm, Swift Current, Sask., along with others, conducted early PFRA Cultural Program.

agencies. These lines included soil surveys, soil research, forage crop breeding, sawfly control investigations, and farm implement studies. A Soils Research Laboratory was established in 1936 at Swift Current, Sask. The Dominion Forage Crops Laboratory, Saskatoon, and the University of Saskatchewan co-operated with the Experimental Farms as did the Entomology Division of the Canada Department of Agriculture.

Contact with farmers in rehabilitation work was secured through the normal channels established by the Experimental Farms and through Agricultural Improvement Associations, of which there were 228 representing 35,800 farmers organized under PFRA auspices. These were specifically to provide community action on drought problems.

MEASURES FOR SOIL DRIFTING CONTROL

Some indication of the success attending PFRA efforts for the control of soil drifting may be conveyed by the extent to which recommended control measures were adopted by farmers. Strip farming, for instance, became the established cropping practice on about 50 per cent of the Brown Soil Zone in Saskatchewan and Alberta, and on as much as 80 per cent of the more drift susceptible areas within that zone. Outside of the Brown Soil Zone the percentage of strip farming is less, about seven per cent in the Dark Brown Zone, and probably less than one per cent in the Black Zone. The plowless fallow was adopted on about 20 to 25 per cent of the crop land in Manitoba, on roughly 50 per cent of the crop land in Saskatchewan, and on most of the PFRA area in Alberta.

One aspect of this work which is par-

ticularly noteworthy was the large-scale organization of farmers to combat emergency soil drifting over wide areas. In 1937 and early in 1938 soil drifting threatened to destroy several hundred thousand acres of crop land in the southwestern section of the drought area. To remedy this condition, resulting from crop failures which left the soil seriously deficient in trash cover, exceeded the resources of individual farmers or even groups of farmers. Under the auspices of the Experimental Stations at Swift Current and Lethbridge, however, farmers were organized to apply emergency control measures with equipment supplied, when necessary, by the Stations. Wherever possible this work was conducted through the local Agricultural Improvement Associations. The principal control measure employed was to list the land in strips as often as necessary. This practice, while not entirely stopping the drifting, prevented it from assuming uncontrollable proportions, until crop growth could be started. In this manner severe drifting was controlled on some 300,000 acres of land.

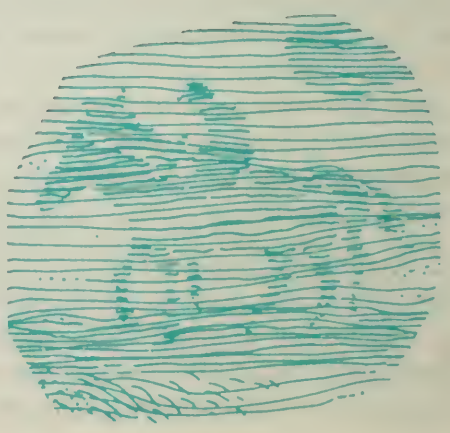
THE PFRA LAND UTILIZATION PROGRAM

Reseeding abandoned farm lands.

An unfortunate phase in the history of the agricultural development of Western Canada was the settlement of many areas of submarginal land. Such settlement took place under the stimulus of unusually good crop seasons, when even poor lands produced fairly good yields. Lacking or disregarding information on long-term climatic conditions, many settlers made investments in land, buildings, and social services, out of proportion to the intrinsic agricultural value of their lands. The inevitable results were the early abandonment of land and the creation of uncollectable debts.

Census returns for 1926 showed that, in the Census District No. 3 of Alberta, which extends north and west from Medicine Hat, 55 per cent of the farm acreage was abandoned.

One consequence of the settlement and subsequent abandonment of submarginal areas was the destruction of the original prairie grass. Natural regrassing of abandoned cultivated prairie land takes place only after many years. In the interval, such land has little or no value as pasturage, and, infested with weeds and exposed to wind erosion, may constitute a menace to nearby arable areas.



The non-abandoned submarginal farms created another problem. These came to be described as "slums of the open prairie", where economical crop production was impossible, and where social services could only be maintained at a loss to the community. A large percentage of the cost of rural relief and of the losses arising from tax delinquencies which were experienced on the prairies in those years, could be charged to the existence of submarginal farming.

Recognition of the fact that correction of the conditions described above was essential to the rehabilitation of prairie agriculture led in 1937 to the organization of the PFRA Land Utilization Program. The major objectives of this program were:

1. The permanent withdrawal of submarginal prairie land from cultivation.
2. The development of such areas for grazing purposes.
3. The resettlement on suitable farm land of farmers removed from submarginal areas.

These objectives have over the years been realized through the organization of PFRA Community Pastures, and through various settlement schemes, chiefly on new irrigation projects.

THE PRAIRIE FARMER AND COMMUNITY PASTURES

The PFRA Community Pastures have become a well-known feature of agricultural organization throughout the Prairie Provinces. For little if any more than the cost of using ordinary leased rangeland, they provided good grazing land and relieved farmers to a considerable extent of the trouble of supervising their livestock. In the case of the farmer whose land was practically all under cultivation, with little or no pasturage, and who could provide for winter feeding, this service was a decided boon. It made possible a greater degree of mixed farming than heretofore, with advantages brought out during periods of economic adversity. The facilities provided on

Community Pastures are synonymous with PFRA. Round-up at Wise Creek, Sask.

community pastures for improved breeding was another advantage. Moreover, through the Community Pasture Grazing Association, the farmers were able to participate in the management of the pastures and in the formulation of policies. There was considerable promise, therefore, that the PFRA community pasture program would, in addition to solving land use problems, stimulate a progressive livestock production program among prairie farmers.

THE FUTURE OF COMMUNITY PASTURES

By 1943, insofar as the existing pastures were concerned, the future of this phase of PFRA work appeared to be assured, although war conditions made further development uncertain. Preliminary surveys, however, had been made of 75 proposed community pastures, covering an aggregate of 1,573,840 acres. Subsequent development of these areas, together with the 1,261,100 acres already in existing pastures, resulted in the permanent removal from cultivation, and the utilization under controlled grazing, of 2,834,940 acres of submarginal land. Such a development constituted a major contribution to the solution of land-use problems in Western Canada.

How has the PFRA community pasture program fared over the years? The following release issued by the Canada Department of Agriculture on May 10, 1961, provides evidence of the sustained and continued usefulness of the program:

"Ottawa, May 10, 1961—The gates of 68 community pastures in Manitoba and Saskatchewan swung open on May 1 for the grazing season and 130,000 cattle began moving in on hoof and truck.

"There are two million acres of grass enclosed by fences and supervised by the Prairie Farm Rehabilitation Administration. Except for two nearer pastures in the Riding Mountain area of Manitoba, all are booked to capacity by approximately 7,000 livestock owners.

"In the Archie-Ellice pasture in western Manitoba and Coalfields in southeastern Saskatchewan 3,200 sheep will be grazing. Cattle numbers range from 400 in Park Pasture northwest of Saskatoon to 5,000 in the Royal Pasture west of Prince Albert.

"Pastures are supervised by resident

Round-up on Bitter Lake Community Pasture in S.W. Saskatchewan.

pasture managers who are also experienced stockmen. Services such as branding, dehorning, vaccination, castration and spraying are provided at cost.

"Two pastures will be in operation for the first time this year. They are the Turtle Mountain in southern Manitoba and the Dauphin-Ethelbert north of Dauphin, Manitoba. Three new pastures are planned.

"Nearly all PFRA pastures have an adequate carryover of grass from 1960. Although spring runoff was almost nonexistent this year stock water is generally adequate. However, timely rains will be required to assure satisfactory grass production in all regions."

RESETTLEMENT UNDER THE PFRA

In general, agricultural settlement in Canada comes under provincial jurisdiction. For this reason, PFRA resettlement work has been largely limited to the relocation of farmers removed from community pastures, and to settlement on large PFRA irrigation projects. One exception occurred in 1936 when the PFRA organization co-operated with provincial authorities in transferring 63 farmers from dried-out areas in Saskatchewan to better locations elsewhere, by paying freight charges on effects and livestock.

In the development of community pastures, over 200 farmers were moved to new locations. Some were moved with provincial assistance, to suitable holdings near the pastures. Others went to new PFRA irrigation projects.

Development of the Rolling Hills irrigation project, specifically to provide for the resettlement of farmers moved from dried-out areas, was started in 1937 as a co-operative program between the Eastern Irrigation District in Alberta and the PFRA organization. Under this arrangement, irrigable land was made available to settlers selected by the PFRA Land Utilization Branch. The District provided the main water supplies, constructed roads and assisted in the introduction of various social services. Preparation of land for irrigation farming, and supervision of settlement were undertaken by the PFRA Land Utilization Branch.

Sale price of the land was $8 per irrigable acre. Settlers paid an annual water rate of $1.60 per irrigated acre, plus 10 cents per acre for hail insurance. The foregoing conditions of sale and occupancy were designed to afford reasonable opportunity to eligible settlers and at the same time protect the project from undesirable exploitation.

Promising results attended the Rolling Hills development. By the summer of

Resettlement plays part in the PFRA program. Settlers' effects being shipped to Hays district in Alberta.

1942, settlers had been placed on 180 quarter sections. In only three cases did settlers prove unsatisfactory. By 1942 a large proportion of the land in this project, which in 1937 was open range, was under irrigated crops, largely grain and alfalfa. The area is well adapted to the production of vegetables for canning. In 1942, over 3,000 acres were under peas for seed, the absence of the pea-weevil, destructive elsewhere, being a point in favor of this crop in the Rolling Hills area. Of these some 1,500 acres of peas were under contract for the production of seed for shipment to England.

Other PFRA irrigation projects which offered settlement possibilities were located in Saskatchewan at Val Marie, Eastend, and Maple Creek. These projects, with an aggregate of 11,945 acres under irrigation in 1941, and with room for some expansion, afforded opportunity for the eventual settlement of over 200 farmers. In each of these projects, all of which were adjacent to extensive acres of rangeland, the policy was adopted of disposing of irrigable land in small blocks of from 40 to 60 acres, with the object of promoting the production of forage crops as reserve or supplementary feed for range livestock.

Two further projects were undertaken in 1942, the Swift Current Irrigation Project with an irrigation development potential of 25,000 acres of dry land and river bottom; and the Consul Irrigation Project in the extreme southwestern corner of Saskatchewan, with a total irrigable area of 4,500 acres. Due to the war little development work was carried out on the projects until 1946 when the Federal Government resumed normal activities under the PFRA program.

ECONOMIC RESEARCH

With the inauguration of a program of Prairie Farm Rehabilitation came an expansion in economic research in problems related to land utilization particularly in Saskatchewan and Alberta where these problems were most acute. The Economics Division of the Dominion Department of Agriculture, the Department of Farm Management, University of Saskatchewan, and the Department of Economics at the University of Alberta undertook co-operative projects commencing in areas in which the problems of adjustment appeared to be most acute. The additional funds necessary were provided under the Prairie Farm Rehabilitation Act.

East Dam, Cypress Lake Reservoir, Saskatchewan. Reservoir is largest of 11 PFRA projects utilizing water from Cypress Hills.

WATER DEVELOPMENT UNDER THE PFRA

The PFRA water development program resulted in appreciable benefits to agriculture on the Canadian prairies. The main benefit has been to the livestock industry by creating or improving water facilities on farms, pastures and feed lots and by the production of reserve supplies of forage grown under irrigation. As the work progressed, information and experience was secured which proved invaluable in formulating future programs for the increase and stabilization of production on the agricultural lands in the prairies.

Water development carried out under the PFRA consists of large and individual projects. The large projects include storage and irrigation works on the large rivers and streams and are intended to serve community needs and provide for rehabilitation on a community scale. Individual projects consist of dugouts, stockwatering dams and irrigation works. These are developed for the purpose of providing water on individual farms from the smaller streams and local runoff. Individual projects are supplemented in some areas by small community projects which are usually operated by a municipality. The larger projects are usually constructed by contract and the total cost paid by PFRA. For individual water development projects, financial assistance is provided under PFRA on a self-help basis to cover only part of the construction costs, and applicants are responsible for the construction of the works. Financial assistance is payable to applicants in the case of individual projects only when the works are completed to conform to provincial water rights regulations and to plans and specifications approved by the PFRA.

Truax Dam, Saskatchewan, a community-sized project built by PFRA to collect spring runoff water.

PFRA ACCOMPLISHMENTS

Initially this work involved the introduction of those systems of farming, land use and water supply, that would provide greater economic security for the individual prairie farmer, and the development of larger and more comprehensive water development schemes that would serve whole districts and communities.

In this regard, many of the cultural improvements introduced have led to an almost entirely new approach to dryland farming. Techniques in soil management, and methods of making more efficient use of limited supplies of soil moisture, have been developed and are in common use. These help materially to minimize the drought problem and bring farming practices more in line with prevailing soil and climatic conditions in the drier areas. The development of assured farm water supplies for domestic, stockwatering and irrigation purposes, has also contributed greatly in bringing about a more stable agriculture over a wide area. Assurance through irrigation, of feed supplies for the maintenance of livestock over periodic dry spells and severe winters, has given increased stability to the livestock industry.

The PFRA program has been a major factor in encouraging greater agricultural diversification in the plains region. Necessary adjustments in the pattern of prairie land use have resulted in the permanent removal from cultivation of lands which have proved submarginal for cereal crop production; the fencing, regrassing, and other improvement of such areas for community pasture purposes; and the resettlement and rehabilitation of farmers operating such lands, principally to irrigation projects.

As these adjustments have benefited the agricultural economy, new and growing demands for water have arisen. More water is needed for urban domestic and industrial purposes, as well as for large-scale irrigation. This has made necessary the development of larger, more comprehensive water storage and irrigation schemes where more dependable and plentiful water supplies can be obtained. Recent examples are the St. Mary River and South Saskatchewan River projects. It is to this end, therefore, that PFRA in recent years has devoted increasing attention to this type of development.

CHAPTER 2 FARM WATER SUPPLY

THE development of farm water storage and irrigation projects is an important operation under the Prairie Farm Rehabilitation Act. Water conservation on the prairies is largely a question of precipitation, its storage and efficient use. To accomplish this, the most effective method is to catch precipitation where it falls for the benefit of growing crops and livestock. Under dryland farming conditions, this means developing systems of cropping that will conserve soil moisture and extend its usefulness over longer periods without injuring the physical quality of the soil and without creating such hazards to farming as soil and water erosion. Examples of this type of water conservation in action are the common practices of summerfallow and strip cropping, and the widespread use of trash cover.

It would be wrong, however, to believe that the job had been completed when such water conservation measures have been adopted and religiously practiced. Consideration must also be given to the conservation and use of water that accumulates on the surface of the land and is not able to penetrate the soil, otherwise a valuable resource would be wasted and an effective drought deterrent ignored. This water is the surface runoff from melting snow in the spring. It runs off the land while the ground is still frozen and accumulates in low lying areas or runs to waste down streams and rivers to the ocean.

Over most of the drought areas there is frequently insufficient rainfall to maintain natural bodies of water, springs or shallow wells. The development of surface runoff water to supplement this supply is of primary importance. A sound livestock industry depends upon adequate and dependable stockwater supplies and assured feed reserves.

INDIVIDUAL PROJECTS

The two most common projects built in this category are the dugout (farm pond) and dam. On practically every prairie farm, wherever land with sufficient drainage areas slopes toward a central or focal point in a field, suitable sites for small farm water storage projects can be found. Such storages make dependable farm water supplies possible for much needed domestic, stock-watering and irrigation purposes. In

Well-located dugouts can be replenished yearly during spring runoff period.

Typical individual farm-sized stockwatering dam built with PFRA assistance.

many instances they eliminate the expense of drilling deep wells and the necessity of hauling water long distances to meet farm requirements.

The development of farm water storage and irrigation projects has been a major feature of the PFRA program since its inauguration in 1935. As a result, with the encouragement provided by PFRA, over 70,000 individual farm-sized dugouts and individual stockwatering dams and irrigation projects have been built during the past 25 years. This has been a significant contribution to prairie agriculture.

In promoting small farm water projects, PFRA has operated on the principle of helping farmers help themselves. PFRA leaves the construction up to the farmer, but supplies free of charge, all engineering services required to plan and design the project, and pays a portion of the construction costs involved. The rate of assistance paid on individual projects has varied from time to time and is based on yardage of earth moved. The present rate is 7¢ per cubic yard up to a maximum of $250 in the case of dugouts, $300 for stockwatering dams, and $600 for irrigation projects. Where two or more farmers pool their water resources to build neighbor projects, assistance is paid to a maximum of $1,000.

COMMUNITY PROJECTS

Community projects are generally built to utilize the waters of larger watersheds and are designed to serve the needs of groups of farmers. Such projects are justified on the basis of their individual merit and, owing to their size, the major share of cost is borne by PFRA.

The terms of reference for type and size of community project are, of necessity, broad. The most attractive, and frequently the most economical type of project built, is one involving the restoration and improvement of lakes and other naturally occurring bodies of water that tend to dry up during drought

periods. By installing control works and sometimes diverting additional drainage into them, these natural reservoirs can be restored and held at former levels.

Rivers, coulees or ravines, which yield a reasonable amount of runoff, frequently make good sites for damming and impounding surplus water.

Where a locality offers no natural channels or depressions of any kind, large dugouts may be excavated. Those now in use generally have a capacity of 1,000,000 gallons or more.

The water resources in most of the streams and rivers originating on the prairies have been harnessed at some point for agricultural purposes. The availability of large bodies of stored water have made it possible for prairie towns and rural communities to develop modern water supply facilities for domestic and industrial purposes as well as recreation.

Generally, community projects are handled through a co-operative arrangement. The local agricultural district or community organization makes application for a project, supplies the property required, and agrees to maintain and operate the project after completion. The Canada Department of Agriculture, through PFRA, provides free engineering services and contributes toward the cost of construction. In this way 718 community projects had been developed on the prairies as at March 31, 1961.

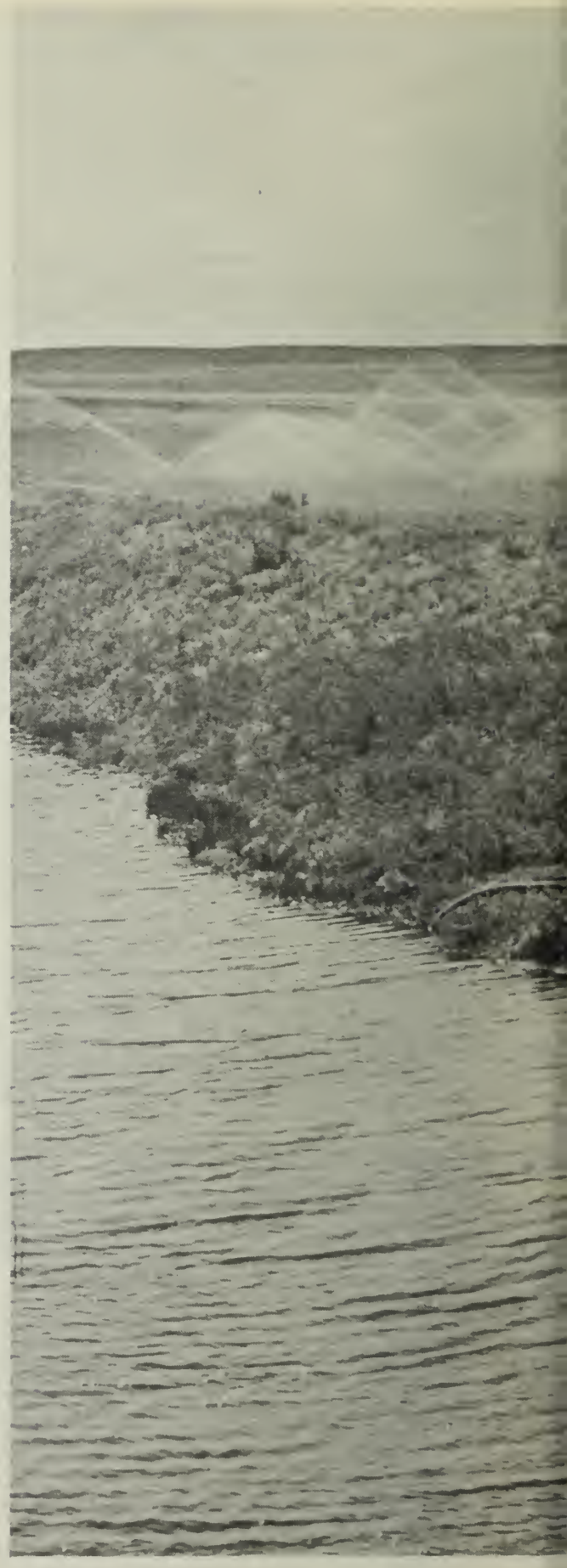
Woodrow Dam, Woodrow, Sask., controls spring flood waters for irrigation.

IRRIGATION

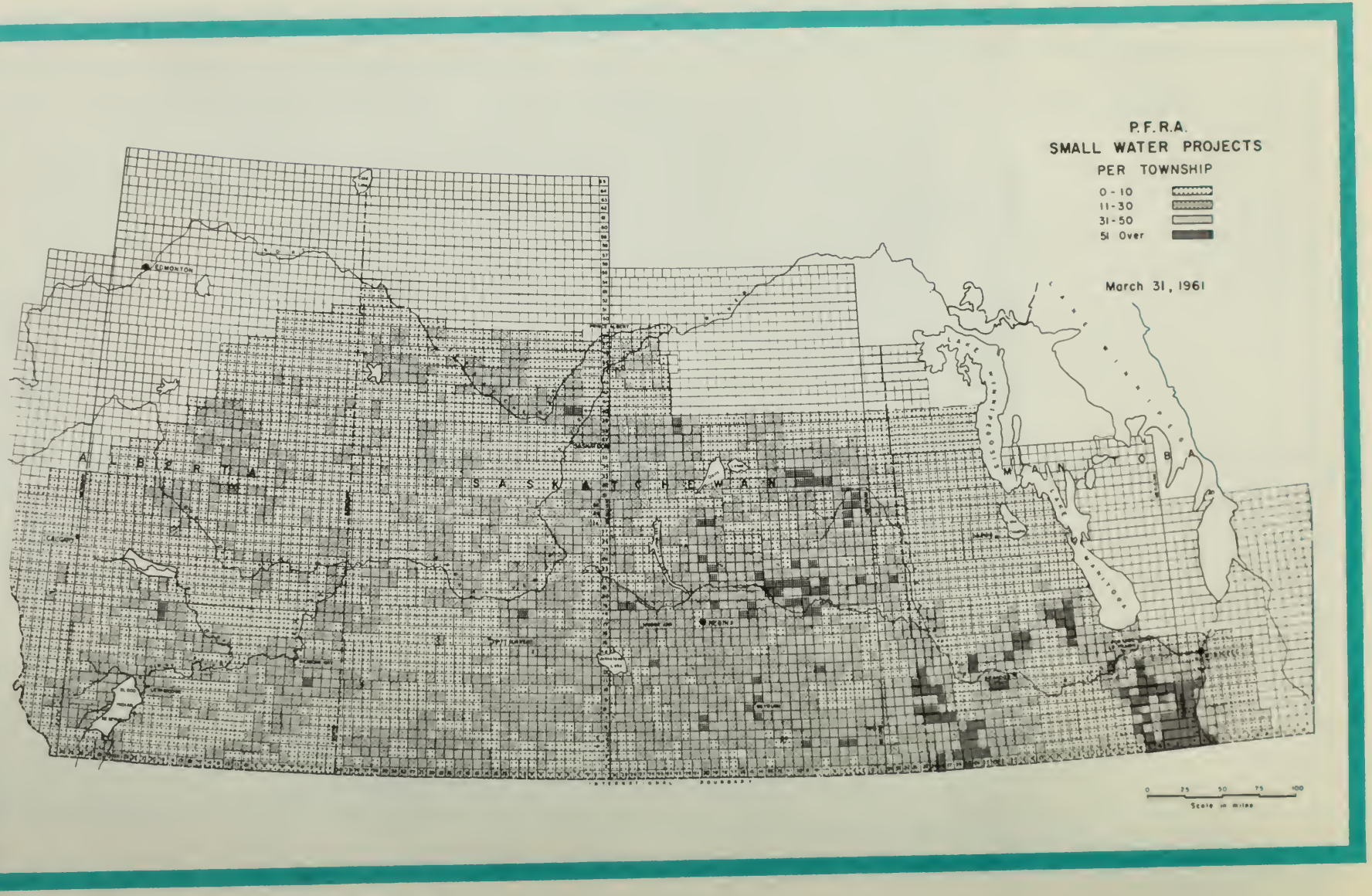
Irrigation is usually pictured in terms of level stretches of land served by an extensive system of canals and forming part of a large-scale irrigation district. But PFRA has also constructed many smaller projects, operating on farms all over the prairie region. These are important because they supplement normal dryland farming practices, assuring production of such key crops as livestock feed and seed grain over short, critical drought periods.

Low-cost spring flooding by small, inexpensive dykes has produced satisfactory net returns. A limited water supply located in scattered sloughs and reservoirs, when applied under control through portable pipes and sprinklers can do much good. Larger water supplies and permanent reservoirs may make feasible a system of ditches and dykes. The PFRA program is flexible in order to cope with varying conditions.

On individual farm and community projects, the area served with water for irrigation may be less than half an acre or as large as several hundred acres. Whether irrigation is used to supplement existing rainfall, or used in a more intensive manner, the amount of water required and the area irrigated will vary. It is conservatively estimated that 120,000 to 150,000 acres of land are served with water for irrigation supplied from PFRA individual water development projects.



Sprinkler irrigation of alfalfa field, Noteken Creek, S.W. Saskatchewan.


P.F.R.A.
SMALL WATER PROJECTS
PER TOWNSHIP
0 - 10
11 - 30
31 - 50
51 Over
March 31, 1961
EDMONTON
REGINA
ALBERTA
SASKATCHEWAN
MANITOBA
0 25 50 75 100
Scale in miles

Valeport dyke on Qu'Appelle River supplies irrigation, stockwatering and recreational needs in the valley.

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1 *Spring flood irrigation scheme on farm near Shaunavon, Sask. increased crop production.*

2 *Community-sized water storage and irrigation project under construction near Indian Head, Sask.*

3 *Farmer operating control gates in spring flood irrigation scheme near Shaunavon.*

CHAPTER 3 COMMUNITY PASTURES

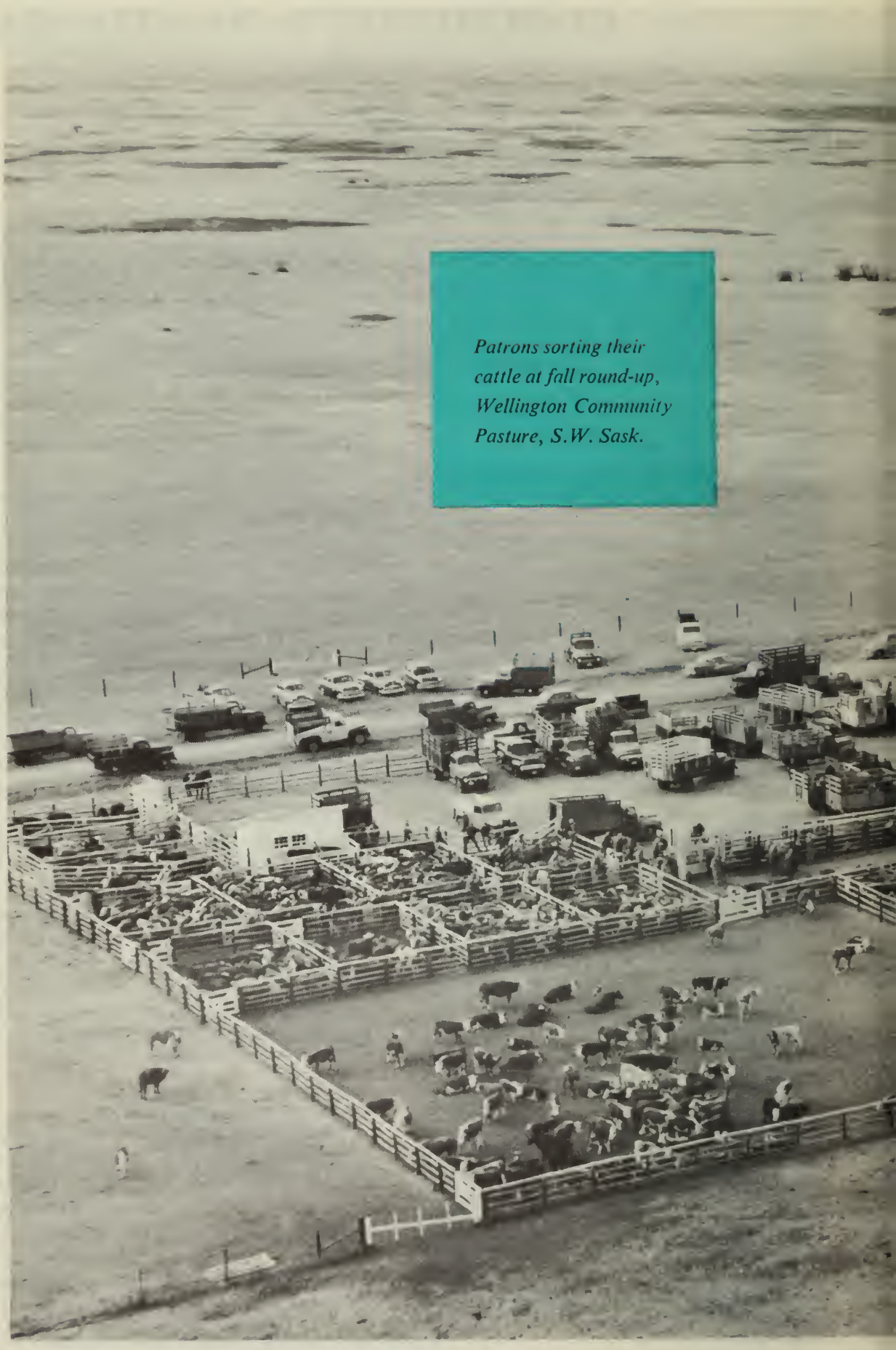
THE Prairie Farm Rehabilitation Act was amended in 1937 to broaden the Federal Government's rehabilitation program to include land utilization and land settlement. This permitted a program that has had a far reaching effect in many of the drier areas of Western Canada. By agreement with the provinces of Saskatchewan and Manitoba, lands not considered suitable for cereal crop production may be transferred to the Federal Government for development by PFRA into community pastures. The provinces concerned select the area and obtain control of the land. It is then leased to the Government of Canada which in turn agrees to construct, maintain and improve community pasture facilities in the area selected. In this way land uneconomical to farm or subject to drought and soil drifting is removed from cultivation and protected under a permanent grass cover.

PFRA Community Pasture signs are familiar landmarks.

As these submarginal and marginal lands are converted into pastures and once again made productive for grazing purposes, farmers in surrounding districts are encouraged to increase their livestock numbers and develop complementary farm forage supplies. Since the program began in 1937, nearly 2,000,000 acres of submarginal land comprising 68 operating units, have been developed as pasturage by PFRA. A continuous improvement program is carried on, including regrassing, water development, brush clearing and other soil and water conservation measures to provide maximum grass production. As a result, the average carrying capacity of community pastures has been more than doubled during the years they have been in operation. At present, controlled spring, summer, and fall grazing is being provided for a yearly average of 140,000 head of stock owned by 6,500 farmers.

PASTURE OPERATIONS

The pasture program is set up to be operated as nearly as possible at cost and in accordance with local bylaws. Each has a full-time manager in charge, appointed by the Government of Canada. Following the construction of a pasture, a public meeting is held for the purpose of organizing a Community Pasture Grazing Association. An



Patrons sorting their cattle at fall round-up, Wellington Community Pasture, S.W. Sask.

Advisory Committee is elected at this meeting and is authorized to act on behalf of the Association. One of the main functions of the Advisory Committee is to allocate pasture privileges. This is handled on the basis of need in the following manner:

1. Pasture privileges are given to any farmer who has been moved out of the pasture area by the Administration and relocated within the Municipality where the pasture is situated.

2. Pasture privileges are given to other bona fide farmers within the Municipalities in which pastures are located.

3. If the pasture can carry additional livestock, the pasture privileges may be extended to adjoining Municipalities, again on the basis of need, up to the carrying capacity of the pasture.

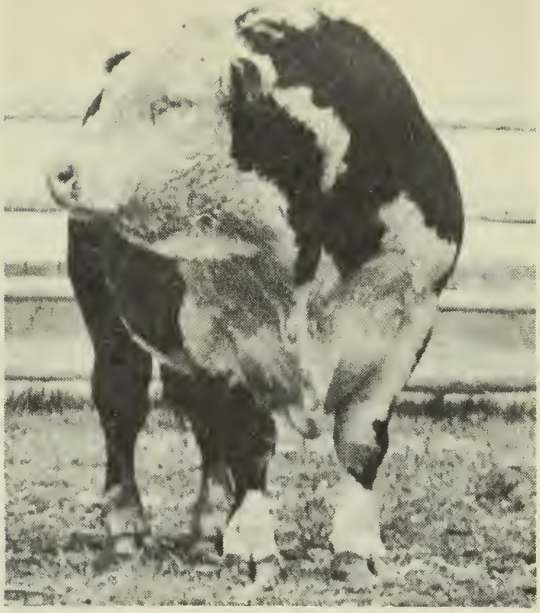
4. In order that the pasture privileges may be extended to as many residents as possible, the Advisory Committee sets a maximum number of livestock to be accepted from any one person. This maximum may vary according to changing climatic conditions.

During the grazing season many services are given in community pastures for the convenience of farmers. Some of these include dehorning, castration, inoculation, spraying, and branding. In

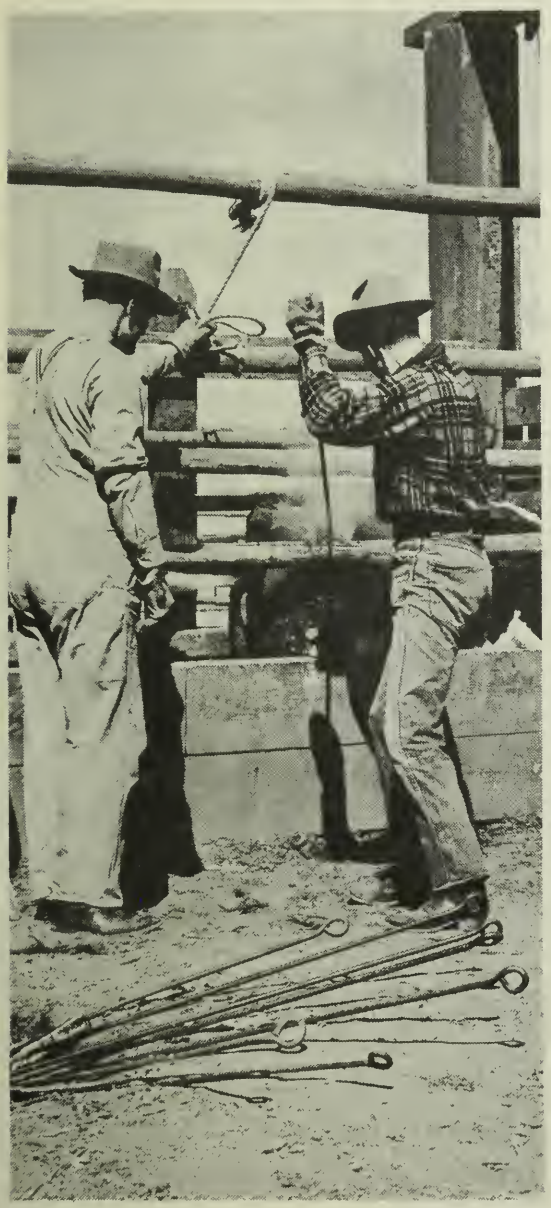
A fenced dugout on the Willner Community Pasture in central Saskatchewan.

addition, the Government of Canada provides a breeding service to improve the quality of animals in pastures. Registered bulls are purchased and developed to provide this service. This program has been successful over the years. Approximately 50,000 cows are bred each year and the average calf crop is between 85 and 90 per cent.

Livestock insurance is carried on many pastures. This is a separate service which the patrons arrange for themselves. Since this insurance has been employed, the overall loss from all causes on which insurance was paid, has amounted to one half of one per cent.

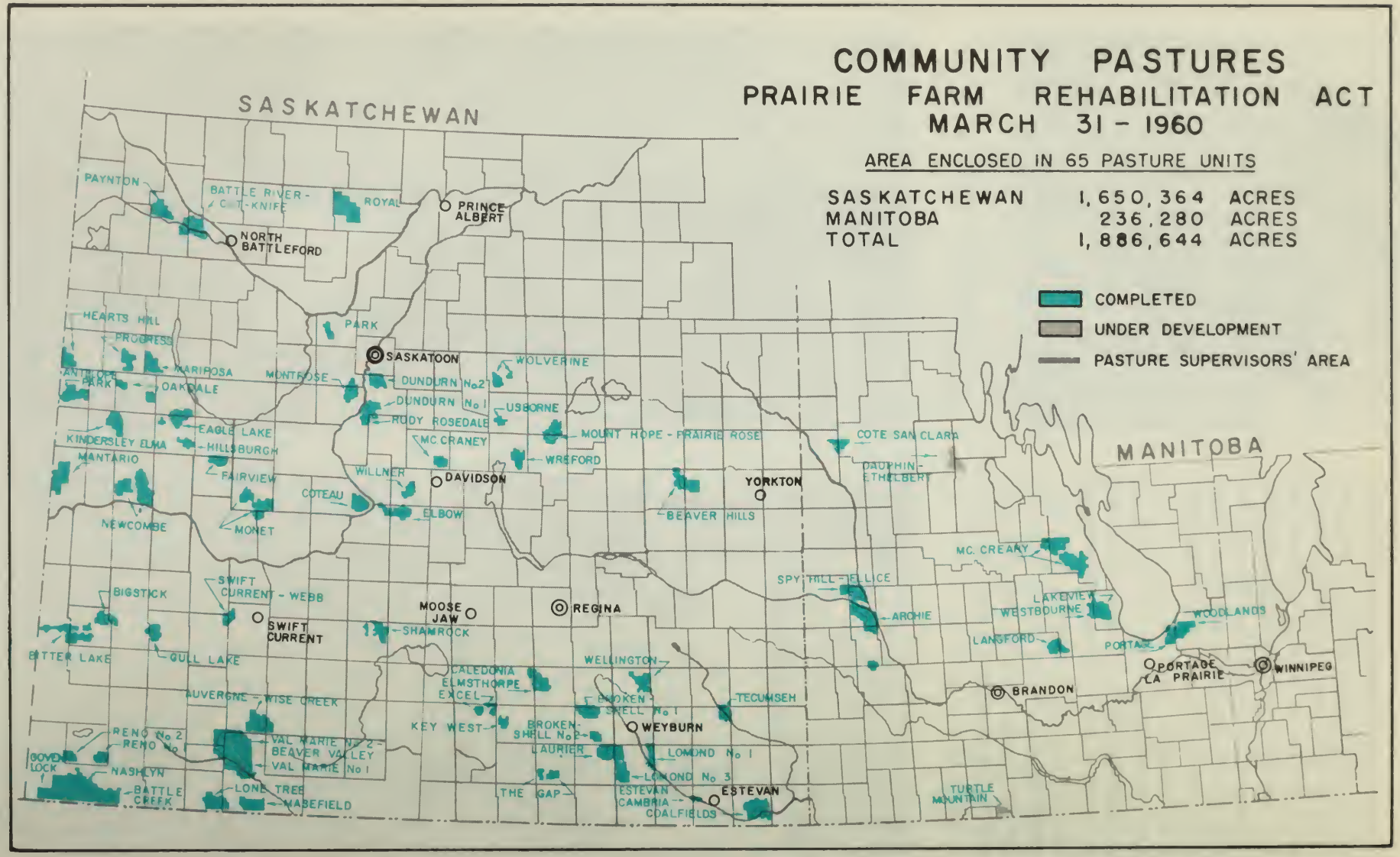


Hereford bulls are available for use in Community Pastures under PFRA breeding service program.



Cattle are branded on entering Community Pastures in the spring.

Vaccination is one of many services offered to Community Pasture patrons.


COMMUNITY PASTURES
PRAIRIE FARM REHABILITATION ACT
MARCH 31 - 1960
AREA ENCLOSED IN 65 PASTURE UNITS
SASKATCHEWAN 1,650,364 ACRES
MANITOBA 236,280 ACRES
TOTAL 1,886,644 ACRES
COMPLETED
UNDER DEVELOPMENT
PASTURE SUPERVISORS' AREA
SASKATCHEWAN
MANITOBA
PAYNTON
BATTLE RIVER - CUT-KNIFE
ROYAL
PRINCE ALBERT
NORTH BATTLEFORD
HEARTS HILL
PROGRESS
ANTELOPE PARK
KARIPOSA
OAKDALE
MONTROSE
PARK
SASKATOON
WOLVERINE
DUNDURN No 2
DUNDURN No 1
RUDY ROSEDALE
USBORNE
MOUNT HOPE - PRAIRIE ROSE
MC CRANEY
WREFORD
KINDERSLEY ELMA
HILLSBURGH
EAGLE LAKE
ONTARIO
FAIRVIEW
WILLNER
DAVIDSON
COTEAU
ELBOW
NEWCOMBE
MONET
YORKTON
BEAVER HILLS
COTE SAN CLARA
DAUPHIN - ETHELBERT
MC CREARY
SPY HILL - ELLICE
ARCHIE
LAKEVIEW
WESTBOURNE
WOODLANDS
LANGFORD
PORTAGE
PORTAGE LA PRAIRIE
WINNIPEG
BRANDON
BIGSTICK
SWIFT CURRENT - WEBB
SWIFT CURRENT
MOOSE JAW
SHAMROCK
REGINA
BITTER LAKE
GULL LAKE
WELLINGTON
CALEDONIA
ELMSTHORPE
EXCEL
AUVERGNE - WISE CREEK
KEY WEST
BROKEN SHELL No 1
BROKEN SHELL No 2
TECUMSEH
WEYBURN
RENO No 2
RENO No 1
VAL MARIE No 2 - BEAVER VALLEY
VAL MARIE No 1
LAURIER
LOMOND No 1
LOMOND No 3
GOVD LOCK
NASHLYN
BATTLE CREEK
LONE TREE
WABEFIELD
THE GAP
ESTEVAN CAMBRIA COALFIELDS
ESTEVAN
TURTLE MOUNTAIN

PASTURE RATES

Pasture rates have varied from time to time. The rates being charged in 1961 are as follows:

GRAZING

Cattle per day per head	3½¢
Horses per day per head	4½¢
Sheep per month per head (provide own herder, no charge for lambs)	11½¢
Cows (breeding service)	$4.00 per head
Calves of current year, sucking with dam, born before August 1	$3.50 per head
Colts of current year, sucking with dam, born before August 1	$4.50 per head

Minimum Grazing Fees per head per season:

Cattle	$4.00
Horses	$5.00
Sheep	40¢

VACCINATION AND OTHER SERVICES

Blackleg, Hemorrhagic and Mixed Vaccine	15¢ per single dose
Dehorning	50¢ per head
Warble and Horn Fly spraying (treatment at corral)	15¢ per head
Mineral Supplement	35¢ per head
Castration: Cattle under 6 months	$1.00 per head
Cattle 6 months and over	$2.00 per head
Encephalomyelitis and Special Vaccines	at cost

Herding cattle home from Community Pasture for winter maintenance.

1 *Spraying 2-4-D to control bush regrowth on Beaver Hills Community Pasture.*

2 *PFRA in some Community Pasture operations, uses ball-and-chain method to clear 50-foot swaths.*

3 *Headquarters buildings, Coalfields No. 4 Community Pasture in southeastern Saskatchewan.*

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CHAPTER 4

RESETTLEMENT AND REHABILITATION

UNDER the terms of the Prairie Farm Rehabilitation Act, as amended in 1937, provision is made for the resettlement and rehabilitation of farmers from areas of the prairies where drought conditions have rendered farming a hazardous and frequently uneconomical business.

When resettlement is necessary, this has been handled jointly by the Federal Government and provinces concerned. The latter provide suitable Crown Land where available. The Prairie Farm Rehabilitation Administration, in turn, accepts responsibility for moving the farmers and their effects to new locations. The submarginal areas are then turned over to PFRA to be developed for pasture purposes. Every effort is made to resettle farmers on lands that are located close to existing or proposed pastures, permitting them to take advantage of these grazing facilities.

Where it has been possible to achieve satisfactory rehabilitation without

Settler dismantling his house in drought area—now resettled in Hays, Alta.

moving farmers from their present locations, this has been done through the PFRA water-development and community-pasture programs, as in the case of tens of thousands of farmers throughout the prairie area. In other instances, however, it has been necessary to relocate settlers in other areas where an adequate farm income is possible.

Harvesting hay crop on PFRA irrigation project at Rolling Hills, Alta.

RESETTLEMENT AND REHABILITATION PROJECTS

Where better dryland holdings are not available for resettlement, irrigation has played an important part and the Government of Canada has built and continues to operate several irrigation projects on the prairies specifically for this purpose.

Two such schemes have been built in Alberta. The first involves the development of a large block of land in the Eastern Irrigation District called the Rolling Hills Project. This scheme

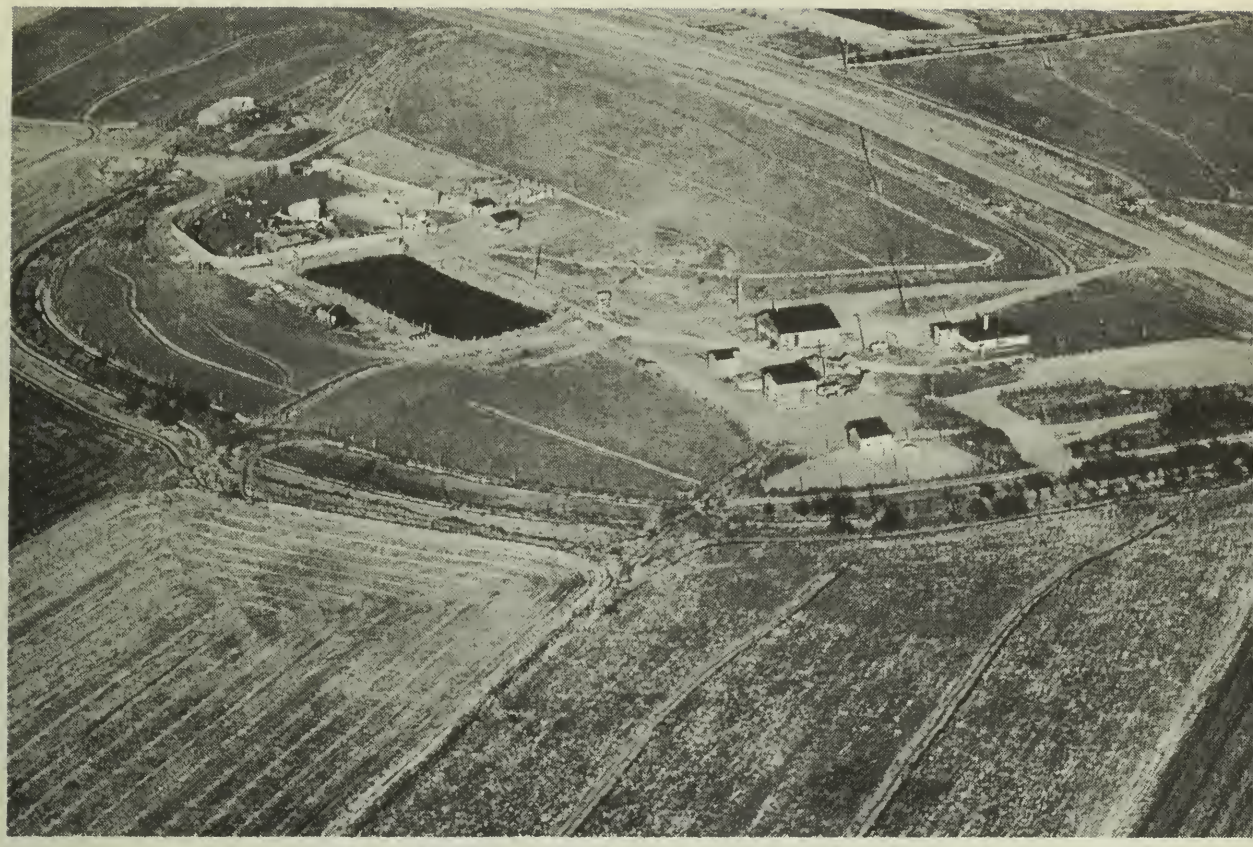
Sweep-stacker in operation building stack of alfalfa hay. Rolling Hills Irrigation Project.

New arrivals on the Rolling Hills resettlement project in southern Alberta.

involved moving 118 farm families, principally from drought areas of southern Saskatchewan. The other is the Bow River Irrigation Project where 27,000 acres in the Hays Irrigation District have been set aside for resettlement, and to date approximately 162 farm families have been resettled. In both schemes, irrigation farm units of approximately 120 to 160 acres have been given to each farmer in exchange for his dryland holdings. Additional charges are made for a water right and land preparation. A follow-up agricultural program is also provided to ensure speedy rehabilitation.

Sunflowers on parcel 57—
Bow River Irrigation Project.

Town of Hays, Alta.,
business center for Hays
Irrigation District, Bow River Project.



New farmstead in Hays District—developed by PFRA for resettling farmers.

Mechanical grazing demonstration being conducted by PFRA on Bow River Project.

Six resettlement and rehabilitation projects have been built in the heart of the drought area in southwestern Saskatchewan. These projects differ from the others in that they are intended to supplement dryland farming and do not necessarily involve actual resettlement. These are the Val Marie, West Val Marie, Consul, Eastend, Maple Creek and Swift Current Projects. By the construction of a series of storage reservoirs and control works on rivers and streams originating in the Cypress Hills, water supplies are made available for the irrigation of 40,000 acres of land on the six projects. This land is divided into 40- to 60-acre plots and made available to approximately 560 farmers in surrounding areas for the production of livestock feed. It has taken several years to fully develop the projects. Irrigation in these areas is now well integrated with dryland farming operations. It is playing a major part in building a stable and secure agriculture for farmers in this area.

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1 *Val Marie Irrigation Project in S.W. Saskatchewan. Siphons divert water from ditch onto land.*

2 *Val Marie storage reservoir serves 6,500 acres of irrigable land producing forage crops.*

3 *Hay for winter feeding produced under irrigation on Val Marie resettlement and rehabilitation project.*

4 *Irrigation on the Swift Current resettlement and rehabilitation project.*

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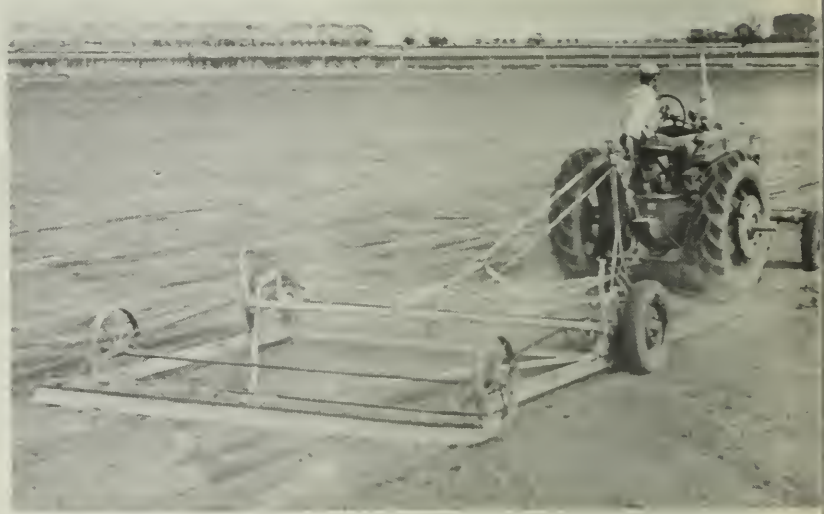

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1 *Duncairn Dam, a multi-purpose storage structure on the Swift Current Irrigation Project.*

2 *Levelling land in preparation for irrigation in the Maple Creek Irrigation Project.*

3 *Irrigated flats at Maple Creek, Sask., produce heavy crops of hay year after year.*

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CHAPTER 5 MAJOR PROJECTS

INCREASING attention has been given in recent years to the construction of larger irrigation and reclamation projects under the Prairie Farm Rehabilitation Act, involving the development of many thousands of acres of land. Such undertakings are in line with a long-range, land-use plan to provide for expansion and stability in Canada's growing economy. Of an estimated 2,000,000 acres of potentially irrigable land in Western Canada, 1,500,000 acres have been or are in the process of being developed. The aim is, when conditions warrant, to develop the remainder of this valuable resource.

Major irrigation and reclamation projects—the St. Mary River Project and the South Saskatchewan River Project for example—are undertaken on a cost-and-work-sharing basis by agreement between the Federal Government and the province concerned. These projects, because of their size or location, require special authorization from Parliament and are covered by financial votes separate from the regular PFRA appropriation. Responsibility for the development and supervision of these projects rests with the Prairie Farm Rehabilitation Administration.

ST. MARY PROJECT

A program to extend the original St. Mary Irrigation Project was undertaken by an agreement between the Government of Canada and the Province of Alberta. This makes available for irrigation, a larger percentage of the water

Drilling Waterton River diversion tunnel, prior to construction of Waterton Dam (St. Mary Project) near Cardston, Alta.

St. Mary Dam and Reservoir in southern Alberta.

flowing through southern Alberta in the Waterton, Belly, St. Mary and Milk rivers. The Federal Government agreed to construct the main supply reservoirs and connecting canals, and the Province of Alberta the irrigation distribution system. This project, when completed, will extend irrigation to approximately 510,000 acres of land in the area between Spring Coulee and Medicine Hat.

The key structure for the entire development of the project is the St. Mary Dam. It is located on the St. Mary River about 30 miles south of Lethbridge, provides control of the water resources in the St. Mary River, and creates storage sufficient to irrigate approximately 220,000 acres of land. Water from the

Irrigated crops of sugar beets and corn, Taber, Alta. Sugar factory shown.

reservoir is delivered by way of a 20-foot diameter concrete tunnel to a main supply canal serving the irrigation districts. Other major structures along the extent of the canal system to balance flows and provide additional storage, include the Chin, Jensen, Ridge and Grassy Lake reservoirs.

Construction of the St. Mary Dam, built by the Federal Government between 1946 and 1951, represents the first stage in the development of the main water supply system for the St. Mary Irrigation Project. It gave assurance of water for the 120,000 acres of land in the old Alberta Railway and Irrigation Project, and allowed for the extension of the system to embody a further 100,000 acres. The dam is 202 feet high, and close to half a mile long. It creates a 17-mile reservoir, and contains 320,000 acre feet of water at full supply level.

With 290,000 potentially irrigable acres remaining to be served, the second stage of development, which was to control the waters of the Belly River, was undertaken in 1956 and completed the following year. This involved the construction of a diversion weir to divert the Belly River, and a canal from the Belly

Potato crop being grown under irrigation, St. Mary Project.

Harvesting peas in Magrath district, St. Mary Project.

River at the point of diversion to the St. Mary Reservoir, a distance of 27 miles.

The long, shallow weir holds back 30,000 acre feet of water. The diversion canal has a capacity of 2,450 cubic feet per second. This has extended irrigation to another 48,000 acres of land.

The final phase of construction includes the damming of the Waterton River and a canal from there to the Belly River. Construction of the Waterton Dam began in 1958. A tunnel was put in to divert the flow of the river so that work could go forward. The diversion tunnel was completed by the fall of 1960 and in the following spring construction of the dam proper got under way.

When the Waterton Dam is built, a five-mile canal with a capacity of 2,000 feet per second, will be dug from the Waterton reservoir to the Belly River reservoir, thus linking the three rivers together. The Waterton reservoir will have a total capacity of 140,000 acre feet. The dam will be 180 feet high, three miles long, including dykes at each end, and will have a base width of 1,350 feet.

The combined storage capacity of the St. Mary, Belly and Waterton reservoirs will be 490,000 acre feet.

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1 *PFRA completed the Belly River Diversion Dam, part of St. Mary Project, in 1958.*

2 *Harvesting sugar beets in Lethbridge district of St. Mary Project.*

3 *Jensen (Pothole) Reservoir and Taylor Chute, another of several major reservoirs on the St. Mary Project.*

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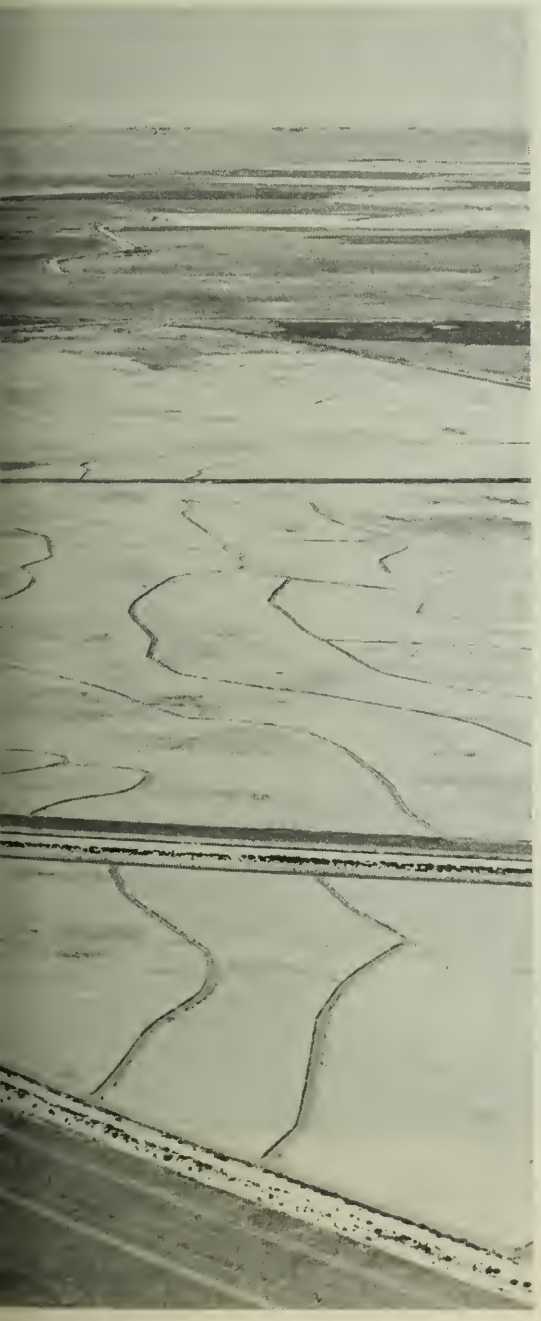
BOW RIVER PROJECT

The Bow River Irrigation Project, situated west of Medicine Hat with an irrigation potential of 240,000 acres, was taken over by the Government of Canada from the Canada Land and Irrigation Company in 1951. The Company had developed about 57,000 acres before financial difficulties stopped work. The Prairie Farm Rehabilitation

West Arrowwood Siphon, one of three, serving Bow River Project.

Administration commenced the orderly renovation and extension of irrigation works in the Vauxhall and Hays districts of the project. In these districts the Federal Government is responsible for settlement and project operation. These areas have provided farms for 436 settlers; 162 of these have been settled in the newly developed Hays district.

Typical irrigation pattern as seen from the air on Bow River Project.

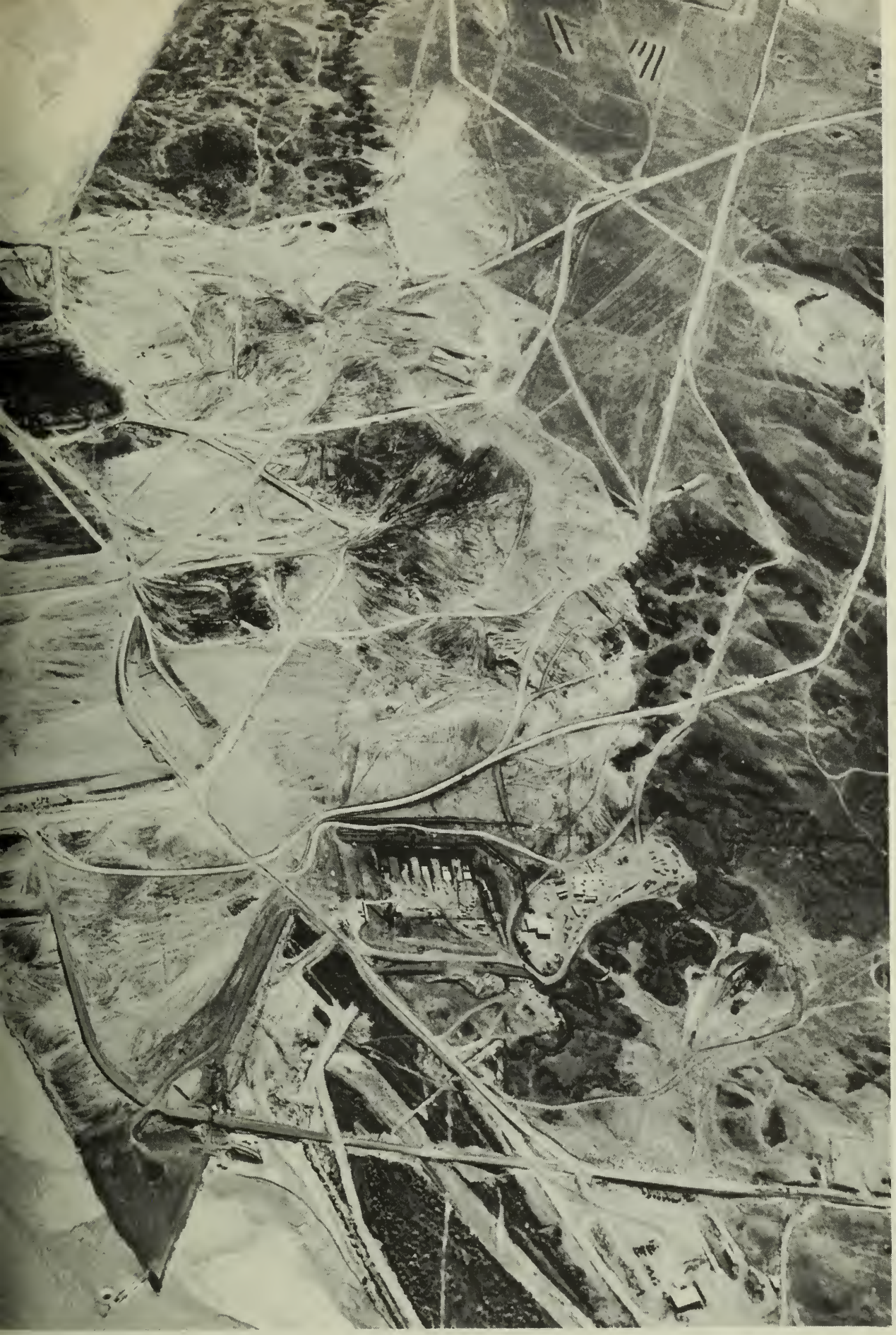


Giant earth movers used in construction of South Saskatchewan River Dam.

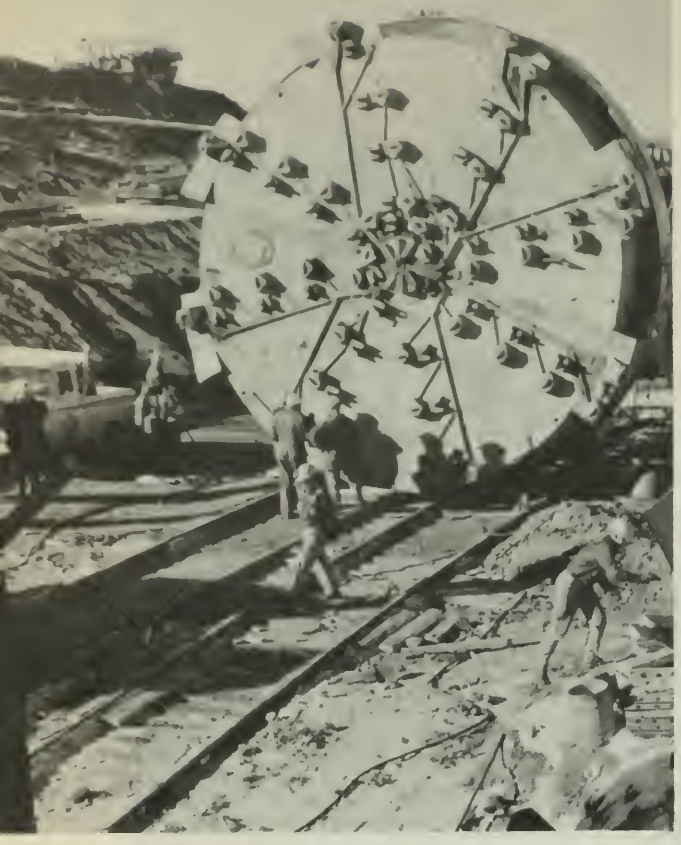
SOUTH SASKATCHEWAN RIVER PROJECT

In July, 1958, agreement was reached between the Government of Canada and the Province of Saskatchewan to start construction on the South Saskatchewan River Project, a large-scale multi-purpose water conservation project proposed for development in south-central Saskatchewan. The purpose is to make better use of the water resources of the river through irrigation, flood control, power, urban water supply, and recreation. Control will be achieved by two dams, the major one on the South Saskatchewan River at a point approximately halfway between the towns of Outlook and Elbow and the other at the divide between the valleys of the South Saskatchewan and Qu'Appelle rivers. Completion of the project, barring unforseen delays, is expected in 1965.

The agreement provides that Canada and Saskatchewan will share the cost of building the dams and all other works associated with the creation of the reservoir; 75 per cent will be borne by the Federal Government and 25 per cent by Saskatchewan, the Province's share not to exceed $25 million. Engineering and supervisory services are provided by PFRA. Upon completion, Canada is to maintain the works for a period of 10



Aerial view of construction area, South Saskatchewan River Dam.



years, and shall be responsible for the cost of such maintenance for a six-year period. During the remaining four years, the cost is to be shared equally, after which Saskatchewan will be solely responsible for the dam.

The agreement also stipulates that when Saskatchewan proceeds with the construction of hydro electric power facilities, the cost of these is to be borne by Saskatchewan provided that Canada will contribute 25 per cent of the cost of constructing and installing such penstocks as may be necessary to produce 200,000 horsepower at minimum operating head. The potential power output has been estimated at 475,000,000 kilowatt hours.

"Mole" used in tunnelling has 25-foot-diameter rotary face.

Outlet portals for river diversion tunnel were completed early in 1961.

Construction bridge at South Saskatchewan River damsite gives access to structural area.

Steel liners being pre-fabricated for river diversion tunnels.

The agreement also provides that Saskatchewan will assume full responsibility for, and undertake the construction, operation and maintenance of all the irrigation works required for the conveyance and distribution of water to all lands to be irrigated by the reservoir. The project when completed will provide water for the irrigation of approximately 500,000 acres of land located in central Saskatchewan. The area will include both sides of the South Saskatchewan River between Elbow and Saskatoon, and the Qu'Appelle Valley extending east of Elbow to the Manitoba border.

The estimated cost of the main dam and reservoir is $96 million, the power plant, when full development is attained, about $50 million, and the cost of irrigation will probably be another $50 million. The irrigation costs will be spread over more than a decade.

The reservoir will impound 8,000,000 acre feet of water. It will be 140 miles long, 185 feet deep at the dam and will have a shoreline of 475 miles. The flooded area at full supply level will be approximately 109,600 acres, 5.2 per cent of which is now under cultivation. The main earth-fill dam is to be 210 feet high with an overall length of 16,700 feet or more than three miles. It will be the largest rolled-earth dam ever built in Canada and one of the largest dams of its kind in the world.

Pre-development Farm on the South Saskatchewan River near Outlook, Sask.

PFRA headquarters overlooking South Saskatchewan River Dam area.

Construction was started in the autumn of 1958. By December 31, 1960, twenty contracts totalling approximately $25 million had been let. Of these, 15 contracts had been completed, four were in progress on a winter work basis, while one had been suspended until spring. The value of the completed contracts was nearly $9.4 million. Contracts awarded but not completed at this writing account for another $15.6 million. Partial payments have been made on these contracts, bringing the total expenditure to the end of 1960 to over $16 million, including $3.4 million for PFRA engineering, administration and supervisory services.

Since construction began, the number of tourists visiting the site has increased steadily. During the six-month period from May to October, 1960, more than 80,000 people came to view the scene. The month of July provided the heaviest traffic with 21,316 visitors.

Irrigating potato field on Pre-development Farm to determine suitability of irrigation for the area.

SASKATCHEWAN RIVER RECLAMATION PROJECT

The vast Saskatchewan River Delta between Tobin Rapids in Saskatchewan and Cedar Lake in Manitoba, contains over one million acres of land which, over the years, many authorities have felt could be reclaimed and converted into productive farm land. A narrow, north-south ridge on which the Town of The Pas, Manitoba, is located, divides the delta area into two sections. The Sipanok and Pasquia areas, lying to the west of this ridge, have been the subject of extensive study and development by PFRA since 1950. The Moose Lake area, east of the ridge, was investigated in 1959.

Considerable reclamation work has been done near The Pas, Man., where Carrot River joins the Saskatchewan.

Pasquia River diversion channel in Manitoba is part of the Saskatchewan River Reclamation Project.

Hay production has been successful on reclaimed land in the Pasquia District near The Pas, Man.

A complete engineering report covering the delta area was prepared by PFRA and submitted to the Governments concerned for consideration. Early in 1953, Canada and Manitoba, agreed to jointly undertake construction of necessary flood control and drainage works to reclaim 100,000 acres of arable land in one region of the project referred to as the Pasquia Area, near The Pas. According to this agreement, the Government of Canada assumed the cost of building the main protective and drainage works and Manitoba the expense of settlement, maintenance of works, and internal drainage. The project was completed in 1960.

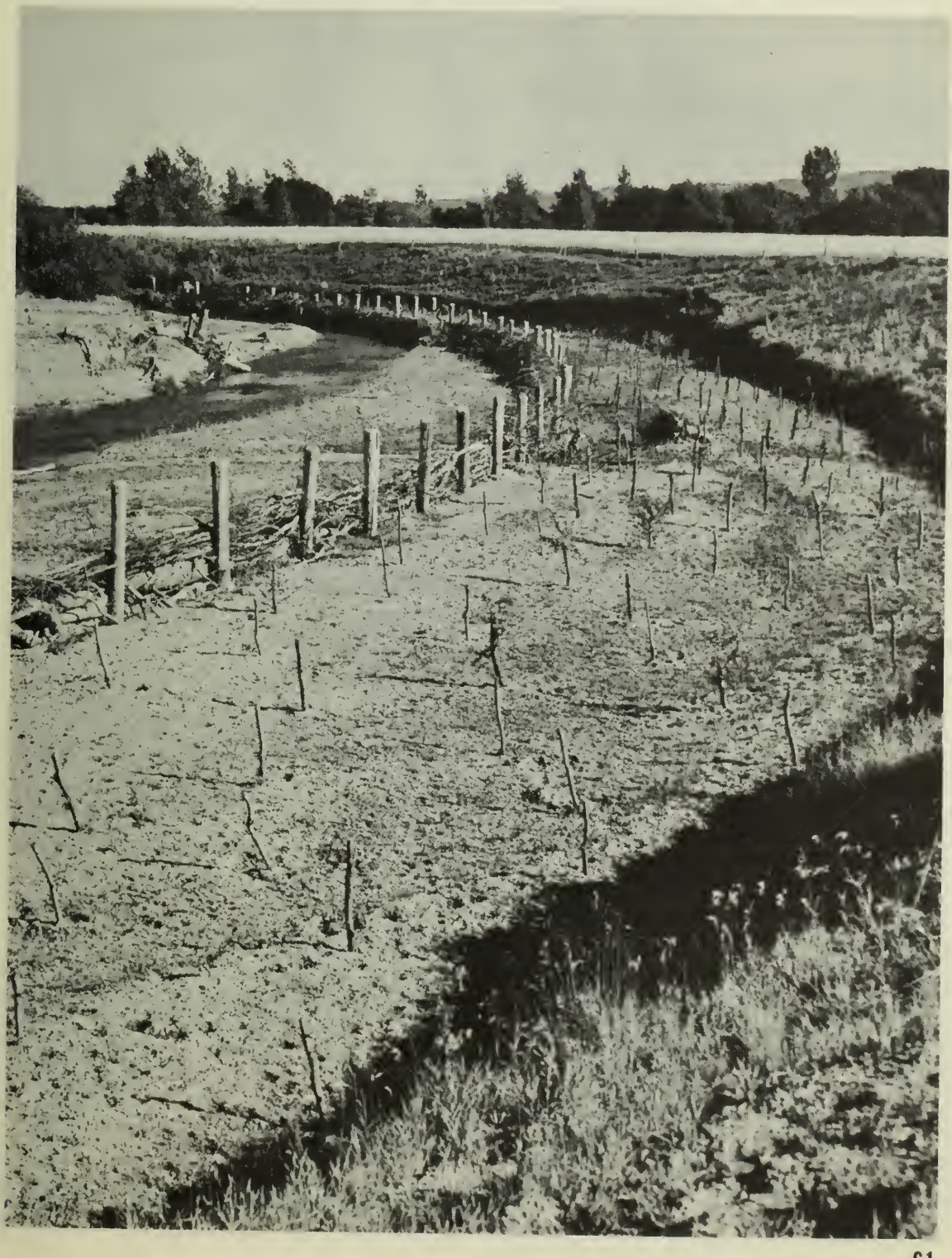
Canada has the right to use one quarter of the reclaimed land that was not under lease by the Manitoba Government as at November 1, 1952, for resettlement of farmers from submarginal areas. The remainder is to be sold or leased under the administration of the Province. Seventy-five per cent of the proceeds from the sale or lease of the lands will go to the Federal Government. Settlement of the 100,000-acre project has now commenced.

Sturgeon River in Manitoba is metered to determine delta reclamation potentialities (Saskatchewan River Reclamation Project.)

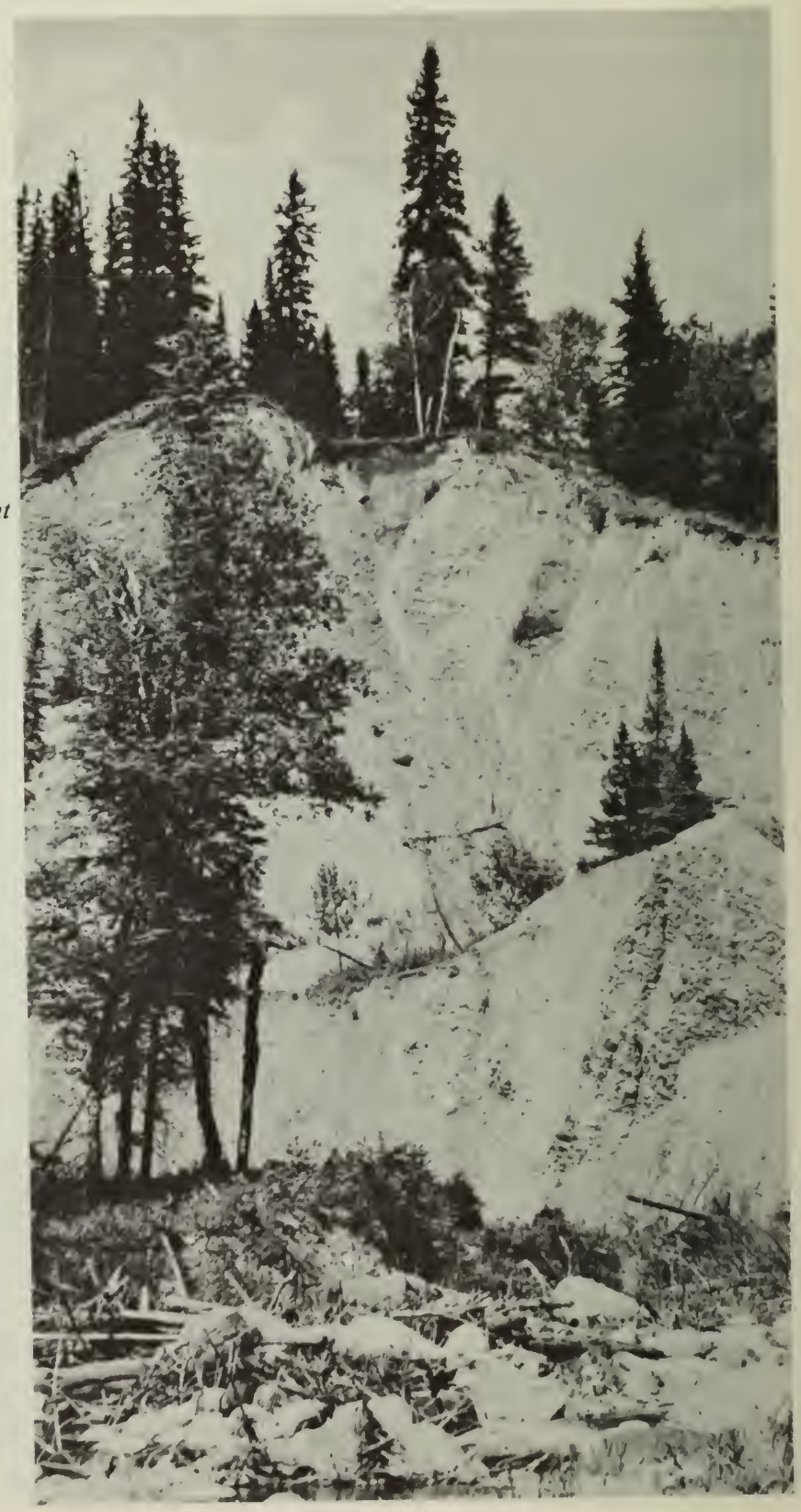
NORTH WEST ESCARPMENT RECLAMATION PROJECT

At the request of the Manitoba Government, extensive investigations have been undertaken by PFRA in the Riding Mountain, Duck Mountain and Porcupine Mountain areas, and Whitemud River watershed, where serious flood and erosion problems exist in an area containing over 252,000 acres of valuable agricultural land. The reclamation work, the cost of which is divided equally between the Government of Canada and the Province of

Protecting channel of Wilson Creek against flash flooding. Riding Mountain area, Manitoba.



Manitoba, consists of clearing and dyking stream channels, prevention of streambank erosion and aligning channels by building cutoffs and diversions. In addition, considerable attention since 1958 has been given to watershed investigations on the headwaters of Wilson Creek, to discover improved methods of controlling floods and consequent erosion problems in the upper and lower reaches of such streams.



PFRA is studying sedimentation problem caused by shale banks on Wilson Creek, North West Escarpment Project.

ASSINIBOINE RIVER PROJECT

Along the Assiniboine River between Portage la Prairie and Headingly in Manitoba, a continual problem of flooding has faced farmers and communities over the years, often causing considerable damage to land, buildings and other property in districts near the river.

Prior to 1950, the Federal Department of Public Works looked after most of the flood protection work that was carried out in the area. Since that time responsibility for the work has been with the Canada Department of Agriculture under the Prairie Farm Rehabilitation Administration.

Flood control activities carried out by PFRA along the Assinibóine have mainly involved construction of dykes and channel improvement work. In addition, considerable survey work has been done on both upper and lower reaches of the river to study potential storage sites that would more effectively regulate the entire system.

Flooding conditions near Brandon, Man. present challenge to PFRA engineers on Assiniboine River Project.

Dykes built by PFRA along the Assiniboine River are seeded for protection from erosion.

BRITISH COLUMBIA PROJECTS

The Prairie Farm Rehabilitation Administration has been carrying out irrigation development, land reclamation, and providing engineering services in British Columbia since 1944. Most of this work has been undertaken for the Soldier Settlement and Veterans' Land Act Branch, Department of Veterans' Affairs, on special request from the Province of British Columbia.

Nine irrigation projects have been developed or rehabilitated in the arid central interior of British Columbia. The irrigable land on these projects totals approximately 5,300 acres and provides a direct or supplemental living for some 1,400 families engaged mainly in dairying and growing of fruits and vegetables.

Seven of these irrigation projects were constructed for the Department of Veterans' Affairs following the second

Pemberton Valley Reclamation Project in B.C. eliminated flooding conditions, assured cereal and vegetable crops.
(PFRA joint agreement with Province)

Land in Pemberton Valley now protected against future flooding by dykes and improved channels.

world war and benefit approximately 500 veterans. The Johnson Western Canada Ranching Projects, Nos. 1 and 2 (Todd Hill Irrigation District) and the Chase Irrigation Project, are located in the South Thompson Valley. The Cawston Benches, Westbank, Penticton West Bench, and Bankhead Projects are all located in the southern Okanagan Valley and constitute some of the largest individual developments for veteran settlement in Canada.

The two remaining irrigation developments are located in the Thompson Valley near Kamloops and were constructed in co-operation with the Province of British Columbia. One concerned the B.C. Fruitlands Irrigation District which includes 2,000 acres of irrigable land comprising 700 small

BEFORE

Penticton West Bench Project four years before accompanying photo was taken.

(PFRA joint agreement with Dept. of Vet. Aff. (VLA))

and AFTER

Penticton West Bench Project is notable example of how irrigation has transformed area.

(PFRA joint agreement with Dept. of Vet. Aff. (VLA))

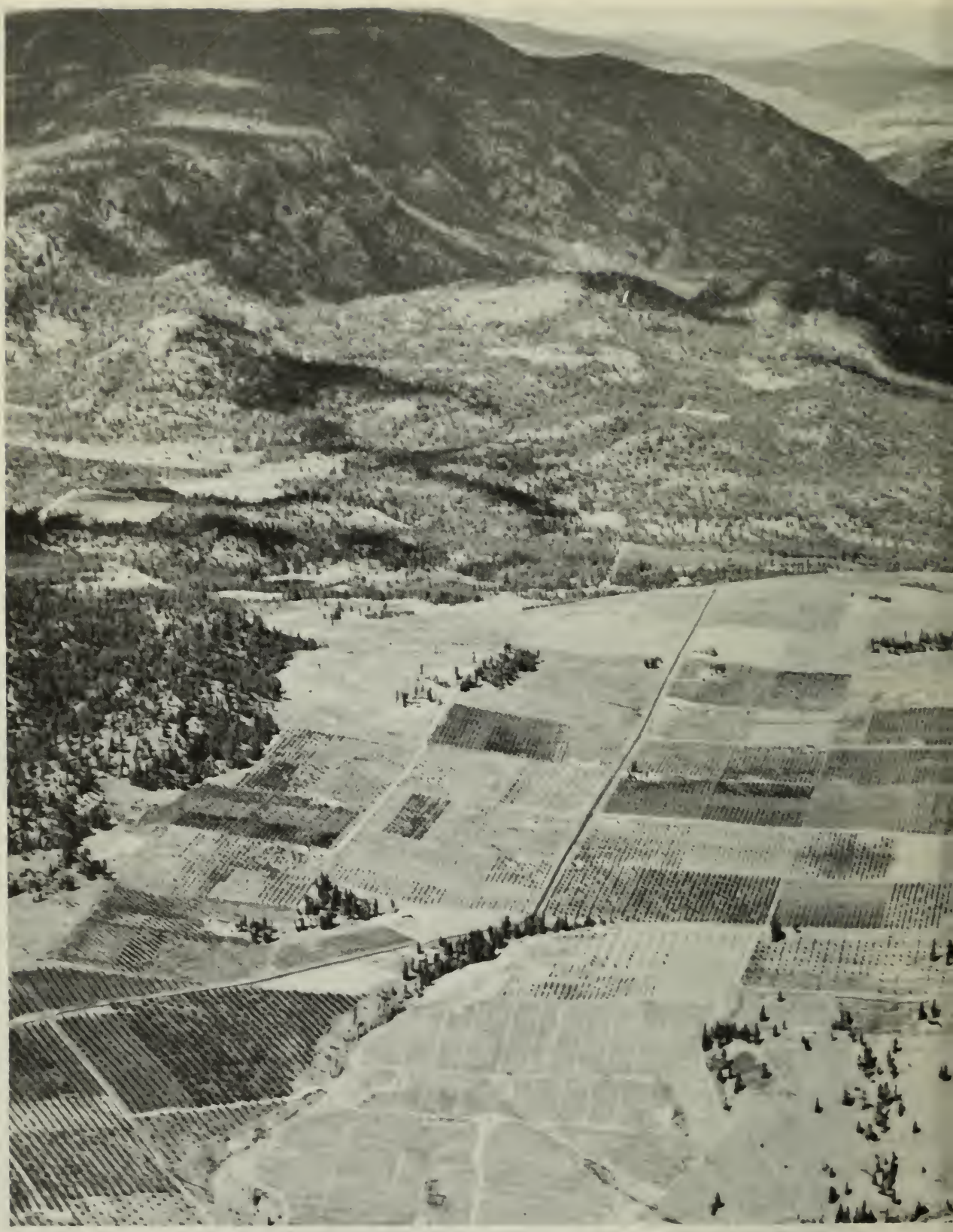
holdings of one-half acre or less. This district had originally been served for over 40 years by a gravity canal-and-pipe system from Jamieson Creek but had deteriorated to such an extent that the district could no longer guarantee water to its users. Rehabilitation of the project was undertaken by agreement with the Province and the Irrigation District concerned, and completed by PFRA in 1958. The other development involved a pressure irrigation system that was installed by PFRA to irrigate 290 acres of the Provincial Sanitorium farm lands at Tranquille.

One major reclamation project was undertaken in the Lillooet Valley upon agreement between the Governments of Canada and British Columbia, and the Pemberton Valley Dyking District. This project involved the reclamation of the lower 20 miles of the Lillooet River Valley. By means of dyking, drainage and channel improvement 12,000 acres of agricultural land were reclaimed and an additional 2,000 acres already under cultivation were protected.

Engineering services have been provided by PFRA to the Experimental Farms and to other government agencies as requested. Some of these services have included surveys in the Fraser River Basin for the Federal-Provincial Fraser River Board, reports on proposed project development and reclamation in British Columbia, and services to the Experimental Farms for the establishment and improvement of farm water supplies and irrigation systems.

Inlet and pumping installation assures water for B.C. Fruitlands Irrigation Project near Kamloops, B.C.

(*PFRA joint agreement with Province*)



Westbank Project on Lake Okanagan developed for settlement and rehabilitation of Canadian War Veterans.

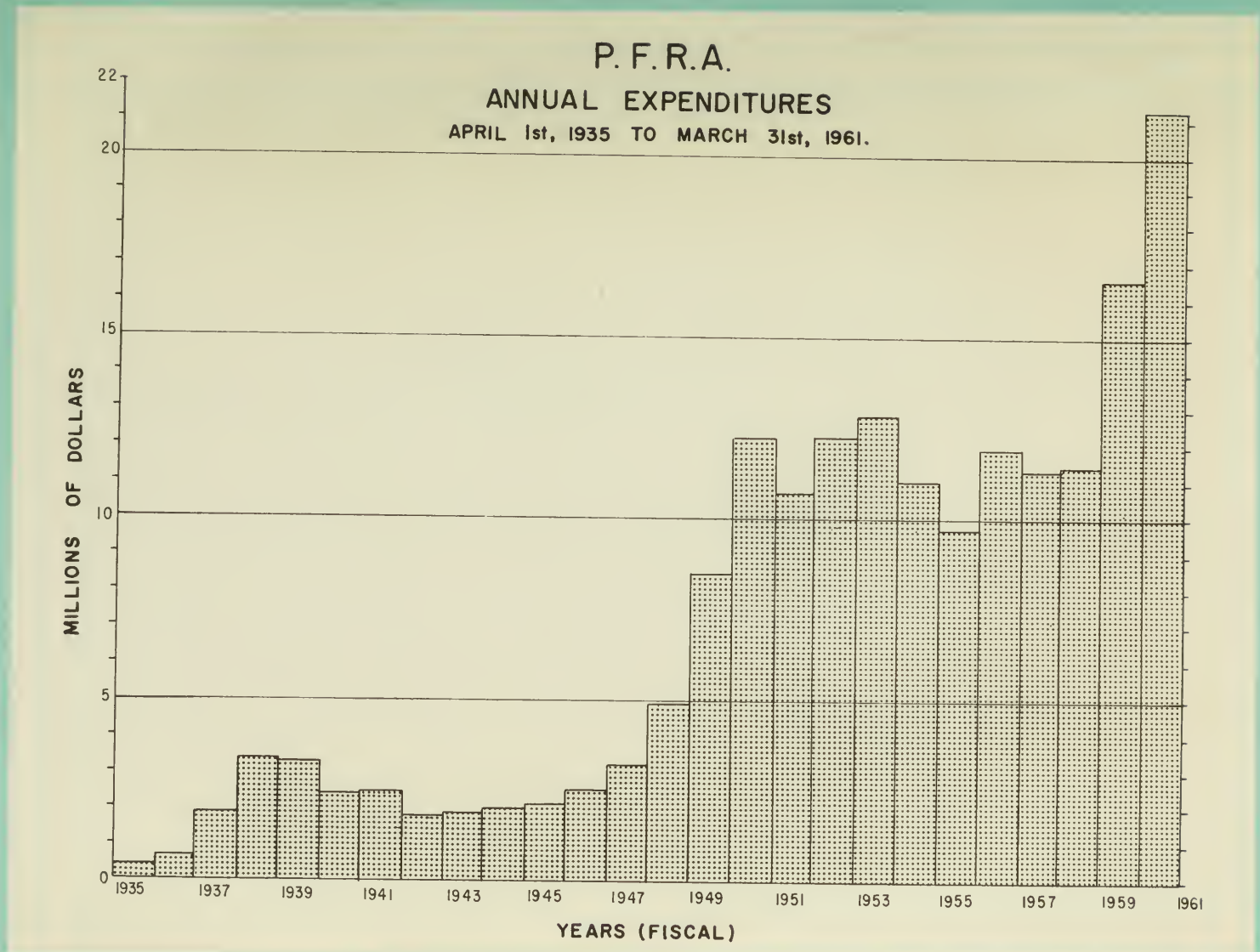
(PFRA joint agreement with Dept. of Vet. Aff. (VLA)

PFRA Expenditures by Activities

April 1, 1935—March 31, 1961

ADMINISTRATION		
Ottawa and Regina Administration		$ 2,443,129
Engineering Services—Surveys, Design, Soil Mechanics, Drainage Studies, Legal Surveys, Supervision of Construction		18,799,766
LAND UTILIZATION		
Cultural work—Soil Drifting, etc. (Exp. Farm Service)		4,966,394
Community Pastures—Construction, Operation and Maintenance		19,596,592
Movement of Settlers		227,841
WATER DEVELOPMENT		
Small Farm Projects		21,116,107
Community, Large Water Storage and Irrigation Projects		18,143,842
Supervision		2,970,273
Equipment—Purchase and Repairs, Service Depot		6,776,272
MAJOR PROJECTS: IRRIGATION, RECLAMATION AND CONSERVATION		
St. Mary Irrigation Project		21,797,009
Bow River Irrigation Project		29,377,408
South Saskatchewan River Project		23,855,969
Assiniboine River Dyking		1,254,635
B.C. Reclamation and Development, incl. Lillooet Project		3,310,182
Land Protection and Reclamation, Manitoba and Eastern Canada		3,568,862
Miscellaneous Projects—Construction		3,999,036
		$182,203,317

REVENUE:		
Community Pasture Operations	$ 7,472,063	
Irrigation Project Operation and General Revenue	3,637,230	
	$11,109,293	


P. F. R. A.
ANNUAL EXPENDITURES
APRIL 1st, 1935 TO MARCH 31st, 1961.
MILLIONS OF DOLLARS
0
5
10
15
20
22
1935
1937
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
YEARS (FISCAL)

PRICE 50 CENTS

Catalogue No. A22-4061

Roger Duhamel, F.R.S.C., Queen's Printer
and Controller of Stationery
Ottawa, Canada, 1961.