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A FACT A DAY ABOUT CANADA

FROM THE

DOMINION BUREAU OF STATISTICS

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Editor.

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No. 62. -- The Contribution of Canadian Universities and Colleges to the National War Effort

The Dominion Bureau of Statistics has been requested to prepare a statement regarding the contribution of Canadian universities and colleges to the national war effort. The Education Branch was given the task, and the report is so full of interest that it is given here in full. To make the reading easier, the article has been split into numbers of facts. Here they are:

The gigantic task of mobilizing Canada's resources to meet the demands of the war proceeds with increasing scope and tempo. Within and behind this national effort are many "invisible items" that have contributed largely to the degree of Canada's participation in the war but whose efforts are not so obvious as that of war finance, labour and the defence forces.

One such item is the collaboration of the Canadian institutions of higher education. Comparatively little of their assistance to the national war effort can be expressed in statistical tables -- for loyalty, co-operation and self-sacrifice cannot be measured mathematically -- but a general review of the activities of the universities and colleges since the declaration of war presents some significant data which are summarized hereunder.

War was declared just prior to the re-opening of the colleges for the academic year 1939-40. The governing bodies of Canadian universities immediately offered to the Government the facilities of buildings, equipment and personnel to be used as necessary in the war effort. When the students returned for registration, steps were taken to establish some form of organization that could advise, direct and regulate the collective activities of the students and staffs to the best advantage for the national emergency.

There were, generally speaking, three types of war organization, depending on the form of administrative control under which the institution functions:

(1) Institutions under provincial government control; Separate committees were appointed to handle such activities as military training, military education, auxiliary training for women, students' extra-curricular activities -- the latter usually centralized through the Alma Mater Society or similar organization.

(2) Composite institutions, non-government control:- An advisory board or council (or commission) was elected with representatives from all affiliated colleges, the faculties or departments, student body, alumnae and governing body.

(3) Independent and smaller denominational institutions:- The principal or directing "head" regulates war activities with conferences, on occasion, among the departmental heads.

But regardless of variety of form there was complete unanimity of policy in all institutions:

(a) to give support to all phases of war activity;
(b) to regulate and integrate the programmes of compulsory war training and war service, with the scholastic programme in such a manner as to prevent undue strain and fatigue for students and staffs.

No. 63. -- University Staff Changes

The first major adjustment required of the universities and colleges was caused by staff changes. The Canadian Government requisitioned the services of many of the personnel for essential war work at Ottawa. These positions with the Government may be classified as follows:

War Service Position	Academic Position
President National Research Council (acting)	Dean, College of Engineering (Sask.)
Assistant President National Research Council	Director, Department of Chemistry, (McGill)
Secretary, War Time Prices and Trades Board	Associate Dean of Arts (McMaster)
Economic Adviser to War-Time Prices and Trades Board	Professor of Commerce (Manitoba)
Director General of Army Engineering Design	Professor of Civil Engineering (McGill)
War Research, National Research Council	Assistant Professor Electric Engineering (McGill)
War,Research, National Research Council and Mass. Institute of Technology	Professor of Physics, (McGill)
Chairman, Associate Committee on Medical Research, National Research Council	Director, Institute of Endocrinology (McGill)
Special Advisor on Economic Warfare, Department of British Embassy in Washington	Assistant Professor of Economics (McGill)
Effects of War on Maritime Provinces	Chief Economics Department, New Brunswick
Chairman Educational Services for Defence Forces under Canadian Legion War Services and Executive Officers of Regional Organizations	Directors of Extension Departments of universities
Chairman, Explosives Division of Allied War Supplies	Lecturer in Chemistry (McGill)
Director of Canadian Hygiene Services	Medical Department: Director, Provincial Laboratory of Bacteriology, Alberta.
Research projects for war (direct and indirect)	Entire scientific personnel of all institutions
Reconstruction Problems: (advisory)	University principals and directors of several departments such as Social Science, Research, Economics, Architecture, Phychology, Public Health, etc.

No. 64. -- Assisting the Government

From the earliest stages of organization the Government has followed a policy of "prevention" as well as "promotion". A great effort has been made to avoid the social and economic chaos latent in changing the national economy to a war-time basis. To this end specialists in psychology, social science, public welfare and public relations, have been called upon to guide the Government in scientific application of necessary war regulations to the civilian front. These men were formerly engaged in academic work.

The prodigious tasks of war finance and war industry and supply required executives with experience in modern economic research as well as administrative ability. As legislation developed new bureaux were established, such as the Department of Munitions and Supply and the Wartime Prices and Control Board, and new divisions were added to existing Departments, such as the control of Foreign Exchange and Unemployment Insurance. Several university professors were assigned to the various administrative positions associated with these new phases of public administration.

Mobilization on the technical and scientific front was accomplished through the co-ordinating agency of the National Research Council. The fundamental policy of the Council is one of collaboration with the universities and other research laboratories and with the need for increased personnel the scientific departments of the universities were called upon for directors and graduate scientists. McGill University alone contributed six of their instructors and administrators to the laboratories and administrative offices of the National Research Council at Ottawa.

In addition each university (or school of science) was assigned projects for study in proportion to the equipment and personnel available at the university. These projects were sponsored by the National Research Council and contribute directly to the progress of the war. To this extent the entire scientific personnel of the universities may be considered in war service.

Type of War Research Undertaken by Universities

University Department	Typical Projects
Agriculture	Increased food production, oils, fats, fortified fruit juices; vitamin content of dehydrated fruits and vegetables; breads, grains, vegetable seeds. Parasites of men, fish and live stock and repellants.
Chemistry	Ammunition chemistry, gases, explosives, etc.
Geology, etc.	Industrial minerals and substitutes.
Medicine	Blood preservation, sea sickness, air sickness, shock, fatigue, war-wound infection, brain wounds, public health and industrial hygience. Tropical medicine.
Physics	Radio research, optics, ballistics, industrial radiology, detector devices,and protection devices.

Type of War Research Undertaken by Universities

University Department	Typical Projects
Psychology	Tests for selected service, industrial psychology, mass reactions.
Engineering	Aircraft, construction industry, water supply, sanitation, etc.
Sociology	Reconstruction and post war problems.

No. 65. -- University Staff Enlistments and Course Changes

The most peremptory call upon staff personnel was that for active service. Many members of the teaching staffs were officers in the reserve army; others, veterans of the last war who could not resist the call to arms again; still other men sought commissions or any form of service in the spiritual and humanitarian corps attached to the defence services.

The terms under which leave of absence is granted, are as generous as possible for the institutions to allow. Cases are considered on their individual merits and where possible, the university subsidizes the lower salary paid for national service and ensures re-instatement after the war.

With the exception of minor compromises to meet the credits allowed secondary students who engage in war work during the academic year there is no change in the scholastic standard required for entrance. In a few cases -- mostly theological schools -- the age-limit has been changed and older men are accepted for training.

The pressure on final year students in science and medicine, to accept assignments in war industry or active service, is such that most of the universities either advance the graduation date or grant deserving students degree standing and confer the degree in absentia. This period is usually for a few weeks only and in some institutions the student's record is affected by the reports received on his progress between the date of employment and graduation. One university has adjusted the medical course from six years of eight months' duration to five years of 10 months' duration and has reduced all arts courses one year for experienced service in any branch of the Canadian Active Army or in certified war industry.

Four of the larger degree granting universities report the addition of courses in mathematics, physics and chemistry that are directly related to aviation and chemical warfare. These courses are meteorology, air navigation, advanced radio theory, acoustics and optics, munitions chemistry, and in one case, military history.

Junior colleges and preparatory schools are including elementary courses in mathematics and science designed to fit the students for technical education rather than classical culture. These changes are chiefly in mathematics and physics preparatory to service in the air force.

No. 66. -- Military Training for Students

The regulation under National Mobilization legislation which decreed compulsory military training for men between the ages of 21 and 24, affected the majority of undergraduates. Conferences were held between the Department of National Defence and the Canadian Universities' Council to draft a programme of military training that would comply with the military requirements and could be integrated with the scholastic programme.

In most institutions there already existed a Canadian Officers' Training Corps with a programme of advanced military education and training for men who desired to become officers in the Reserve Army; also a system of compulsory physical training within the regular academic programme. To meet the needs of war training all institutions established a system of officer training for promising men and an auxiliary battalion for the basic training of all men physically fit and British subjects. The required physical training of the regular curricula was integrated with military training except in the case of medical students in final clinical years who were excused the military training but were required to continue a degree of physical training.

Military training was carried out under the standard syllabus issued by the Department of National Defence, in a prescribed number of units of physical training, drill, route marching and small arms training; with lectures on discipline, general organization tactics, and protection against gas. In three or four institutions C.O.T.C. work is accepted for limited academic credit, usually a bonus.

All universities have some form of war work training for women. About one-third of the institutions have made such training compulsory, the others are voluntary, but most of the women students are engaged in some form of training. The courses include first aid -- general to all institutions -- motor mechanics, ambulance driver, A.R.P. work, signalling including telegraphy and telephony, canteen feeding or emergency feeding, and military clerical work. The Red Cross University Detachment course includes a general knowledge of the international organization of the Red Cross; the organization of Navy, Army and Air Force; an A.R.P. course; St. John's Ambulance certificate; military drill and exercise. Training is also given towards membership in one of four sections, viz., transport, nursing auxiliary, office administration and food administration. This course is available at the larger institutions with nursing school facilities.

The women's courses in physical training, which are compulsory, in all institutions, are designed to give fitness to undergo long periods of physical and mental strain.

No. 67. -- University Registration Trends

The most significant change in registration since the war is an increase in the schools of applied science and medicine. The universities of the Eastern Maritime Provinces show a consistent decrease in registration in all faculties; Ontario and the Western Provinces show a slight decrease in arts and science faculties, and an increase of about ten per cent in the other schools and faculties -- largely in applied science and courses which would prepare for entrance into war industry or the Royal Canadian Air Force.

The total registration, or source of revenue from fees, shows some slight variation. In the Maritimes there is a decrease. The universities report a falling-off in the sophomore year and pressure on final year students to enter employment. McGill as representative of English universities in Quebec Province shows little change in total registration and reports that students enter university until the age of compulsory service or enlistment with the desire to obtain a foundation in higher education; Ontario shows a slight decrease and the Western provinces an increase over recent years. This latter is explained by one Western institution as an increase of rural students in the first two years of the arts course to prepare them for army service, but there is also an increase in applied sciences and special training courses or refreshed courses established for the air defence forces. An increase in the enrolment of the extension department courses is reported from the West but a decrease in Ontario and McGill in Quebec.

Changes in Registration for Degree Courses between Academic Years 1939 and 1940-41

	Arts & Science	Other Schools
Maritimes (4 institutions)	- 16%	- 10.4%
McGill	+ 3.2%	+ 4.9%
Ontario (3 institutions)	- 3.2%	+ 7.5%
Western Provinces (4 institutions)	- .7%	+ 10.0%

Percentage change in total annual registration 1938-39 and 1940-41

Maritimes	- 14.6%
McGill	no change
Ontario	- 3.8%
Western Provinces	+ 6.0%

No. 68. -- Citizen Morale and Home Defence Courses.

The institutions with established departments of adult education -- extra mural as well as sessional -- have adjusted their programmes of activity to war needs on a three-fold basis:- citizen morale; community auxiliary defence; and educational courses for the defence forces.

Radio programmes and lectures have become a major item in forming public opinion but the Canadian civilian prefers speakers and commentators who interpret events for them logically and scientifically. The university professors have given commendable service in this form of propaganda, both national and regional in scope. One university with a regular broadcasting programme reports a special series on war-time problems and policies; labour relations; auxiliary services; social services; public health and current affairs. A second one reports a farm forum; community schools, listening groups and discussion groups on subjects related to the war. But all report that there is a demand for subject-matter (study group material or lectures) directly related to the war and to problems likely to arise after the war. Most universities have lecture-bureaux where community clubs or organizations may find the names of qualified speakers.

The university libraries have extended their facilities to all defence forces within their areas. New books and pamphlets purchased are on subjects directly related to the war and to problems of reconstruction and the libraries co-operate with the library services of the Canadian Legion War Services through personal assistance or advice.

The universities situated within vulnerable areas have organized classes in fire fighting, gas decontamination and shelter systems. These courses are available at night to any reliable, qualified citizen. All institutions include home nursing, war-time nutrition and the recognized courses in first-aid within their full-time programmes; these too are made available within most extension programmes for adults beyond the campus boundaries.

No. 69. — Education for the Forces

The need for men in all arms of defence with advanced technical training has been met by a system of collaboration between the Department of Defence; the universities and the Canadian Legion Educational Services.

Expansion of the British Commonwealth air-training plan has evolved an air university in Canada functioning in close contact with the institutions of higher education. The universities in the proximity of the various air-schools have established special short courses related to the degree of technical education required by the regional air-schools, viz., wireless schools; air observer schools, bombing and gunnery schools and air-navigation schools. These new courses presented at the universities include advanced electrical engineering in relation to aircraft; radio locator mathematics; navigation, meteorology and short wave radio.

The air force classes in the universities opened in the summer of 1941, (during the academic holiday period) with classes ranging in size from 100 to 500 recruits. The re-opening of the universities in October necessitated a decrease in the size of the classes but there have been successive classes of from 50 to 100 recruits since October. In some cases the instruction takes place at night but the universities provide teaching facilities, equipment and instructors and in most cases living accommodation within the university precincts.

Institutions with regular correspondence courses have extended the facilities of their correspondence schools to the defence forces both at home and overseas. To supplement this work they have joined forces with the Canadian Legion Educational Services and offer advanced correspondence courses with pass degree credits to those students who progress beyond the secondary courses provided in the Legion syllabus or who desire to continue their formal education which was interrupted by enlistment. Some of these courses are free to the defence forces but all are given at greatly reduced or nominal fees.

No. 70. — Student Activities

Each institution records a voluntary curtailment of social and sports events by the student body. Such social events as are carried out are arranged with the definite aim of donating funds to war work while the sports events are local and organized largely for the purpose of physical fitness and morale.

With far from complete returns there is recorded the sum of $20,000 as contributions to war relief by the students and an amazing amount of knitting, clothing and other services.

Tribute must be paid to students who volunteer as subjects of research in such studies in endocrinology and neurology as shock, fatigue, sea sickness, air sickness, and diets. Many students have volunteered as blood donors for the Red Cross blood banks and others for research in various sera.

The universities have no accurate record of the enlistments (with one or two exceptions) but all report a gratifying record from their Canadian Officers' Training Corps. Certain terms such as "an amazing number of our recent graduates" and "there are at present 1,600 to 1,700 graduates and undergraduates in active service" indicate that the enlistment rate of university men is satisfactory.

No. 71. — University Buildings and Equipment

The need for lecture rooms, laboratory space and living quarters for the air-force or navy has involved considerable adjustment and in some cases inconvenience for the universities. Provincial institutions loaned for this purpose, such buildings as the Regina College and residence, sections of the Ontario Agricultural College; the residence of the University of Manitoba; the entire college residence system of Alberta university and one of the provincial normal schools located on the campus; denominational colleges such as Pine Hill Divinity Hall (residence), Halifax; King's University, Halifax; United College of Montreal; Huron College, London; Trinity House (residence), Toronto and others have allotted all available space to the air-force training schools or in some cases to the naval cadets.

The college gymnasium is now largely devoted to military training or used as a dormitory for the defence forces; in many cases laboratories have had to be completely remodelled to meet the needs of the new courses in radio, applied science, chemistry and medicine.

Space for the needs of the Canadian Officers' Training Corps is mentioned by the institutions who have just inaugurated this work and for many where the work has expanded beyond former quarters.

The installation of new equipment has been a major consideration. In some cases this has been met by the Board of Governors of the university; in others through the co-operation of community scientific and business men. Two outstanding examples may be cited: McGill University has spent $55,000 on equipment and remodelling the physics laboratory for advanced R.C.A.F. short-wave radio courses and a further $10,000 for research in endocrinology and neurology. The University of Western Ontario has given complete co-operation to a local organization of scientists and business men known as the London Association for War Research. Expensive apparatus, including a decompression chamber, has been installed at the university by these men for the study of medicine in aviation.

Although conditions vary within each regional university it may be said that all institutions have assumed considerable financial responsibility in connection with the adjustments necessary because of the war.

No. 72. -- Royal Canadian Navy

"The prospects of ... strengthening (escort forces) are encouraged by the news from Canada of the truly remarkable developments of the Royal Canadian Navy ... These are efforts which should not go unnoticed ...; they are harbingers of even greater things and they show the awakening of the maritime spirit of that great Dominion." -- Admiral Sir Henry Richmond in the "Fortnightly Review" for September, 1941.

When the Royal Canadian Navy went into action in September, 1939, it mustered a mere fifteen vessels, six of them destroyers. Britain needed all her destroyers, and Canadian shipyards had never built these complex fighting ships and were not equipped to do so. In order that Canada might as quickly as possible play her full part in the war at sea, it was decided to convert to naval use as many suitable ships as could be acquired and to build speedily as many small ships as Canadian yards could undertake. Since that time the Canadian navy has increased its strength in ships to something over 300. Yachts and larger ships have been converted, destroyers have been acquired from the United States and from Britain, and Canadian shipyards have been turning out a variety of craft.

The Royal Canadian Navy today consists mainly of small ships -- destroyers, a considerable number of corvettes, minesweepers and "submarine chasers", and a fleet of smaller craft such as fast motor torpedo boats. It has, in addition, "auxiliary cruisers" of considerable tonnage. In recent months an average of one corvette every few days has been turned out and the Canadian navy has been taking on new ships at the rate of two a week. Modern destroyers are now being built in Canada and in Britain for the Royal Canadian Navy. By March, 1942, it is expected that Canada will have a navy of 400 ships.

Corvettes, which are perhaps the most important ships in the Royal Canadian Navy today, are efficient fighting vessels. Although not so formidable as destroyers, they have certain advantages -- they can be built in quantity and quickly in Canada, and they carry much smaller crews than destroyers. Corvettes are designed for corvoy work and patrols. They have been given speed sufficient to enable them to engage in anti-submarine work most successfully. For this form of warfare they are armed both with guns and depth-charge equipment. In addition to their speed, they have a long cruising range, and their construction permits them keeping the seas in any weather. To cope with attacks from the air, they are also armed with anti-aircraft guns.

R.C.N. personnel is the nucleus of Canada's Navy, but since the outbreak of war recruits enlisted by the Royal Canadian Naval Volunteer Reserve have been mobilized in increasing numbers. They now constitute the largest portion of the Navy's strength. Most of them are landsmen who for the first time are learning the craft of the sea and the lore of ships.

On November 4, 1941, the Naval Minister, Hon. Angus Macdonald, said: "Men are being taken into the naval service as rapidly as they can be trained and as rapidly as ships can be provided for them ... We have a waiting list of 4,000 men." R.C.N.R. personnel, experienced sailors, have also been enlisted by the Royal Canadian Navy, and on the Pacific Coast the Fishermen's Reserve is doing a quiet but important job. At the outbreak of war this Reserve, organized in the spring of 1939 in preparation for possible emergencies, was called immediately into service. It was composed mainly of British Columbia deep-sea fishermen, who brought with them their sturdy fishing craft for minesweeping and patrol

work. Now they are being provided with a new type of patrol ship specially built for the Royal Canadian Navy. — Based on information revised to December 1, 1941.

No. 73. — Canadian Army Overseas

"One gets a marvellous thrill to see the Canadian boys here standing on guard ... It is difficult to find words to express the thankfulness inspired by this great act on the part of the sons of Canada for the preservation of the British family of Nations." — Rt. Hon. Ernest Bevin, speaking in London, England, on February 16th, 1941.

The Canadian Active Army is a force of more than 240,000 volunteers (on December 1, 1941) who have enlisted for service anywhere for the duration of the war, and for as long thereafter as the Government may require. About half of them are now overseas. Some Canadian soldiers are in Newfoundland, the British West Indies, Gibraltar and a large number are in Britain.

The final contingent of the Fifth (Armoured) Division arrived in Britain late in November in the largest troop convoy ever to reach the British Isles. It took several days to disembark the contingent. Thousands of Canadians in battle kit poured ashore and piled into trains which took them to training camps near the defence lines of the Canadian Corps.

The Canadian Corps in Britain guards vital sectors. Canada now has in Britain the First, Second, Third and Fifth (Armoured) Divisions,, a tank brigade and a large force of ancillary troops. Speaking in the House of Commons on November 4th (before the Fifth Division had arrived overseas), Hon. J. L. Ralston, the Minister of National Defence, said, in the course of an account of his recent visit to Britain:

"We think of the Canadian Corps as consisting of three divisions and an armoured tank brigade, to be joined before long by the Fifth (Armoured) Division — that, along with the artillery regiments, the signals, the engineers, ordnance, and army service corps units. But as a matter of fact we have supplied many units which would be needed to work with the corps when that corps becomes part of an army ... Our forces in the United Kingdom consist not merely of three divisions but of over 300 units of various types ... At the present time the Canadian Corps has developed almost from a corps to an army by reason of the line of communication troops and the corps and army troops which have been added to it ... To-day there are fifty per cent more corps and army troops in the Canadian corps of to-day, although no battles have been fought, than there were in the Canadian corps of 1915 to 1918."

The Canadian Corps has been kept in Britain thus far because the British Government considers it an essential factor in the defence of Britain, which is of paramount importance to the democratic cause. On September 4th, 1941, speaking to the Canadian Prime Minister at the Mansion House, London, Rt. Hon. Winston Churchill, the British Prime Minister, said:

"You have seen your gallant Canadian corps and other troops who are here. We have felt very much for them that they have not yet had a chance of coming to close quarters with the enemy. It is not their fault; it is not our fault, but there they stand, and there they have stood through the whole of the critical

period of the last fifteen months at the very point where they would be the first to be hurled into a counter-stroke against an invader. No greater service can be rendered to this country, no more important military duty can be performed by any troops in all the allies. It seems to me that although they may have felt envious that Australian, New Zealand and South African troops have been in action, the part they have played in bringing about the final result is second to none." -- Based on information revised to December 1, 1941.

No. 74. — Royal Canadian Air Force

"They (Canadian airmen) are the finest material the Dominion breeds. Their record of success has been outstanding, and they have accounted for many of the Germans who have been shot down." -- Sir Philip Joubert, broadcasting in "Britain Speaks" on November 27th, 1940.

A vast majority of the Canadian airmen overseas are attached to Royal Air Force squadrons and they have fought wherever the Royal Air Force fights -- over Britain, Europe, the Mediterranean area, Russia. An R.C.A.F. officer who returned from Britain recently has stated that there is hardly an R.A.F. squadron that does not contain Canadians. In addition, at least seventeen R.C.A.F. squadrons are in action overseas and this number is expected to be 25 before long. At the same time, it is expected, the number of trained Canadian airmen overseas will be equal to a division of infantry. Soon all Canadian squadrons overseas will be serviced by Canadian ground crews, and thousands of Canadian radio technicians are assisting in ground defence work. Air Minister Power has said that eventually the R.C.A.F. may constitute one third or even one half of all Empire airmen.

With enemy submarines operating off the Strait of Belle Isle and convoyed ships plying in and out of Canada's east coast, the R.C.A.F. at home has an important task to perform. Ships must be protected and every foot of Canada's coast must be searched daily, not only close to shore but far out at sea. This task the R.C.A.F. vigilantly performs not only on the Atlantic Coast but on the Pacific and in the North. Sometimes R.C.A.F. planes patrol so far out on the Atlantic that they could land more easily in Ireland than at their home base. Co-operation with the Navy is second nature to the coastal patrol squadrons. A striking example of this was the part which the R.C.A.F. played in the search for the "Bismarck".

During the past summer Canada has enlarged and strengthened her system of defensive and staging airdromes. The Dominion has established air bases in Labrador and elsewhere in the north. These are for the defence, for ferrying and for emergency landings in case fog or weather conditions make any of the usual places unavailable. Several defensive airdromes have also been built in Newfoundland and on Canada's east and west coasts. Canadian squadrons on both coasts have been materially increased in numbers in recent months and they are provided with many types of modern aircraft. -- Based on information revised to December 1, 1941.

No. 75. — British Commonwealth Air Training Plan

The British Commonwealth Air Training Plan has many of the elements of great-

ness. It is rich in facts that capture the imagination: It has about twice as many aircraft as last year and by the end of this year (1941) it will have in operation about 4,000 planes, a number almost equivalent to the total number of men in the R.C.A.F. at the outbreak of war .... The total number of planes which it will ultimately utilize for training purposes is 10,000 .... In the first three years of its operation it will cost more than $800,000,000, of which sum Canada will provide over $500,000,000, considerably more than the Dominion Government collects in taxes in a normal peace-time year.

At some training schools one plane leaves the ground every three minutes ... At some training schools planes fly day and night ... All training schools operate all the year round in a country that is noted for its uncompromising winter ... More than 1,000,000 miles a day are flown on an average ... The first class comprised only a very small number of men; that class has been multiplied one-hundredfold ... The Plan is now turning out pilots, gunners and observers at twice the rate originally planned ... It operates 92 training schools of all kinds, utilizes 18 pre-enlistment trade training centres, has 131 establishments and 1,860 buildings of all kinds.

The Plan trains Canadian, Australian and New Zealand airmen, and there is a sprinkling of students from other parts of the Empire. It is thus essentially a Commonwealth enterprise. Canada, however, has undertaken to supply most of the men. Canadians recruited by the R.C.A.F. constitute 80 per cent of the air crew trained or in training, and about 10 per cent of these are American volunteers.

The Plan is sending men overseas in increasing numbers. The airmen who landed from the convoy which brought the Fifth Division to Britain constituted the largest draft trained under the Air Training Plan yet to arrive in Britain. The party included men from Canada, Australia, New Zealand, R.A.F. airmen and Norwegians trained in Canada. The contingent formed the complete complement of a big peace-time liner. The foregoing is based on information available on December 1, 1941.

No. 76. -- Supplies for the Battlefronts

"Munitions from Canada are now reaching every theatre of war in quantities that are impressive to those receiving them. We have established a reputation for quality and prompt delivery." — Hon. C. D. Howe, Minister of Munitions and Supply.

In 1938 Canada ranked fourth among the exporting nations of the world, being exceeded only by the United States, Britain and Germany. In 1941 Canadian exports will definitely reach the highest point in any year in history, as evidenced by the total for the first eleven months of the year at $1,470,531,000, being approximately 79 per cent higher than in the corresponding period of 1939.

Canada, always a storehouse of raw materials and food, is rapidly becoming an arsenal as well, from which supplies are going to many parts of the world. Some idea of the extent to which Canada is becoming a source of supply for the democratic nations may be gained from the figures in the attached table. They show that Canada's exports to friendly countries have grown since the outbreak of war, and they illustrate the role Canadian equipment and supplies are playing in the East and that there has been a substantial movement of aid to Russia and China.

Destination	Exports in First Eleven Months of 1939	Exports in First Eleven Months of 1941
All Countries	$823,905,000	$1,470,531,000
United Kingdom	298,782,000	609,811,000
United States	326,396,000	537,479,000
Egypt	330,000	66,034,000
British India and Burma	4,750,000	37,542,000
Australia	30,323,000	35,342,000
Newfoundland	7,857,000	27,534,000
Straits Settlements	2,442,000	8,973,000
China	2,502,000	6,233,000
Russia	2,480	2,501,000
Germany	7,868,966	.....
Italy	2,207,563	.....
Japan	26,659,000	1,502,000

No. 77. -- Manufacturing War Equipment

"Canada is an arsenal of war munitions. We are manufacturing practically every weapon used in this war." -- Hon. C. D. Howe, Minister of Munitions and Supply.

Two years ago Canadian industry was organized almost entirely for peace; today under the supervision of the Department of Munitions and Supply, a very large part of it is organized for war. The Dominion almost literally has built a war industry from the ground up. Practically every Canadian factory that can produce for war is now doing so wholly or in part, and this diversion is being continued where possible through the work of the Industry and Sub-contract Branch of the Department of Munitions and Supply. Millions of dollars have been spent by industry on plant expansion and equipment necessary for war production, and the Canadian and British Governments have authorized expenditures of about $580,000,000 for the same purposes. Scores of entirely new factories, some of which are as large as any of their kind in the British Empire, have been erected, and hundreds more have been expanded and re-equipped. The bulk of this latter expenditure has been designed to increase the production of shells, guns and mountings, tanks, aircraft, chemicals and explosives and raw materials.

In the first year of the war the provision of plant structures and machinery constituted a serious problem towards a solution of which all concerned made a concentrated effort. Now that most of these difficulties have been overcome, Canadian industry has struck its stride and its record in war production has been impressive. Canada has now produced almost every type of war equipment which its munitions program calls for, and very substantial quantities of certain items have been turned out. The Dominion's war industry is now reaching the point of capacity production and is beginning to turn out a remarkably varied array of war equipment at high speed. A British management and labour delegation, which recently made a tour of the United States and Canada, made the following statement in an official press release issued at the conclusion of their trip, "While on the North American continent, we have been privileged to inspect over 80 different plants. During our stay in Canada, we have been able to see the production of naval and mercantile ships, aircraft, guns, machine guns, shells, machine tools and other war-time equipment of vital importance, being produced on a scale that not only surprised

and heartened us, but which, we believe, will similarly surprise and hearten the people of the Dominion itself."

Most of the war equipment now being produced in Canada has never before been manufactured in the Dominion. Referring to this development on September 18th, 1941, Finance Minister Ilsley said, "It is not too much to say that what has happened in the past year is nothing short of an industrial revolution. This has been accomplished in spite of all the difficulties in obtaining or preparing plans and specifications or in getting new machine tools, despite the need to learn or develop new skills, despite the scarcity of many materials and the inevitable dislocations of wartime."-- Based on material revised to December 1, 1941.

No. 78. -- Facts About Canada's War Effort

--The amount of money Canadians are spending for war purposes this fiscal year will amount to considerably more than Canada's total war expenditure during more than four years of the last Great War
--It will be equal to about 40% of the estimated national income in the present fiscal year
--It means a daily expenditure for war of nearly $4,000,000.
--The Dominion Government is spending about five times as much in the present fiscal year as it spent in the last full fiscal year before the war
--Five times as many people as before the war are paying five times as much in income taxes of all kinds
--Married persons with incomes from $3,000 to $10,000 a year pay from eleven to four times as much in income taxes as before the war
--Nearly 130,000 workers have been trained in skills useful to the war effort this year
--About 750,000 new wage-earners have been employed since the outbreak of war
--The British Commonwealth Air Training Plan will cost Canada in the first three years of its operation a sum of money about equal to the total collected in taxes by the Dominion Government in a normal peace-time year
--It operates a number of planes almost equal to the number of men enrolled in the Air Force before the war
--Canadian exports are about 80% higher than before the war and imports are up about 100%
--Manufacturing production has increased about 47%
--Thirteen times as many men as before the war are employed in shipbuilding, 34 times as many in aircraft manufacture
--This year alone the total production of explosives in Canada will equal the entire Canadian output during the whole of the first Great War
--Canadian army vehicles have been used in every campaign in which Empire forces have participated.
--Canada is spending more per capita to make food cheap for British consumers than is being spent for this purpose by the British Government
--In recent months the Royal Canadian Navy has been taking on new ships at the rate of two a week
--It has assisted in convoying 7,000 ships across the Atlantic
--Nearly half of Canada's expenditure on her own war programme this fiscal year has been ear-marked for the Army
--Every state in the American "Union" is represented among the volunteers who have come north to join the R.C.A.F.

No. 79. -- Air Photographs

Air photographs taken during peace time by the Royal Canadian Air Force are now proving valuable in the administration and development of Canada's natural resources.

Recently the matter of acquiring certain timber lands for the Indians of the Escasoni Reserve, Cape Breton Island, Nova Scotia, was under consideration and in order to start negotiations a survey of the forest resources of the land was necessary. To wait for the completion of a forest survey on the ground would have meant postponement of action indefinitely, but a forest map was prepared in a few days from air photographs taken in 1939 which gave the essential information needed, namely, the amount of productive forest land, the distribution of the forest types, and broad estimates of existing timber quantities.

Before the advent of air photographs it would have been necessary to equip and send out field parties and to wait patiently for the receipt of reports. From the air photographs the forester now has at his fingertips a small-scale likeness of the distant forest lands. The hills and valleys are visible under the stereoscope and recently developed technique and equipment make it possible to interpret the detail presented by the photographs.

By means of air photographs special forest surveys have been made in many parts of Canada from the Atlantic to the Pacific and northward to the Yellowknife region on Great Slave Lake. In most cases the photographs supply sufficient information for the purposes of immediate decision on the course of action to be pursued. When supplementary ground work is necessary the air photographs enable it to be done at a minimum of time and effort.

No. 80. -- Veteran Fishing Nets

Many an old timer is finding a new job to do in this present conflict. And it is not the old timers of mankind alone that may be of assistance in contributing toward victory. For instance, veteran fishing nets, no longer suitable for use in fishing, but quite acceptable for camouflage are now going on "active service".

Camouflage is of primary importance in war and one of the accepted methods of concealment is the spreading of properly prepared nets over military equipment, blending the machinery into the surrounding countryside and protecting it from the prying eyes of the enemy. So old nets of the fishing industry are "going active".

In the course of a regular weekly report to Ottawa, a Pacific coast inspector of the Dominion Department of Fisheries gives some idea of the amount of old nets available when he comments, "tons of discarded fish nets are waiting to be collected by the Red Cross for camouflage purposes".

Canada's fishermen are playing an increasingly important part in wartime activity. First, of course, the fisheries are a valuable and important source of food supplies with their rich cargoes coming in from the seas, lakes, and rivers. In the various armed forces large numbers of fishermen have taken their places alongside their brothers of other trades. Fishermen are playing their part in the various war industries throughout the country. Scarcely a single fishing community can be found that has not contributed largely of its manpower to the services and other war work. Other fishermen remaining at home are braving sea and weather that food

supplies may be maintained. Here, too, thousands of other nets, still fit for fishing, are serving Canada also, taking catches daily.

Tasty and appealing, nourishing and healthful, yet economical to purchase, Canadian fish foods furnish a wide variety of products for consumption in the homeland; and in various processed forms a food arsenal to assure ample supplies for other parts of the Empire. The fisheries are playing their part!

No. 81 - Farm Woodlot

Through the incessant demand for wood of all kinds in the prosecution of the war, the well-managed farm woodlot, valuable at all times, is an even more important asset in wartime. In many woodlots poor species of trees have been allowed to crowd out the better ones, and in other woodlots all the dead trees have not been removed, and young trees have not always been planted in open spaces. However, in recent years the woodlot as the producer of a valuable crop for the farm has been more appreciated.

In Eastern Canada, nature has provided most of the farms with a woodlot which carries with it all advantages and none to the contrary. The piece of land on the farm which is considered to be wholly unsuitable for growing crops of any kind is often excellently adapted for the growing of trees. Then it provides a continuous supply of fuel, of fence posts, and often of essential timber required at times by every farmer. The woodlot may also provide a shelterbelt in certain areas, or for the whole farmstead, and may protect steep uplands against soil erosion.

In Western Canada, the woodlot is often the shelterbelt and vice versa. It serves a double purpose. Apart from its value as a source of wood products, the shelterbelt, or woodlot, is important as a protective barrier against prevailing winds, and from the aesthetic standpoint it unquestionably has a helpful effect on human character and outlook through its beauty and open-air appeal. In the past 40 years the Dominion Forest Nursery Stations at Indian Head and Sutherland, Sask., have distributed nearly 200,000,000 trees to farmers in the three Prairie Provinces, the exact numbers being 180,000,000 broad leaf trees and 3,600,000 evergreen trees. Shelterbelts have been planted on more than 65,000 Prairie farms.

No. 82. - Ski-ing in Canada

Another winter sports season is under way in Canada, and this year more than ever Canadians appear eager to participate in the wide variety of healthful outdoor recreations which start with the arrival of the winter snows. Under present conditions a high level of national health and morale is essential to the maintenance of the nation's war effort. The Canadian winter, with its invigorating climate and innumerable opportunities for outdoor sports which promote health and rejuvenate both body and mind, therefore assumes a new value.

Ski-ing in Canada is now the ranking individual sport with both sexes, and the use of skis by the armed forces for recreational and training purposes has given new impetus to this popular winter pastime. Ski clubs are found in Canada in almost all large centres wherever the snow falls. Canadian ski clubs are reported to have a membership in excess of 25,000, and the number of skiers not affiliated with any club is estimated to be well in excess of 100,000.

Canada's winter ski season usually extends from December to March, but on the glaciers in the national parks of the Rockies spring and summer ski-ing are available. Winter ski-ing in the mountain parks has become most popular and attracts

increasing numbers from widely scattered points in Canada and the United States.

With European ski grounds closed to Americans on account of the war, large numbers of skiers from the United States have turned to Banff, Jasper, and Mount Revelstoke National Parks. In these parks there are hundreds of square miles of perfect ski-ing terrain among the peaks and valleys where ideal snow conditions, easy accessibility, and excellent facilities for accommodation combine to provide a skier's paradise. Ski clubs are operated in these parks, and under their auspices annual events including downhill, slalom and jumping contests are held.

Curling is also a popular winter sport in Banff and Jasper National Parks, and bonspiels staged in these parks attract top-ranking enthusiasts from all parts of Canada. Annual winter carnivals are feature attractions at both of these parks and, in addition to ski-ing and curling competitions, the sports events include hockey, skating, broom ball, snow-shoeing, and dog-sled races. In Banff, year-round bathing is available in the swimming pool which is fed by hot mineral springs that flow continuously from the rocks on the slopes of Sulphur Mountain.

No. 83. -- Insect Infestation and House Plants

Those who grow plants indoors sooner or later have to contend with insect pests of various sorts. It is easier to prevent an infestation than to cure one, and the old saying "a stitch in time saves nine" can be aptly applied here with definite results.

Among the more common insects which attack house plants are aphids, scales, mealy bugs, thrips and white flies. Some, such as the aphids and mealy bugs, feed on the tender shoots and terminal buds; others, among which are the scales, feed on the leaves and stems; while other kinds destroy the roots and underground parts of the plant. Most of these troubles can be satisfactorily checked and removed if taken in time.

One of the easiest and most efficient insecticides for the purpose is nicotine sulphate (40 per cent). This is a strong tobacco solution and can be purchased from any seedsman. One and one-half to two teaspoons of this mixture added to a gallon of soapy water and sprayed on the foliage thoroughly will give good results. In some cases, where greater resistance is shown by the insect, it may be necessary to follow-up with a second or even third application, after a few days' interval. Dipping the plants in this solution for a couple of minutes will be found beneficial; also drenching the plants well with a strong fine water spray, when this can be conveniently done, will repay any trouble entailed. Finally, constant vigilance and prompt action are absolutely necessary and should be the watchwords of those who would have their plants healthy and kept free from insect pests.

No. 84. -- Canadian Fisheries

Many Canadian fishermen have quit fishing since the autumn of '39 that they might pursue bigger though less decent quarries, the gangsters of Hitlerism, but the Dominion's fishing industry has continued on a big scale. Two or three 1940 figures will emphasize the point. Last year the equipment used by the industry in catching and landing fish included:

Nearly 1,100 vessels, more than 34,000 boats as well as carrying smacks and tugs numbering 600 or so, between 200,000 and 300,000 nets exclusive of trap nets and weirs, almost 1,850,000 lobster traps, and about 6,900 traps of other kinds. All told these vessels, boats and gear were alone worth more than $24,408,000. Other equipment and the plants in use in the industry represented a good many million dollars more. As a matter of fact, the total capital investment in use in the industry in '40 amounted to $49,478,000, roundly stated.

Like all other industries, the fishing industry has become more and more mechanized with the years and by far the greater number of the vessels and most of the boats in use in fishing or carrying fish last year were power-equipped. Nevertheless, the winds served to propel about 120 of the vessels and the winds and human arms about 14,000 of the boats, plus several thousand skiffs and canoes which were in use in the freshwater fisheries. Of the craft with mechanical power only a relatively small number were steam driven. Most of the others were equipped with gasoline engines but more than 500 of them were 'diesels'. Figures showing total fuel consumption are not available but the quantity of gasoline used ran, of course, to a very large quantity and oil and coal consumption was substantial.

In the case of gear the largest single item was made up of traps used in the lobster fishery of the Atlantic provinces--1,849,777 of them. Lobster traps, however, are worth, on the average, only a dollar or a little more each and some of the other pieces of gear or equipment in use in other branches of the industry were worth much more, individually, than the lobstermen's traps. For instance, salmon purse seines used in the British Columbia fishery had an average value of approximately $1,250.

All of the fishing vessels in service were used in the sea fisheries, 13,900 of the sail and row boats, 18,900 of the gas and diesel boats. The freshwater fishermen operated nearly 1,300 gasoline and diesel boats in making their catches and 3,794 skiffs and canoes. These freshwater boats, skiffs and canoes had a total value of about $990,000.

No. 85. — Cranberry Sauce

Self-sufficiency is a term, the full meaning of which we are only now beginning to have any great degree of understanding. With the deadly scourge of war spreading to the four corners of the earth, one by one the markets of the world have been cut off and commerce of necessity diverted through the steadily diminishing channels that remain open to us. As a result, Canada at long last begins to take inventory of her own vast potentialities and settles down in earnest to develop them.

For example, take Cranberry Sauce. Ridiculous, you say! What possible connection can cranberry sauce have with the Dominion's self-sufficiency, with winning the war, our primary consideration at the present time? At first glance your skepticism might seem to be well founded. But, did you know that every year we import cranberries from the United States to the value of half a million dollars? Think of the tanks, and guns and planes that tidy sum could provide were we to get down to business and grow our own "sauce for the goose".

And that's exactly what some far-sighted, enterprising Canadians are doing. Down Quebec way, in a certain section of Nicolet County, a new plantation of cranberries, begun in 1938, is expected to yield its first crop next year. But, this is how the story goes:--

After months of felling trees, uprooting stumps, clearing away brush, transporting hundreds of tons of sand and levelling it over the rich, black soil of the district, there still remained much to be done preparatory to actually planting the berries. A whole system of dykes had to be installed and irrigation ditches dug which are fed through a canal from a nearby lake. This lake, almost completely covered with driftwood from the neighboring forest is about seven feet higher than the plantation, which means that, should the need arise, the entire acreage could be flooded within a space of two hours.

The next step was to plant the cranberries. They are placed in earth about a foot apart. Tiny branches or shoots grow from the stalk and spread in all directions like the runners of strawberries. Eventually the stalk grows upward, reaching a height of from 12 to 15 inches in three years' time. Five acres were planted in 1939, 20 more the next year and 11 in 1941. The plants are imported from the Cape Cod district of the United States Atlantic seaboard--the source to date of all Canadian imports of cultivated cranberries.

An interesting sidelight on the flooding of the plantation is the role the water plays as a defensive weapon. Should an unusually high wind arise, one that would inflict serious damage on the crop or carry away the sand, the dykes are opened and the fields flooded with a protective covering. Then again, suppose a swarm of locusts or grasshoppers comes bearing down on the plantation--once more water saves the day.

The plantation, originally a one-man undertaking, has grown, and furnished employment for a number of small farmers in the district who before that time had frequently been obliged to turn to the Government for aid. An up-to-date warehouse has been erected where they may store all the fruit they can harvest, and obtain advice and instruction in ways of preserving it.

This is an example of the real meaning of self-sufficiency today. Developing, expanding and making the most of what we have right here in our own back yards, opening up new enterprises, and most important of all at the present time, helping to cut imports for domestic consumption to the minimum, an invaluable contribution to our national economy.

No. 86. -- Christmas Day in 1941

Christmas Day dawned bright and clear in these parts. There was beautiful white snow on the ground, and just a very few clouds in the sky.

There was one cloud that had come out of the Far East and cast a shadow over British North America. The news came that the British and Empire troops at Hong Kong had surrendered to the Japanese invaders. It was the most serious setback for the Allies since the disastrous attack these Japanese had made upon the United States base at Pearl Harbour.

The surrender at Hong Kong brought the war in the Pacific very close to Canada, for there were two thousand of our men there--mainly, it is understood, from the Eastern Townships of Quebec, and Winnipeg. There was only a very meagre report regarding the casualties.

But the sky was bright nevertheless. There was the news that Benghasi, in

Libya, had been taken by the British troops, and that in the doing of it they had squelched the greater part of the German armed forces that had been operating there. The Germans were beginning to bow to the ultimate conquerors.

Then the news from the Russian front was so good that we here could scarcely believe it true. The German forces were on the run, moving back along the whole two-thousand mile front.

And then, to cap it all, came over the air the calm, confident voice of His Majesty King George the Sixth. He told us that the British peoples would win this war and that the victory would be gained by the spirit of sacrifice for the common good.

Christmas dinner in the homes of the Canadian folk was a quieter event, we are told, than it was in peace time. The gravity of war made it so. As a people we hate war, but we can fight.

May next Christmas be a much happier occasion.

No. 87. -- Graft and Greed in Italy's Empire

When British troops marched into Addis Ababa and Mussolini's East African Empire crumbled to dust, they found a revealing document. It was a report written in April, 1940, by General Arconovaldo Bonacorsi, Inspector General of Black Shirts, Italian East Africa, on the situation there.

For five years after the Italian conquest of Ethopia, Italians poured money into their East African territories. Boastfully, they declared that by directed industry, unity, national pride and the vigor of a re-born state, Fascism would build in Africa a new Roman Empire. Italian genius for colonization would establish new standards for the world.

Ethiopia would be the wonder colony of the Twentieth Century.

The Bonacorsi report strips the mask. It tells a story of graft and corruption - of troops in rags while contractors made millions. "Let the truth be known", Bonacorsi exclaims, as he makes these direct charges:

"Our troops are in rags, barefooted, torn and naked, in such a lamentable state of absolute inferiority, compared with the Abyssinians that they are called the "Mosquin" (Word used for beggars in both East Africa and Egypt.)

"There are not sufficient reserve stocks in the Army depots, no tents, no uniforms, no boots and nothing else that is required."

"Millions have been spent to build luxurious villas with modern style furniture, Persian carpets, silver cutlery and so forth for the heads of Government Departments and vice-Governors."

Bonacorsi made these remarkable predictions:

"In the Empire rebellion is latent and will have its tragic end when, in case of war, hostilities begin.

"If from any of our frontiers a single British or French unit resolutely marches into our territory with its flag flying, it will not need armed men because the greater part of the Abyssinian people will join them to fight against us and turn us out.

"I do not know if we shall be able, in case of emergency, to face up to what may happen in view of the unprepared and abandoned state of our army."

Whatever his other qualifications, Bonacorsi was a good prophet. Twelve months later, almost to a day, men from South Africa and men from British East Africa marched into the Ethiopian capital.

Bonacorsi relates how, from his own observations, contractors almost to a man only thought of making money without excessive scruples at the expense of the State and the workmen. Workmen were not paid the indemnities, allowances, rates and premiums due to them. Clothing to which they were entitled without payment and food were insufficient. Sleeping quarters were inadequate and unhygienic.

With a few exceptions in the case of farming, land was almost untouched. No Land Office existed to ascertain what land was available for allotment to nationals who applied for it in order to develop it.

Such concessions as were granted had for the most part been given to State concerns, or those controlled or financed by the State, which cost the nation tens of millions of lire without attaining the ends in view. The Italian who applied for a small piece of land had to submit to an endless process of bureaucratic impositions, have the patience of a saint, demonstrate that he had means, losing months and months.

On the other hand, contractors who went to Ethiopia without a penny, having gone bankrupt in Italy, returned to Italy as millionaires several times over.

Bonacorsi cites the case of Marcello Diaz, controlling the Societa Cotoni in the Trans-Juba district "who with the greatest of ease and no risk of danger to himself is putting millions into his pocket at the expense of the Italian community. The cotton is cultivated by natives and the Company pays for seed, labor, harvesting, packing transport, interest on capital etc., from seven to eight lire a kilo. It is sold to the State at 28 lire a kilo while the difference is pocketed by the owners of the company."

"A certain Tacchini," the report instances further, "who lived in Addis Ababa at the time when export of hides from the Empire to Italy was prohibited, in some way unknown, managed to obtain an export licence for several hundred tons. He made a profit of several millions."

No. 88. -- Indian Education

Indian education in Canada is making good progress. Enrolments in Indian schools during the fiscal year ended March 31, 1941, totalled 17,425 pupils. Indian residential schools had 8,774 pupils enrolled, and the Indian day schools were attended by 8,651 students. The percentage of attendance maintained by the Indian children was 82.37, indicating the favourable manner in which the Indians are responding to the efforts being made to advance them to a position of independence and self-support.

An encouraging feature of the work this year was the headway made in the development of an educational program designed to meet the needs of an Indian population scattered over nine provinces, and the Yukon and Northwest Territories. This Indian population includes the highly skilled steel workers of Caughnawaga, Quebec, the fishing and trapping Indians of the northern sections of the Dominion and the Pacific Coast, and the Indians engaged in extensive farming operations in Ontario and the Prairie Provinces.

Gratifying progress is reported by the Indian day and residential schools in British Columbia where, in addition to the regular academic courses, special vocational studies have been successfully organized. These courses, for girls, consist of the treatment and spinning of locally grown wool and the knitting of woollen garments, Cowichan sweaters, and socks, dressmaking, fruit preserving, crochet work, and home management. The courses for boys include boat-building, auto mechanics, Indian arts and crafts, and elementary agriculture. The Koksilah, Inkameep, and Ste. Catherine schools have been particularly successful in the organization of these vocational courses, all of which are based on the needs of the Indians on the adjoining reserves.

No. 89. -- Our Friend the Pheasant

It was in 1882 that the first Chinese pheasants were brought to British Columbia. In that year C. W. R. Thompson of Victoria, received twenty of these birds from England. All died without producing offspring. In 1883 twenty-five pheasants were imported, this time from China, and a number of chicks was reared and liberated near Esquimalt.

Mongolian pheasants were introduced into British Columbia from Shantung Province, China, in 1909 and have since crossed with the China Pheasants which were, by that time, established on Vancouver Island and the lower mainland.

The male of the species, more gorgeously arrayed than an Eastern potentate, is the most beautiful of the wild birds in these parts. He is seen at his best during the mating season, strutting about the fields and woodlots of the countryside and occasionally in the gardens of the suburbs of Victoria, his plumage glistening like myriad jewels in the spring sunshine. In addition to their beauty, pheasants are one of the most valuable of economic birds. It is true that they do some danage to grain, potato and garden crops, but it would appear that their good deeds more than compensate for their evil ones.

Recently, the crops of two birds, bagged near the Experimental Station, Saanichton, late in the afternoon, were examined by C. E. Jeffery, foreman of the Station, and found to contain ninety-three grams of wild buckwheat seeds, an average of 5,812 seeds per crop. There were also a few seeds of pig-weed, cockle and cord spurrey. From these figures the value of the pheasant in reducing weeds in fields and gardens, with the consequent saving of plant food and labour to the husbandman, can readily be appraised. Based on the above figures three of these birds would destroy considerably over a million seeds during the months of October and November.

No. 90. -- Fort Wellington

Fort Wellington National Historic Park at Prescott, Ontario, attracted approximately 10,000 visitors in 1941. Overlooking the majestic St. Lawrence River, the historic park contains well preserved fortifications originally erected during the war of 1812-14 for the defence of communication between Kingston and Montreal, and is named after the Duke of Wellington.

Although never besieged, Fort Wellington figured in two attacks made by its garrison on Ogdensburg, directly across the St. Lawrence River. The second attack, in 1813, resulted in the capture of that town, and the command of the river. During the rebellion of 1837-38, the fort, neglected from 1815, was repaired and the large blockhouse within the earthworks rebuilt in its present form. The fort was also garrisoned during the Fenian raids of 1866, and later in 1870 and 1886.

The fortifications consist of earthworks, pentagonal in shape--surrounded by a palisade and dry ditch--which enclose the blockhouse. The latter is a massive building having stone walls three feet thick pierced with loop-holes. Inside the ramparts also are the original officers' quarters erected in 1812. The second floor of the blockhouse now serves as a museum, which contains a number of interesting exhibits.

Another interesting feature of the fort is the caponniere or listening post, a stone structure which extends outside the ramparts and is reached by a subterranean passage from the interior. The roof is constructed of solid cedar logs, and the walls, two and a half feet thick, are pierced with loop-holes. This caponniere was erected in 1838 by engineers from Kingston and was intended as an additional defence to guard the ramparts in case of attack.

No. 91. -- Hydro-Electric Progress in 1941

Canada's hydro-electric industry maintained an intensive effort throughout 1941 to provide additional supplies of power for the ever increasing demands of war industry.

These demands were met by the bringing into production of new water-power installations, by the construction of new transmission line facilities and the interconnection of existing transmission systems, by the diversion to primary use of large amounts of hydro-electric energy that had formerly been sold as secondary power for steam raising in electric boilers, and by the continuation of daylight saving during the winter months. Apprehension was caused for a time by mid-year water shortages in certain areas but these were relieved by substantial precipitation in the later months.

The increasing demand for power is shown by the monthly figures of output of Canada's central electric stations as compiled by the Dominion Bureau of Statistics. For the ten months ended with October the total output was more than eight per cent in excess of the output for the corresponding period in 1940 and there is every indication that the total output for the year will reach a new record of more than 33 billions of kilowatt hours.

Of greater significance is the increase of twenty-two per cent during the first ten months of the year in the power generated for primary use in Canada. This in-

dicates the great increase in industrial activity due to war production and reflects the very substantial diversion of secondary energy to primary use to which reference has already been made. Compared with 1939 this diversion of secondary energy to primary use is equivalent to about 640,000 continuous horse-power.

New water-power installations during 1941 totalled 254,600 horse-power. This, together with 6,000 horse-power resulting from equivalent replacement not previously reported brings Canada's total hydraulic installation as of January 1, 1942 to 8,845,038 horse-power. There are, as well, other undertakings under way which should add more than 650,000 horse-power to this total during the next year and a half.

Transmission line extensions and interconnections of existing systems carried out during the year were of the utmost importance in facilitating the effective exchange of hydro-electric energy in certain areas, thereby utilizing available power supplies to the greatest advantage for increased war production.

No. 92. -- Mineral Production Sets New Record

Spurred by wartime demands, the value of Canada's mineral production in 1941 reached an all-time high. According to preliminary estimate the output was valued at $553,941,000, an increase of 4.6 per cent over the previous record of $529,825,035 in 1940.

Metals were valued at $393,269,000 in 1941 as against $382,503,012, an increase of 3 per cent. Gold production was slightly higher than in 1940, with the output amounting to 5,322,247 fine ounces worth $204,906,500 as compared with 5,311,145 fine ounces valued at $204,479,083 last year. Silver output at 20,437,196 fine ounces valued at $7,813,000 showed a decrease of 14 per cent.

The combined value of the base metals--nickel, copper, lead, and zinc--was $166,157,000 compared with $155,922,881 in 1940. Base metal production figures cannot be disclosed, but Canada holds an exceptionally strong position as a producer of these metals.

The value of the remaining metals produced in 1941 reached $14,393,000, and included antimony, bismuth, cadmium, chromite, cobalt, manganese, magnesium, molybdenum, tungsten, arsenic, iron ore, mercury, radium, solenium, tellurium, titanium ore, uranium, and precious metals other than gold and silver.

Fuels, including coal, natural gas, and crude petroleum, had a value of $83,363,000 in 1941 compared with $78,837,874 in 1940. Coal production, estimated at 18,136,103 short tons, showed an increase of 3 per cent. The mines of Saskatchewan, Alberta, and British Columbia produced more coal in the preceding year, while those of New Brunswick and Nova Scotia registered a decrease. Natural gas output was less than in 1940, but crude petroleum advanced 17.6 per cent to 10,107,000 barrels, a new peak.

Non-metallic minerals, other than fuels, reached a value of $31,616,000, a gain of 21.5 per cent, and structural materials advanced 8 per cent to $45,693,000.

Although the gold output recorded an all-time high, indications are that with rising costs and the difficulty of getting process supplies the peak of production has been reached for the time being. Canada's base metal mines are in a position to supply the allied countries with large quantities of copper, lead,

zinc, and nickel, and, in addition to the technical services of the Department of Mines and Resources, well-established mining companies have capable staffs who are able to advise and assist on any projects in the industry necessitated by new developments.
