



CANADIAN WEEKLY BULLETIN

INFORMATION DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA - CANADA

Vol. 4 NO. 9

January 7, 1949

INDEX TO INSIDE PAGES

Highest Peacetime Production in 1948.....	2-3	Organize Against Cancer.....	6
Export Trade Booming.....	3-4	Cost-of-Living Down.....	9
Peak Mineral Production.....	4	Department Store Sales.....	9
Motor Vehicle Sales.....	4	Caribbean Exercises.....	9
Apprenticeship Agreement.....	4-5	Spring Cruise Program.....	9
Trade With West Indies.....	5	Dollar Holdings \$998,000,000.....	10
T. & C. Associate Deputy.....	6	Cattle & Beef-\$100,000,000.....	10

WEEK'S EVENTS IN REVIEW

SCIENTIFIC RESEARCH, 1948: It has been an effective and highly productive year in the activities of the National Research Council at Ottawa. With a staff of more than 2600 persons, many of whom have won wide recognition in their respective fields, the Council now occupies a very creditable place in the scientific world. In 1948, for the first time, the Council awarded 19 post-doctorate fellowships each tenable for one year in the Division of Chemistry of which Dr. E.W.R. Steacie, F.R.S., is the Director. Holders of these fellowships include men trained in English and Scottish universities and institutions in Holland and Denmark, the Council reports in its review of 1948.

Heretofore, the trend in post-graduate research has always been from Canada to other countries, mostly the United States and Europe. It is a mark of progress that the flow of scientists is now moving in both directions and it is a notable achievement for Canadian scientific workers to be selected as the guides and mentors of mature investigators who have been trained in the older and famous European centres of learning, proceeds the review.

Award of these fellowships indicates also a movement in Canadian research towards a greater concentration of effort in the field of pure science than was possible during the war years. The Council's program of investigations now more nearly represents the nice balance between pure and applied research, which is considered essential to continued productive effort....

The National Research Council's Atomic Energy Project at Chalk River has enjoyed a successful year of operation of its heavy water pile or nuclear reactor. This has afforded the highest flux of neutrons available anywhere for experiments and for the production of radioisotopes. Radioisotopes have been supplied to 19 approved laboratories across Canada. Highlights of research include a new approach to the measurement of the mass of the neutron made possible by the high flux of neutrons in the pile. This indicated that the hitherto accepted value might be significantly low. Much knowledge has been gained of the effects of radiations on various substances. The instrumentation for the measurement of radiations has been considerably advanced. In the field of biology interesting results have been obtained on the effect of radiation in producing chromosome breaks.

In December a highly successful conference on the use of isotopes in industry was held in Ottawa to acquaint Canadian industrialists with possible uses of radioactive isotopes now being produced at Chalk River....

Group discussions followed in which the industrial representatives were shown how the radioactive materials produced at Chalk River could be used in the control of industrial processes. For example, the amount of wear on a bearing can be determined easily and accurately; the thickness of gold plating on

HIGHEST PEACETIME PRODUCTION IN 1948

(BY THE MINISTER OF TRADE AND COMMERCE, MR. HOWE)

CONDITIONS ARE GOOD: The year 1948 has been marked by the highest levels of production and external trade in our peacetime history, and by levels of income and employment which have never been exceeded at any time. Conditions are good in Canada from every point of view. At the same time, the dependence of our domestic prosperity upon our foreign trade was never more apparent than during the past year.

In the world at large, the year has been marked by the efforts of numerous countries to adjust to the changed circumstances of the postwar world. Courageous and effective measures toward reconstruction have been particularly notable in the United Kingdom and in Western Europe and yet production in many fields still lags below the levels that are needed. Our most serious problems are those that we face abroad, in a narrow sense in the inability of some of our customers to pay us hard currency for our exports, in a broader sense in the changes wrought in recent years on the very structure of world trade and world finance.

INVESTMENT BOOM

The investment boom in Canada has continued at a high level during 1948. Twenty per cent of our entire national output is being devoted to capital expenditures on plant, equipment, housing and construction - a phenomenal figure. Capacity has been expanded in long-established industries such as motor vehicles, farm machinery and textiles. New industries have been successfully established and consolidated as in the case of synthetic rubber. Industries which used to be small have increased their capacity in recent years to the point where they are now of first-rate importance: for example, in aluminum, plastics, chemicals and machine tools.

The discovery and development of new raw materials and natural resources goes on apace. Canada can look forward with optimism even into the next century, with the impressive array of developments that are now in their infancy. Examples are abundantly at hand in the vast iron ore resources of Quebec and Labrador, the potential picture of metallic titanium, the uranium in our Northwest and the new oil fields in Alberta.

Canada has new products to offer to world markets. Our industry is efficient and its costs are low. With our high standard of living and the increased complexity of our industry, we wish also to be able to buy more freely in world markets. In view of Canada's vital interest in a large and expanding world trade it is not surprising that this country has played an important part in various international conferences dedicated to the reduction of trade barriers throughout the world and the formulation of a code of rules by which the

nations could agree to be guided in their commercial policy. Canada was among the countries represented at the conference on World Trade and Employment at Havana which early this year drew up the charter for an International Trade Organization.

This charter has not yet been ratified by governments but the General Agreement on Tariffs and Trade concluded at Geneva in 1947 has been in provisional effect since the first of this year. This agreement incorporates many of the provisions of the charter regulating the conduct of the nations in international trade and provides for the reduction of tariffs by all participating countries. Each country negotiated tariff reductions with each other country; in all some 100 separate agreements were concluded. These were consolidated in the schedules attached to the General Agreement on Tariffs and Trade and apply to all the countries.

Study of these schedules will indicate that this agreement is the most far reaching and comprehensive multilateral trade agreement ever attempted. The participating countries accounted before the war for about three-quarters of the international trade of the whole world and the concessions enumerated in the schedules apply to products representing about two-thirds of their import trade or, in other words, to about one-half of the world's trade. Of particular importance to Canada are concessions extended by the United States.

UNITED STATES TARIFF LEVELS

On the basis of prewar trade some 70 per cent of the dutiable imports into the United States from Canada have been subject to tariff reduction and it is reported that the United States tariff levels are now lower than they have been for twenty-five years. In spite of these steps, Canadian trade relationships with the United States have by no means approached a satisfactory equilibrium even yet.

Rapid growth of industry has led Canada to a position of increased importance in the world in recent years. Along with this has come an unavoidably increased measure of responsibility. When we take note of what the prewar system of multilateral world trade and finance meant to the development of this country it is clear why it has been in our national interest to contribute in every possible way to the reconstruction of a viable world trading community. On a per capita basis Canada takes second place to no other country in the amount of financial and material support we have extended to the war-torn countries.

At the present time, our exports to Britain and Western Europe are being maintained at a high level through the medium of the European Recovery Program, in which we are cooperating with the United States. Of the total authori-

zations for exports under this program, which exceeded \$4 billion by the middle of December, 15 per cent have been for purchases of Canadian goods. These have accounted for 40 per cent of all authorizations outside the United States.

Before the war the United Kingdom and the other countries of Western Europe handled nearly half of the World's total trade. Their relationships to one another were of central importance to the international mechanism of multilateral payments. It is clear that Europe's prewar ability to buy from us was predicated on a high level of multilateral world trade. Much of the prewar world trade will not be reconstructed for a long time if ever, and it has become necessary to seek new channels of trade and new commodities of trade in many instances.

If Western Europe can do no better in future than to balance its trade with North America, then our exports in that direction will be restricted by comparison with prewar when the countries of Western Europe, including the United Kingdom, were in a position to purchase more from us than they sold to us. When this point is thoroughly understood, it becomes clear why Canada has as great an interest as any country in the world today in the eventual reconstitution of a system of multilateral trade.

MERELY A BEGINNING

All that we have done to reestablish our external trade on a sound basis is merely a beginning. Much still remains. Canada is by far the most important customer the United States has amongst all the countries of the world. There is a fundamental lack of balance between our two great North American countries, however, which reached the point where Canada was buying twice as much from the United States as she sold there. This discrepancy is matched by an American tariff which is much more effective in excluding Canadian goods than our tariff is in excluding American goods. If Canadian-American trade is to continue at its present high level, it is of fundamental importance to Canada and also, I believe, to the United States, to establish lower tariffs and a more flexible administration of tariffs. These obstacles are at present cutting at the very foundation of trade between our two countries.

For a time after the war it was possible to finance our imports of goods from the United States by using our accumulated reserves of gold and U.S. dollars to supplement our current U.S. dollar earnings from exports. The magnitude of this drain can be readily gauged from the fact that during 1947 our reserves of gold and U.S. dollars were reduced to a low level of about \$500 million. In these circumstances, the Government's emergency import control program was announced about a year ago. What have we been able to achieve thus far?

By these means, our commodity trade with the United States has been brought for the present to an approximate balance. In the first ten months of 1948 our imports from the United States have been reduced by about \$173 millions in comparison with the same period of 1947. Much more important, our exports to the United States have been increased by more than \$350 millions during the same period, and the situation will be even more improved by the end of the year. This program has a restrictive side, as we all know, in prohibiting the importation of certain goods from the United States which are much in demand in Canada. The Government was able in December to announce an encouraging increase in our gold and U.S. dollar reserves and the removal of some of the restrictions. It is to be hoped that the remaining restrictions may be dispensed with before too long in a satisfactory trade equilibrium with the United States....

EXPORT TRADE BOOMING: Canada's export trade is booming, due to greatly enlarged shipments to the United States, its value during 1948 being far in excess of any previously recorded except in wartime. The value of merchandise shipped abroad in November was \$293,900,000, only slightly under the peacetime high total of \$307,000,000 registered in October, and \$40,800,000 higher than in November, 1947, reports the Bureau of Statistics.

With gains over 1947 in all months except June, the aggregate for the 11 months ending November rose to \$2,759,000,000, an increase of \$250,300,000 over the same period of 1947 and only \$15,900,000 under the total for the full year 1947.

The growth in Canada's exports to the United States has been the outstanding feature of the year's trade. In November shipments to that country reached an all-time record value of \$163,893,000, almost 77 per cent higher than in the corresponding month of 1947. This brought the cumulative total for the 11 months ending November to a new high figure of \$1,353,740,000 as compared with \$928,255,000 in the same period of 1947.

Exports to the United Kingdom were again lower in November, being valued at \$56,670,000 as compared with \$69,254,000 in the same month of 1947, while the aggregate for the 11 months of 1948 was \$638,400,000 compared with \$678,657,000 in the same period of 1947.

Shipments to Latin American countries were also lower both in the month and cumulative period. The month's total fell from \$14,390,000 to \$8,056,000, and that for the 11-month period from \$117,585,000 to \$107,354,000. Exports to Cuba, Mexico, Panama, and Venezuela were higher in both periods.

Exports to the Union of South Africa rose in the month to \$10,221,000 from \$5,121,000,

and in the 11 months to \$77,172,000 from \$63,297,000, while the month's exports to India and Pakistan combined increased to \$6,102,000 from \$2,871,000, but fell to \$28,814,000 from \$40,454,000 in the cumulative period.

Exports to European countries as a group declined in the month to \$17,682,000 from \$26,588,000, and in the 11 months to \$278,228,000 from \$313,086,000. Shipments to Australia rose in November to \$4,453,000 from \$3,942,000, but were down sharply in the cumulative period -- from \$53,854,000 to \$31,025,000. Exports to Newfoundland in November fell from \$6,551,000 to \$4,816,000, but were slightly higher in the 11-month period.

Gains were recorded by six of the nine main commodity groups of exports in November, while in the cumulative period five groups showed increases and four declines. Four groups -- animals and animal products; wood, wood products and paper; non-ferrous metals and products; and non-metallic minerals and products -- showed increases in both periods.

In the month, most outstanding increases were registered by agricultural and vegetable products, animals and animal products, and non-ferrous metals.

PEAK MINERAL PRODUCTION: Total mineral production of Canada reached an all-time high value in 1948, with values of main classes of minerals also at record levels. According to the preliminary estimate of the Bureau of Statistics, the year's output amounted in value to \$806,200,000, up 25 per cent above the previous record of \$644,700,000 in 1947. Most of the gain was due to increased prices, but quantities were also generally larger.

The output value of metallics increased 22.4 per cent from \$395,000,000 in 1947 to \$484,000,000. Fuels advanced nearly 44 per cent from \$110,500,000 to \$159,000,000. Other non-metallics gained 19 per cent from \$54,520,000 to \$64,900,000; and structural materials moved up almost 17 per cent from \$84,600,000 to \$98,800,000.

Production of gold at 3.5 million ounces was about a half million ounces greater than in 1947, but still nearly two million ounces less than the record of 5.3 million ounces in 1941. The value, at \$122,339,000, was 14 per cent above the 1947 figure. Silver production amounted to 15.6 million fine ounces valued at \$11,732,000 as compared with 12.5 million fine ounces valued at \$9,003,000 in 1947.

There were substantial increases in the production of copper, lead, zinc, nickel and other base metals. Copper output rose from 451.7 million pounds valued at \$91,542,000 to 479.8 million pounds valued at \$107,100,600. Lead from 323.3 million pounds at \$44,200,000 to 336.6 million pounds valued at \$60,700,000, zinc from 415.7 million pounds valued at \$46,700,000 to 464.2 million pounds valued at \$64,700,000, and nickel from 237.3 million

pounds valued at \$70,700,000 compared with 257.7 million valued at \$85,600,000.

Coal production at 18.4 million tons was a half million tons below the record reached in 1942, but the value of \$107,299,000 was 70.6 per cent greater than in that year. Striking developments in the Leduc oil field in Alberta were responsible for bringing the output of crude petroleum in Canada to a new high of 12 million barrels valued at \$36.8 million. Natural gas, being associated with crude petroleum, increased in output to 56.6 billion cubic feet worth \$14.6 million.

Asbestos production at 707,800 tons worth \$41,300,000 was up seven per cent in quantity and 25 per cent in value from 1947. The gypsum industry again broke its previous high by producing 3,219,000 tons valued at \$5,600,000. Salt production increased to 740,000 tons but the value was slightly lower than in 1947 due to a greater proportion of low-price brine being used by the chemical industry. Sulphur produced in the form of pyrite and sulphuric acid was only slightly less than in the preceding year.

Increased demands by the construction industry resulted in a record output of structural materials. Cement shipments amounted to 14.1 million barrels worth \$27,900,000 as compared with 11.9 million barrels valued at \$22,000,000. Clay products, which includes brick, tile, etc., made from Canadian clay were valued at \$17,300,000. Over a million tons of lime was discharged from the lime kilns in 1947. Stone quarried was in excess of 11 million tons worth \$17,000,000. Each of the industries in the structural materials group reached a new high in value of production.

MOTOR VEHICLES SALES: Sales of new motor vehicles reached a monthly 1948 peak in November when 21,784 units were retailed for a total of \$41,986,000 as compared with 20,690 units sold for \$40,531,000 in the corresponding month of 1947, according to the Bureau of Statistics.

Cumulative sales for the first 11 months of 1948 were down from a year earlier, totalling 196,098 units sold for \$379,959,000 as compared with 212,607 units sold for \$383,003,000 in the similar period of 1947.

Sales of passenger cars declined to 15,102 units in November from 15,422 in the same month of 1947, while trucks and buses sold advanced to 6,682 from 5,268.

APPRENTICESHIP AGREEMENT: The Minister of Labour, Mr. Mitchell, announced January 3 that authority had been granted for amendments to the Dominion-Provincial Agreements covering the full-time class training of prospective

apprentices under the Vocational Training Co-ordination Act, 1942, by Order-in-Council P.C. 5517 of December 21, 1948.

The effect of the amendments will be to allow a person to take class training prior to commencing his apprenticeship instead of being allowed only a maximum of three months in class during each year. The new agreement, if signed by the provinces, will still allow class training during apprenticeship, but will not permit more than three months' training for each year of apprenticeship.

Mr. Mitchell explained that the apprenticeship agreements provide for the federal Government sharing equally with the province in the approved costs of full-time class training for apprentices.

With the completion of veterans' rehabilitation training, it was of primary importance that the intake of civilian apprentices be increased, particularly for the building and construction industry.

It was considered that such increase could be effected and the efficiency of the training of apprentices improved by adopting a plan of pre-employment training similar to that followed in the case of veterans with class training lasting for about six months.

Where a province so desires, full-time class training may be given on a pre-employment basis prior to the actual indenture of an apprentice, but the number in each trade to be admitted to such classes shall be determined by the Provincial Apprenticeship Authority in consultation with the appropriate Trade Advisory Committee.

The normal period of such pre-employment training would be about six months, but its actual duration shall be determined by each province. On its completion, trainees will be trade-tested and given time-credit on the period of apprenticeship in accordance with the degree of trade competency attained, provided such credit would at least equal the length of the training period in class.

TRADE WITH WEST INDIES: A number of restrictions upon imports into the British West Indies, which have been the subject of representations by Canadian exporting firms, are to be relaxed from the beginning of January, according to a message received from the United Kingdom and made known in Ottawa on January 3 by the Minister of Trade and Commerce, Mr. Howe.

Following discussions with Sir Stafford Cripps, in Ottawa, the Canadian point of view was placed before United Kingdom officials, in London. As a result of these negotiations, it has been agreed that the West Indian Colonies will now permit limited importation of a number of products hitherto prohibited, or severely restricted on account of the dollar

shortage. Several hundred Canadian firms will be able, as a result, to resume trade in a market from which many of them have for several months been excluded.

In announcing these arrangements, Mr. Howe explained that the scheme now adopted is more flexible than the token import plan which has been in effect for nearly three years in the United Kingdom. Such a plan would not have been suited to the West Indies where there are many separate areas, each with its own independent import controls and its different local needs for imported products. It would be neither desirable nor practicable to impose upon each of the islands a uniform pattern of imports, or to base import licenses today upon the business done by individual suppliers in a prewar period, since when there have been great changes in the character of trade.

ADDITIONAL DOLLARS

The new arrangements, therefore, provide that additional dollars are to be put at the disposal of each of the West Indian colonies for increased purchases of a wide range of goods whose importation from Canada has been hitherto prohibited or severely restricted. Exporters will now be able to contact their agents and customers with a view to selling the goods in question with the expectation that some import licenses will now be forthcoming. The market will, however, be strictly competitive. No specific quotas have been set up for individual products or individual firms. Each importer will be free to purchase the goods of his choice from his preferred supplier up to the limit of additional dollars to be made available. If the additional orders placed under the scheme are in excess of a colony's capacity to pay, the local import control authorities will spread the available dollars as best they can among the various importers and products.

The benefits of the new scheme will not be restricted to Canada, but under existing agreements to which the United Kingdom is a party, are extended to other hard currency areas including the United States, it being understood that the choice of sources of supply in each case rests with the individual purchaser.

Included in the scheme are Bahamas, Barbados, Bermuda, British Guiana and British Honduras, Jamaica, Leeward and Windward Islands, and Trinidad.

"These arrangements, which are the result of friendly discussions with the U.K. authorities, will be very welcome in Canada", Mr. Howe stated. "They will help in some measure to maintain Canadian contact over a wide list of items with one of our oldest and most valued export markets. They are a tangible indication of the desire of the U.K. authorities to mitigate, so far as the dollars available to them permit, the effect of import restrictions on the traditional trade between Canada and the British West Indies."

T. & C. ASSOCIATE DEPUTY: Mr. S.D. Pierce, Canadian Ambassador to Mexico, has been transferred from the Department of External Affairs, and has been appointed Associate Deputy Minister of Trade and Commerce. He will be concerned primarily with procurement for the armed forces.

Mr. Pierce was born on March 30, 1901, at Montreal, Quebec. He graduated from McGill University with the degrees of B.A. and B.C.L., with a gold medal in economics. He was a member of the Canadian Olympic team which went to Paris in 1924.

He was a newspaper reporter on the Montreal Gazette, lectured on political science at Dalhousie University and subsequently worked with the Associated Press in New York. From 1930 until the outbreak of World War II he attended to private interests.

In 1940 Mr. Pierce joined the Department of Munitions and Supply and worked for four years in its Washington Office in various capacities. On leaving he was Director-General of the Washington office. He served as Canadian Executive Officer on the Combined Production and Resources Board (United Kingdom, United States and Canada) and as Canadian Executive Director of the Joint War Production Committee (United States and Canada).

TRADE ADVISORY COMMITTEE

Mr. Pierce was Chairman, during its existence, of Canada's External Trade Advisory Committee. He was a member of the Canadian Shipping Board, the Trade and Tariff Committee and the Crown Assets Allocation (Board) and a Director of the Canadian Commercial Corporation. He is Chairman of the Food Requirements Committee.

Mr. Pierce joined the Department of External Affairs on August 1, 1944, and served in Ottawa as Head of the Economic Division until his appointment, in March, 1947, as Ambassador to Mexico. Mr. Pierce took up his duties in Mexico in July, 1947.

He was an alternate Canadian delegate to the first meeting of the Interim Assembly of the Provisional International Civil Aviation Organization held in Montreal, May, 1946. In October, 1946, he was a delegate to the First Session of the Preparatory Committee of the United Nations Conference on Trade and Employment, held in London; he was a delegate also to the Second Session of this Committee, held in Geneva beginning April 11, 1947.

In August, 1947, Mr. Pierce was named one of the alternate Canadian delegates to the Second Session of the General Assembly of the United Nations in New York. He headed the Canadian Delegation to UNESCO Conference held in Mexico City in November, 1947.

From June 1948 until his recent return to Canada, he was in Paris on a special Mission, representing Canadian interests in matters

relating to the European Recovery Plan. He also served on the Canadian Delegation to the Third Session of the General Assembly of the United Nations.

ORGANIZE AGAINST CANCER: Establishment at the federal Laboratory of Hygiene, Ottawa, of a central tumor registry to assist in the general program of the National Cancer Institute of Canada was announced on January 5 by the Minister of National Health and Welfare, Mr. Martin.

Providing scientific facilities for the war against cancer, the Government has approved expenditures for the creation and functioning of the registry. Staff is now being appointed, and necessary equipment and supplies are on order.

The National Cancer Institute of Canada has named Dr. Desmond Magner, Professor of Pathology at the University of Ottawa, as Registrar of the new establishment, and the Minister of National Health and Welfare is making available the services of two health officials, Dr. H.A. Ansley, Assistant Director of Health Services, and James Gibbard, B.S.A., M.Sc., Chief of the Laboratory of Hygiene, who will be associated with Dr. Magner in administering the registry.

TECHNICAL GROUP

In addition to other work in this field, the registry will assist pathologists in the classification of various cancers and other tumors and will collect case histories and other relative data for future studies. A panel of leading consultants from all across Canada has been appointed to act as a technical group for the classification of tumors.

Creation of the tumor registry is a sequel to the all-out attack launched nearly two years ago when Mr. Martin called a conference of leading scientific, medical and lay leaders to study the problem of cancer. From that meeting was born the National Cancer Institute of Canada, to carry on surveys and to mobilize science against all tumors, while working with the Canadian Cancer Society, which had already begun an intensive educational campaign in this field. Mr. Martin then arranged for the trustees of the King George V Silver Jubilee Cancer Fund to turn over a sum of \$450,000 for the purposes of the new institute. The Institute and the Canadian Cancer Society have since joined forces in one organization with Dr. O.H. Warwick as Executive Director.

Tremendous impetus has been given to cancer control in Canada by the National Health program inaugurated last year by the federal Government. This program includes an annual grant of \$3,500,000 to the provinces, which constitutes an important addition to the federal health program first proposed in 1945.

jewellery can be measured and controlled; what happens to the sulphur in coke used in iron blast furnace smelting operations, can be followed. Hundreds of peacetime applications exist for radioactive materials including the possible use of atomic energy for heat and power purposes.

In the pure chemistry branch, of the Division of Chemistry, work is continuing on various problems connected with the structure of alkaloids, and an investigation using radioactive tracers has been started on the synthesis of alkaloids in plants. One project employs radioactive atoms to trace the mechanisms of chemical reactions. First observations are being made using radioactive carbon in a study of some controversial aspects of the photochemical decomposition of acetone. Radioactive tracers are also being employed in investigations on the transition from the gaseous to the liquid state. A variety of physical chemistry problems are under investigation, including photochemistry, surface chemistry, spectroscopy, and calorimetry....

APPLIED CHEMISTRY BRANCH

An appreciable fraction of the work carried out in the applied chemistry branch consists of tests and service work for Government departments and industry and the development of testing procedures or analytical methods in connection with the drafting of Government specifications. The major activities of the branch, however, are concerned with many long-term research projects in the applied chemistry field, some of which may be mentioned.

A study is being made of the factors which affect corrosion rates in the high-temperature corrosion of alloy steels. It is anticipated that this investigation may lead to results of great industrial value. Work is also proceeding on the mechanism of corrosion inhibitor action. This is a problem of every-day interest; for example in the prevention of corrosion in automobile cooling systems.

Improvement of visibility through aircraft windcreens by the use of a bonded rain repellent is of great significance in flying. Flight tests up to 600 m.p.h. through all sorts of rain conditions have been carried out on the rain repellent developed last year. These tests have demonstrated the effectiveness of the repellent in maintaining visibility when flying through rain. The material is meeting general acceptance by the aircraft industry and is now being manufactured commercially.

Catalytic reactions of acetylene with aldehyde under pressure, an industrial investigation sponsored by Shawinigan Chemicals Limited, has for its object the preparation of acetylenic alcohols and glycols. Chemistry of unsaturated fatty acids is being studied in an attempt to prepare them by the dehydrogenation of saturated acids.

Further work is being done on the use of silver-calcium alloys as catalysts in the direct oxidation of ethylene to ethylene ox-

ide. Work is also being done on the design of a reactor to provide optimum heat-transfer rates from the catalyst bed to the cooling medium. Attempts to employ the catalyst in the fluidized condition were not successful.

In collaboration with other laboratories, an attempt is being made to correlate the results of laboratory tests of natural and synthetic rubber stocks with road tests of tires containing the same stocks.

A new method for the recovery of oil from Athabasca tar sands by flash distillation in a fluidized bed of sand is meeting with considerable success in the laboratory stage. The data obtained in the course of laboratory experiments have been used to design a pilot plant on which construction has now been started.

In detergency research measurements have been made of the adsorption of soap, such as sodium stearate, and of the free fatty acids and free alkali on carbon black. Further work is being done on the adsorption of soaps on cotton.

ORGANIC COMPOUNDS

Synthesis of organic compounds containing tracer elements is proceeding. The laboratory engaged in this work has prepared on request a large number of compounds containing stable tracers such as deuterium, nitrogen 15 and carbon 13. Facilities are being provided for the preparation of organic compounds containing active tracers such as carbon 14 and iodine 125.

The newly formed Division of Building Research commenced its active work during the year....

In the field of housing research, the Division continues its co-operation with Central Mortgage and Housing Corporation; joint studies have been made of field problems such as paint deterioration and basementless houses....

The Division of Mechanical Engineering has been engaged during the past year on work in aeronautics, hydrodynamics, and certain phases of mechanical engineering. This Division serves as the research organization of the Royal Canadian Air Force and also provides the Canadian aviation industry with research, development and testing facilities. In performing this two-fold service, the icing and low-temperature operation of jet engines have been investigated and the supercooling of water and the atomization of water have been studied.

In co-operation with the Department of National Defence, the Division has studied the behaviour of fuels and lubricants at low temperatures. Related problems have been investigated in the gasoline and oil laboratory. In the wind tunnels, models of new aircraft have been tested for Canadian aircraft firms. The study of the control and stability of tailless aircraft was continued, with flight trials of the tailless glider at Namao, Alberta. In the autumn the glider was towed, via Winnipeg, Chicago and Toronto to Annapolis where trials

will continue this winter at the Flight Research Station. Special automatic instrumentation for the tailless glider and instruments, including a cloud-droplet camera, for the measurement in flight of the meteorological conditions associated with aircraft icing, have been developed in the instrument laboratory.

In the low-temperature laboratory, opened early in the year, the cold chambers are now in full operation and tests on the behaviour of aircraft components, engines, vehicles, etc., at low temperatures are proceeding. Facilities for the static testing of full-scale components in the structures laboratory have been brought into operation and certain wings tested. Work has begun on the design of a laboratory to be equipped with supersonic wind tunnels and equipment for work on combustion, compressors and turbines,...

A special Geiger-counter equipment developed during the year as an aid in prospecting for radioactive ores in diamond drill holes, was given field tests. An absolute magnetometer using the fluxgate principle has been almost completed. Interesting work has been done on measuring the efficiency of hydro-electric turbines by the temperature drop in the water as it passes through the turbine.

OTHER EXPERIMENTS

Results of some observations on the adsorption of water vapour by wheat have been published. This subject is important because of the effect of moisture on the quality of wheat during storage. Some preliminary experiments were made during the year to determine the usefulness of the velocity of sound as a control in oil refining. A high-speed motion-picture camera designed to take pictures at 200,000 frames per second was completed. It has been operated successfully at 120,000 frames per second. No difficulty is anticipated at higher taking rates when special electrical equipment required for this purpose becomes available.

There has been a continued demand for development of both civil and defence radar equipment, and during the past year the Division of Radio and Electrical Engineering has co-operated with Canadian industry to put into production a modern marine radar set, which promises to have wide application,...

Considerable time has been devoted to more fundamental radar studies, particularly in connection with propagation and antenna design. Preparations have been completed for an exhaustive study of propagation in the microwave region over various types of snow surfaces. A continual demand exists for shorter and shorter wavelengths and the Division's tube laboratory is devoting its time to the development of tubes to operate at wavelengths shorter than one centimetre.

Radar equipment (32-5 megacycle) has been set up to study meteors in collaboration with the Dominion Observatory; the records obtained

have led to very interesting speculations, and it is believed that these studies, co-ordinated with visual observations, will result in a much better understanding of meteor phenomena.

In the radio field, the ratio of signal-to-noise strength is a most important factor and depending upon the frequency of the equipment, the noise which becomes a predominant problem may originate within the equipment itself or externally. To study this latter source of noise a new station has been established near Ottawa to obtain further solar-noise records in the ten-centimetre region.

A five-million-volt van de Graeff generator has been completed for the Atomic Energy Project to assist in nuclear studies and a one-half million volt unit has been completed for the Division of Chemistry. A third accelerator of the cavity-type, employing excitation at a frequency of 3,000 megacycles, has been built experimentally and an eight-million-volt output has been realized.

Various electronic devices have been completed, including: a pH monitor, which measures and controls the pH of biological culture media to a high degree of precision; an infrared detector for locating hot joints on power transmission lines; and a panoramic ionosphere recorder which sweeps through a frequency range of 1 to 20 megacycles for determining the character of the ionosphere. The Division has embarked on a fundamental study of dielectric theory and a laboratory for this purpose is now being set up.

FOOD PRESERVATION

Both fundamental and applied investigations on food preservation, utilization of agricultural crops and residues, fats and oils, plant science, animal science, and statistics are being carried on in the Ottawa laboratories of the Division of Applied Biology.

Studies have been continued on food bacteriology, especially microbiological content of butter and assessment of various organisms as a measure of fecal contamination in egg products. Most of the previous chemical studies on egg products have been completed, with the exception of fundamental work on the browning reaction in dried egg powder. After many difficulties, butter containing 16% moisture (the legal maximum) was consistently produced from the Fritz continuous butter-making machine. Work on seaweed extracts has been resumed. From rape and mustard oils, edible shortenings were produced that could not be distinguished by flavour and odour ratings from commercial shortenings prepared from other oils.

In non-food uses of agricultural products, many moulds and bacteria are being examined, both in laboratory and pilot-plant operations, with a view to the production of industrial chemicals. Work on the fermentation of grains has been carried to a stage of completion and similar studies are now devoted to other products such as molasses. Improvements were made in the pilot-plant separation of starch and

gluten from wheat flour. Dry undenatured gluten was prepared in the laboratory and these findings are now being translated to pilot-plant operations....

COST-OF-LIVING DOWN: Showing the first decline of any consequence since September, 1945, the Bureau of Statistics cost-of-living index fell from 159.6 to 158.9 between November 1 and December 1, 1948. During the previous month the index had been unchanged, and the decline during November brought the index back to the same figure as recorded for September 1. The latest index standing compares with 146.0 at December 1, 1947, 127.1 at the same date in 1946, and 120.1 in 1945.

The fall of 0.7 points at December 1 was due to a drop in the foods index, all other group indexes being fractionally higher or unchanged. An unusually sharp decrease in the price of eggs and moderate reductions among meats, vegetables and fruits sent the food index down from 204.7 to 202.0 between November 1 and December 1. In the previous month the food index had declined from 205.4 at October 1, making a two-month's decline of 3.4 points.

As expected, the rent index adjusted quarterly, moved upward, from 121.0 to 121.7, the increase representing the net change from September 1 to December 1.

MARKETINGS OF WHEAT: Stocks of Canadian wheat in store or in transit in North America at midnight on December 23 amounted to 172,294,000 bushels, showing a decline of 2,830,000 bushels from the December 16 figure of 175,124,000 bushels, but 30,536,000 bushels in advance of last year's corresponding total of 141,758,000 bushels.

Deliveries of wheat from farms in the Prairie Provinces during the week ending December 23 totalled 3,071,000 bushels compared with 2,063,000 in the same week a year earlier. Overseas export clearances during the week amounted to 2,913,000 bushels as against 1,069,000 a year ago.

DEPARTMENT STORE SALES: Department store sales rose 10 per cent in November to reach a total of \$89,706,000 as compared with \$81,579,000 in the corresponding month of 1947. The gain in the month was slightly under the average advance of 13 per cent for the first 11 months of the year. Dollar value of sales for the cumulative period was \$694,904,000 as compared with \$613,686,000 a year earlier.

CARIBBEAN EXERCISES: The Minister of National Defence, Mr. Claxton, announced on January 7 that three platoons of Canadian troops commanded by Capt. R.J.G. DesRivieres, of Quebec City, were taking part in current U.S. amphibious exercises in the Caribbean.

Ships of the Royal Canadian Navy are also taking part, the Minister said.

This is in accordance with the arrangement whereby officers and men and training facilities are exchanged from time to time between the two countries.

Groups of Canadian soldiers have joined American forces in similar amphibious exercises in the past. They have been using the facilities of the U.S. amphibious training school near Norfolk, Va., and usually they are invited to take part in any exercises the Americans put on while the course is in progress.

SPRING CRUISE PROGRAM: Six operational units of the Royal Canadian Navy will participate in a spring cruise program commencing January 28 and continuing for three months, it was announced January 7 by the Minister of National Defence, Mr. Claxton.

During one phase of the program the six-ship R.C.N. task force will carry out joint exercises in Caribbean waters with units of the British and United States fleets.

The Canadian task force will consist of the Halifax-based light fleet carrier "Magnificent" and the destroyer "Haida", and four west coast ships the cruiser "Ontario", destroyers "Athabaskan" and "Crescent" and the frigate "Antigonish".

The "Magnificent's" air component will be 803 and 883 Sea Fury Squadrons and 826 Firefly Squadron of the Royal Canadian Navy.

The schedule has been designed to provide a maximum amount of practical sea training for officers and men of the R.C.N. and R.C.N. (Reserve).

The four west coast ships will leave their Esquimalt base January 28 for Magdalena Bay, Mexico, with the "Athabaskan" and "Crescent" detaching en route to fuel at San Diego, California. After an 11-day work-up period at Magdalena Bay, the group will proceed to San Diego for fuel and for exercises with United States forces.

On completion, the ships will proceed to Acapulco, Mexico, and from there to the Canal Zone and a rendezvous March 16 with the "Magnificent" and "Haida."

On March 19 the Canadian task force will rendezvous in the Caribbean with units of the British West Indies fleet and, after calling at St. John, Antigua, the combined squadrons will sail for Guantanamo Bay, Cuba, linking up en route with the Carrier U.S.S. "Midway" and other American units.

On completion of exercises in the vicinity of Guantanamo, the west coast group will depart for home, going by way of the canal and Long Beach, California. They are due back in Esquimalt April 28.

The program for the "Magnificent" calls for her to sail from Halifax January 13 for the United Kingdom, where she will embark the new Firefly V anti-submarine aircraft of 825 Squadron.

DOLLAR HOLDINGS \$998,000,000: The Minister of Finance, Mr. Abbott, addressed the Edmonton Chamber of Commerce on January 5. His speech, in part, dealt with the results of the steps taken to correct Canada's exchange difficulties and to establish a closer balance in dollar trade. On this topic he spoke, in part, as follows:

"I am happy to be able to tell you that the program has worked with increasing success throughout the year. This success is shown in the steady rise in our exchange reserves. A short while ago I said that in future I intended to release the figures of official gold and United States dollar holdings on a quarterly basis. At that time I gave out the figures for September 30 last which then amounted to \$855 million. Today, I am in a position to announce the preliminary figure for the end of the final quarter of 1948. At December 31, five days ago, our official holdings of gold and United States dollar exchange had reached \$998 million. This figure compares with the low point of \$461 million on December 17, 1947, hardly more than a year ago. During this relatively short period our reserves have increased by no less than \$537 million. The December 1948 figure includes the sum of \$150 million, which is the proceeds of the long-term loan sold to three American life insurance companies last August. If we deduct the proceeds of this loan we see that our reserves have increased by \$387 million as a result of our improved trade position.

"I think you will agree that this improvement in our exchange reserves in so short a time is a gratifying achievement. The real significance of the improved position can be seen in the record of our foreign trade during 1948. Exports to all countries during the first 10 months increased from about \$2300 million to \$2500 million, an increase of nearly 10 per cent. Exports to the United States for this period increased from \$850 million to \$1200 million, an increase of over 42 per cent. From the point of view of the main objective of Canadian export policy during this period, namely the increase of exports to dollar markets and the achievement of a closer balance in our trade with the United States, this is

a most encouraging accomplishment, indicating in no uncertain terms that the constructive features of the emergency exchange program are meeting with a very considerable measure of success. While exports to the United Kingdom and Europe showed a decline, they remained on a high level. The off-shore purchase arrangements of the Marshall Plan enabled Canada to send a large amount of exports to the United Kingdom and Europe and to receive payment for a substantial proportion in U.S. dollars...."

Later the Minister warned that to the extent that the progress made was due to restrictions on imports, a program which the Government was pledged to abandon as soon as possible, and to the operation of the Marshall Plan, which was of a temporary nature, we could not look to them as "positive or final solutions."

CATTLE AND BEEF - \$100,000,000: The Minister of Finance, Mr. Abbott, addressed the Western Stock Growers Association at Calgary on January 6. He discussed the contribution made by the agricultural industry to the easing of Canada's exchange problem, and said in part:

"...The increases in exports to the United States occurred in a broad list of goods, but the largest relative gains were in agricultural products. I have already indicated how the concessions in the United States tariff which we obtained in the Geneva Agreements helped to pave the way. Export controls were removed on cattle, beef and coarse grains in accordance with the Government's declared policy of withdrawing emergency wartime controls as soon as circumstances permitted. This combination of measures had immediate results in bringing about a heavy flow of farm products to the United States market.

"Exports of live cattle to the United States jumped from \$11 million in 1947 to nearly \$53 million in the first 10 months of 1948. Exports of beef which were insignificant during 1947 rose to nearly \$15 million. Cattle and beef together accounted for an inflow of no less than \$67 million of United States exchange, and it is estimated that for the full year this figure will exceed \$100 million...."